London School of Economics and Political Science

The winding road of wage inequality in the Chilean labour market (1992-2017)

A study of the elusive impact of structural social and economic transformations in a neoliberal economy.

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Declaration of Authorship

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Abstract

In an era of global market transformations and increasing economic complexity, understanding income inequality has become a critical sociological imperative. This research examines the intricate dynamics of wage distribution in the Chilean labour market from the early 1990s to 2017, a period marked by profound socio-economic restructuring following the return to democracy and the consolidation of a neoliberal economic mode, with some later social reforms aiming at reducing insecurity and precarity.

The results reveal a paradoxical pattern: workers at the lower end of the income band have experienced substantial wage improvements, largely due to the expansion of the service sector and the implementation of remedial social protection policies over the past three decades. Simultaneously, those at the top of the income hierarchy continue to increase their economic gains, even as the Gini coefficient shows a decline.

The central research question emerges from this contradiction: If occupations are central in shaping inequality, and human capital continues to be the predominant explanatory factor for wages, why have the transformations experienced over the past three decades not significantly impacted overall levels of income inequality? This puzzle is particularly evident in the reduced gap between low and middle-income earners, with the latter experiencing diminishing returns on their educational investments.

The influence of households demonstrates a wearying prominence of the male breadwinner model, supplanted by dual-earner households, which have successfully reduced intra-group inequality. Conversely, the emergence of single-parent households, particularly those headed by men, has the potential to exacerbate disparities between households, forging a novel paradigm demanding new solutions and preparedness from a public policy perspective.

The nuanced peaks and valleys depicted in this research offer a detailed portrait of income inequality dynamics and dissect the ramifications of expanding opportunities and meritocratic rhetoric within the context of a still-robust neoliberal economy despite the implementation of remedial social policies.

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List of abbreviations

CASEN   Encuesta de Caracterización Socioeconómica Nacional (National Socioeconomic Characterisation Survey)

ECLAC   Economic Commission for Latin America and the Caribbean

ENE   Encuesta Nacional de Empleo (National Employment Survey)

HEI   Higher Education Institution

ILO   International Labour Organisation

INE   Instituto Nacional de Estadística (National Institute of Statistics)

ISCO   International Standard Classification of Occupations

NS-SEC   National Statistics Socio-economic classification

OECD   Organisation for Economic Co-operation and Development

ONS   Office for National Statistics

SBTC   Skill-Biased Technological Change

SII   Servicio de Impuestos Internos – National Tax Service

SOC   Standard Occupational Classification

UK   United Kingdom

UNDP   United Nations Development Programme

US   United States

Chapter 1

Introduction

1.1 Understanding Income Inequality and Labor Market Dynamics in Contemporary Societies: A Case Study from Chile

The latest data on income inequality reveals staggering levels of resource concentration despite significant advances in reducing global poverty (International Monetary Fund, n.d.). Examining these trends globally over the past three decades reveals that inequality has increased, particularly in advanced economies (OECD, 2011a), raising fundamental questions about the costs of economic growth and technological development. Has the liberalisation and deregulation of labour markets increased the concentration of income and wealth? If so, why does the majority of the population accept and legitimate today's stratospheric levels of inequality? The transformation of production modes, labour market composition, and globalisation processes can illuminate the relationship between current development patterns and inequality.

The shift from industrial to post-industrial societies (Bell, 1973) has fundamentally reshaped social structures. Knowledge, scientific advancement and technology have become central to economic development, making skills in these areas highly valued in the labour market and fostering wage polarisation (Autor et al., 1998; Bound & Johnson, 1992). To better understand what drives wage inequality, we must examine three critical factors: the relationship between neoliberalism, development and inequality; how political institutions and power structures influence wage differences; and the extent to which people have equitable access to education and employment opportunities.

In modern societies, where labour power can be exchanged for wages, social position is theoretically less rigid, allowing for movement within the social hierarchy. Sociological perspectives offer two primary frameworks for understanding social organisation: structural accounts, which emphasise how access to resources constrains people's actions and creates class conflicts, and functionalist approaches, which attribute system operations to external forces driving behaviour (Parsons, 1961). The functionalist perspective aligns with economic ideas such as Adam Smith's (Smith, 1991) concept of the invisible hand regulating markets. Consequently, the social order and resource distribution are legitimated through belief in the system's capacity for optimal self-regulation.

In contemporary societies, inequality remains contentious, particularly regarding responsibility. Whilst equality is highly valued morally, neoliberal economies emphasise individual skills and effort as primary determinants of social position. Meritocracy becomes a moral imperative legitimising uneven resource distribution based on individual characteristics and actions. However, analysing

inequality patterns reveals persistent discriminatory dynamics in contemporary societies. The key controversy lies in determining how much responsibility can be assigned to individuals versus structural constraints.

Human capital theory has become the primary explanation for wage determination, suggesting that education and work experience should determine economic returns (Mincer, 1974). However, income distribution continues to reveal discrimination based on race, gender and social class. Therefore, ongoing research into inequality dynamics and their legitimation remains crucial for understanding contemporary societies.

This raises crucial questions: Has the promotion of equal opportunities, educational expansion and technological development actually fostered more unequal societies? Does progress under the current economic model exact a high price from the many whilst disproportionately benefiting the few? These questions have emerged from scholars observing increased income inequality in most developed countries since the 1990s (A. Atkinson, 1999; Piketty, 2014; Stiglitz, 2015). Research led by sociologists, economists and political scientists has focused on explaining current and historical trends. The search for patterns and causal relationships aims to illuminate potential solutions to rising income disparities, given their negative impact on welfare, social cohesion, crime rates and economic outcomes (Kenworthy, 2007; Neckerman & Torche, 2007; OECD, 2011a). Whilst there is consensus that liberal markets contribute to wage polarisation, debate continues regarding why certain jobs receive unprecedented compensation and how closely this correlates with their societal contribution (Myles & Myers, 2007; Weeden, 2003).

Against this backdrop of rising income inequality in developed countries, Latin America, a region historically characterised by high-income inequality, has experienced a downward trend in the gap between top and bottom earners (Gasparini & Lustig, 2011). This reduction, and subsequent stagnation, in income inequality, has been attributed to several factors: the institutionalisation of discriminatory practices stemming from colonial heritage; recent implementation of progressive policies by left-wing governments; and an increased supply of educated workers reducing wage premiums (Blanco & Lillard, 2013; Gasparini & Lustig, 2011; Solimano, 2016; Williamson, 2010). Within this context, Chile presents an intriguing case study, showing a decline in income inequality as measured by the Gini coefficient whilst simultaneously exhibiting trends that have increased economic inequality in other contexts. This thesis examines wage differences within specific groups to better understand wage dynamics at a more disaggregated level, providing an analysis that considers the social factors affecting people's economic conditions.

To understand wage dynamics, this thesis examines three key elements: the significant transformation of the economy, the upskilling of the labour force, and potential labour market polarisation. This analysis assesses how economic resources are distributed among individuals and households and what factors drive this distribution. Whilst Chile's recent reduction in the Gini coefficient appears to indicate improvement for workers, examining only this indicator and the working population as a whole often obscures persistent and reproduced inequalities within specific worker groups. Therefore, studying the multiple dimensions of income distribution from a sociological perspective remains essential, reclaiming space from purely economic analyses to critically assess historical developments and better understand the current situation. The intensification of the service economy, increasing workforce heterogeneity, improvements in working conditions, the evolution of gender roles and relations, and the transformation of household structures all become crucial elements in answering fundamental questions about economic inequality.

The following sections present an overview of the thesis chapters, highlighting key findings and reflections.

1.2 Methods and Data

This chapter presents the methodological framework and data sources employed to analyse wage inequality in Chile's labour market, with particular emphasis on the Encuesta de Caracterización Socioeconómica Nacional (CASEN). As Chile's primary household survey, CASEN provides comprehensive socio-economic data that has been instrumental in understanding the dynamics of income inequality and labour market transformation over the past three decades.

The chapter begins by contextualising the use of national household surveys for measuring income inequality, discussing both their strengths and limitations. National surveys like CASEN enable countries to plan public investment and expenditure based on observed trends whilst providing data for international comparisons. However, these surveys often struggle to capture information from certain population segments, particularly those at the top of the income distribution (Piketty et al., 2018). This limitation has led researchers to increasingly complement survey data with national accounts and tax records, though this harmonisation process presents its own methodological challenges (Lustig, 2018).

The discussion then moves to a detailed examination of the CASEN survey, including its institutional framework, sampling strategies, and methodological evolution from 1992 to 2017. The survey's development reflects both Chile's changing socio-economic landscape and its

increasing alignment with international standards, particularly following its accession to the OECD in 2010 (De Gregorio & Taboada, 2023). The chapter explains critical methodological decisions, such as the focus on formal workers and the exclusion of the 2020 and 2022 waves due to COVID-19 impacts and methodological changes.

Particular attention is paid to the operationalisation of key variables, including wages and occupational categories. The chapter details how the International Standard Classification of Occupations (ISCO-08) is used to understand occupational stratification in Chile's labour market whilst acknowledging its limitations in fully capturing class dynamics. The discussion of inequality measures encompasses both traditional metrics like the Gini coefficient and alternative measures such as the 90/10 ratio, reflecting recent debates in inequality research about the most effective ways to capture income disparities (Atkinson, 2015; Piketty, 2014).

The chapter situates these methodological choices within the broader context of Chile's political economy, characterised by its neoliberal orientation and persistently high levels of income inequality. This context is crucial for understanding both the strengths and limitations of the data, particularly regarding the challenge of capturing informal work and top incomes. The CASEN survey's evolution mirrors Chile's own development, with changes in methodology reflecting both technical improvements and shifting policy priorities (Parro & Reyes, 2017).

Throughout, the chapter demonstrates how the selected methods and data enable a sociological analysis of wage inequality whilst acknowledging the constraints and limitations inherent in this approach. The methodology allows for the examination of key research questions about the drivers of wage inequality in Chile's labour market and their relationship to neoliberal economic policies. The discussion of previous research using CASEN data helps position this study within the broader literature on inequality in Chile and Latin America whilst highlighting the unique contributions of this particular methodological approach.

1.3 Labour force restructuring and illusory decline in wage inequality

This first empirical chapter offers a more in-depth insight into recent research conducted in Latin America addressing wage inequality. Although there are multiple strands of knowledge that have focused attention on this issue, the revision of the literature focuses on material produced in the fields of sociology, political economy and labour economics. The aim is to situate the Chilean case in global debates in post-industrial and knowledge economies, the effects of neoliberal policies on labour markets, and also, at a regional level, on issues related to the power of elites, restricted access to privileged positions and the effects of increasing access to education.

The chapter examines the latest research on income inequality conducted in Latin America, including authors such as Nora Lustig, Leonardo Gasparini and Javier Rodríguez Weber, as well as accounts from international institutions such as the United Nations Development Programme (UNDP), the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and the Organisation for Economic and Co-operation and Development (OCDE). The chapter also includes a revision of international literature on the current debate around wage inequality between and within occupations. The shifts in the significance of occupations as a major source of inequality have significant sociological implications, such as the need for new categories to group workers in a continually moving economy (C. H. Kim & Sakamoto, 2008; Williams, 2013).

The analysis presented in this chapter uncovers the persistence of income inequality in Chile's labour market despite structural shifts and increasing educational attainment since the 1990s. Through a detailed examination of occupational categories, gender, education, and wage distributions, the findings demonstrate that significant disparities remain embedded within the Chilean economy, indicating limited social mobility and entrenched stratification.

The data reveal that Chile's labour market has transitioned toward a highly service-oriented economy. This shift mirrors global patterns seen in developed economies, where technological advancements have reshaped job structures, leading to a predominance of service and knowledge-based roles. However, in contrast to developed nations, Chile's move towards a service economy has not necessarily translated into upscaling the economy into knowledge-based roles but more in the service sector, particularly wholesale and accommodation and social services.

In this context, when examining occupational groups, wage disparities between occupational groups, especially in managerial and professional positions, remain substantial, reinforcing social stratification within the workforce. However, due to the increasing number of higher education graduates, there has also been a reduction in the economic returns on higher education. This trend is consistent with global findings that increased educational attainment can, in some contexts, reduce the wage premium traditionally associated with higher education. Chile has experienced a surge in the number of graduates, and while this expansion theoretically broadens opportunities, it has also created an overcrowded middle-skilled labour market. Consequently, although more individuals are entering professional roles, the wage benefits are not as substantial as they once were. This phenomenon challenges the neoliberal assumption that educational attainment is a reliable pathway to economic advancement, supporting critiques in sociological literature that argue against a simplistic meritocratic view. The case of Chile, as shown in the analysis, provides

evidence that higher education does not uniformly lead to economic mobility; rather, social class, institutionalised practices, and structural inequalities play a significant role in determining wage outcomes.

Gender dynamics are also a critical element in the analysis. The chapter notes a significant rise in female participation in Chile's labour market. However, women remain disproportionately represented in lower-paying, service-oriented roles. This pattern reflects global trends in gender-based occupational segregation, wherein women are often concentrated in lower-status, lower-paid sectors. Chile's labour market, thus, exhibits enduring cultural and institutional biases that hinder gender equity, perpetuating wage disparities even as more women join the workforce. These findings echo sociological arguments on the intersection of gender and labour market stratification, where structural factors, cultural biases, and social expectations shape career trajectories and income levels for women.

The multilevel analysis employed in the chapter effectively disaggregates wage variation attributable to both individual characteristics and occupational group membership, underscoring the weight of structural factors within the Chilean labour market. The analysis shows that within-group wage inequalities remain high, suggesting that differences in pay are not solely due to education and human capital but are also influenced by broader, non-meritocratic factors. This supports theories in the sociological literature that critique labour markets under neoliberal economies, where market-driven policies may exacerbate inequality by allowing certain groups to capture and maintain economic advantages over others.

In conclusion, the findings underscore the need to view income inequality within a broader sociological context, acknowledging the limitations of meritocratic frameworks. While Chile has achieved notable economic growth and a shift towards a service-based economy, the benefits of these changes have been unevenly distributed, with wage inequality remaining a persistent issue. The chapter supports theories of social stratification and resource dependency, illustrating that economic opportunities in Chile are heavily mediated by structural factors, gender, and occupational barriers. Thus, the analysis calls for a re-evaluation of neoliberal policies that rely on educational attainment as a panacea for social inequality, advocating instead for policies that address the deeply embedded structural factors that continue to shape wage outcomes in Chile's labour market.

1.4 How much do household structures contribute to wage inequality?

This chapter explores the impact of structural transformations on Chilean households, focusing on income inequality and changes in family composition. The study examines how the decline of the traditional male breadwinner model and the rise of dual-earning and single-led households have reshaped income distribution (Crompton, 1999; McLanahan & Percheski, 2008).

Since the Chilean society has shown a highly stratified social structure (Torche & Wormald, 2004), this chapter changes the unit of analysis from individuals to a household level. The analysis of social dynamics related to the current income inequality levels complements the previous chapters, which focused on individual characteristics.

A report from the OECD shows a positive correlation between income inequality and poverty in most OECD countries. The report also highlights that wealthy households have done much better than middle-class and low-income families, prompting higher income inequality levels (OECD, 2008). The results indicate that more than half of all poor people belong to households with some earnings derived from work and government subsidies. The chapter aims to complement accounts for higher-income groups studied in the chapter dedicated to professional occupations. This chapter dives into low-income households' main features to analyse relationships between education, income, female lead households, types of jobs, household composition, and income inequality.

The study focuses on the factors associated with household-level income inequality, comparing the trajectory of the trends at this level with those observed at individual levels. By distinguishing between male and female head households, it is possible to test whether female workers' progress in accessing and improving their position in the labour force has intensified the differences between households or promoted a more egalitarian distribution.

To analyse the data, I used reweighting methods and quintile regressions to generate counterfactual scenarios. I analysed how families' socioeconomic features determine their economic status and the relationship to sociodemographic features. The aim is to assess whether these factors have moved in the same direction over time at household and individual levels and if they have not assessed the sociological implications and potential explanations.

Findings reveal that structural changes, such as the increase in dual-income households, have generally led to reduced inequality within these household types. However, the growth of single-led households, which exhibit the highest levels of income inequality, has contributed to overall inequality (Burtless, 1999; Chevan & Stokes, 2000).

The analysis identifies shifts in economic sectors, particularly the expansion of the service sector alongside a decline in agriculture and industry, as influencing household income dynamics. Women have increasingly entered the labour market, predominantly in the service sector, which, while enabling greater economic participation, has not significantly reduced gender disparities in wages or occupational segregation (Arriagada, 2014; Blau & Kahn, 2007, 2017). The study highlights the persistence of the gender pay gap, suggesting that gender segregation within economic sectors remains a significant factor in income inequality.

Counterfactual scenarios suggest that if household structures, gender distribution, and educational attainment had remained constant since 1992, income inequality would be considerably lower. The study concludes that household composition changes and gender distribution within the labour market are pivotal in driving inequality. Addressing these disparities will require policy interventions focused on gender equity in employment and social protections that better support diverse family structures. These findings underscore the need for a restructured social protection system in Chile to accommodate shifting family dynamics and mitigate economic disparities.

1.5 Within-Group Wage Inequality and Emerging Professional Occupation Clusters

This chapter aims to identify the factors explaining wage inequality among workers with similar human capital levels and significant variations in their wages. To examine these variables, I used a latent class analysis (LAC) to group professionals inductively. The purpose of generating this type of grouping is to assess how much micro-occupations – within professional workers – continue contributing to understanding wage inequality by assessing whether these differences stem from contextual features of the market or individual characteristics of workers.

I work with professional occupations since they show the highest variation in wage levels within the group. This dispersion is expected since, over the last decades, there has been an increased heterogeneity among workers with similar but not entirely equivalent human capital. The expanded access to higher education and the proliferation of new higher education providers with minor regulation from the state can be considered a factor of wage dispersion among professionals. The sociological relevance of these differences stems from claims of expanded access to previously prohibited positions in the social structure by obtaining the right credentials. The expansion of higher education has widened the access to credentials that previously were exclusive to elite groups. In this context, "unobservable skills" and personal attributes gain more value in the market because they become a scarce resource, possessed by only a few. Since these skills relate to personal

features, it is not disputable from a meritocratic point of view that people at the top deserve their position because they earn it or have the ability to be there (Young, 1958). The promise of higher education and human capital as the main drivers for social mobility requires further inquiry since exclusive access to education no longer ensures good jobs because of highly segmented education markets. The appearance of a fluid and flexible social structure is deceptive in the context of a highly commodified labour market (Esping-Andersen, 1990).

Recent studies have dealt with the progress paradox in the context of Latin America and East Asia, arguing that the increasing levels of education in middle-income countries have unequalising effects. In simpler terms, the progress paradox states that a more egalitarian distribution of education leads to wider income dispersion due to the convexity of the returns to education (Battistón, García-Domench, & Gasparini, 2014; Bourguignon, Ferreira, & Lustig, 2005).

In line with Mouw and Kalleberg's findings (2010) – where 52% of the increase in wage inequality in the U.S since 1992 was linked to changes in three occupations – I identified the professional occupations with higher levels of inequality within the group and how they have affected the overall distribution of wages. I consider professional occupations to be an appropriate group to study variations of wages within since they present similar human capital levels and significant differences in wages. Amongst the factors to be studied in this chapter are gender, educational institutions, parents' educational level, and economic sector.

Using the CASEN survey data from 1992 to 2017, the study explores wage disparities among professional workers, contextualising these patterns within Chile's neoliberal economic framework. The findings highlight the stratification of professional workers into distinct sub-groups: vulnerable professionals, middle-class professionals, and elite professionals. This classification, derived through LCA, underscores how variations in working conditions, educational background, and socioeconomic capital contribute to wage inequality within professional occupations.

The study reveals that despite similar levels of educational attainment, professional workers experience varying levels of income and job security. Elite professionals tend to have higher wages and greater intra-group wage dispersion, often due to their roles in high-productivity sectors. In contrast, vulnerable professionals, many of whom work in non-market services, face lower wages and less economic stability. Middle-class professionals occupy a more stable but less economically privileged position, with moderate wages and stable employment conditions.

A key finding is that gender, type of higher education institution, and economic sector significantly influence wage outcomes, reflecting broader social dynamics of privilege and exclusion. These

factors, along with structural differences between market and non-market sectors, perpetuate a segmented labour market that restricts upward mobility for some professionals despite their educational qualifications. The study also addresses the "progress paradox," suggesting that increased access to education has not fully bridged income inequality, with elite professionals capturing disproportionate returns on educational investments.

The chapter concludes that professional occupations in Chile are not homogeneous but rather stratified into micro-classes with differing economic outcomes. This stratification signals a reproduction of traditional social hierarchies within the professional sector, calling into question the efficacy of education as a pathway to equality. The findings provide a nuanced understanding of how social exclusion operates within the labour market and suggest that policy interventions targeting professional occupations, particularly vulnerable sectors like teaching, could help mitigate inequalities that persist despite advancements in educational access.

1.6 Overall message

This thesis examines the complex dynamics of income inequality in Chile through multiple analytical lenses, offering a nuanced understanding of how wage disparities persist despite apparent improvements in aggregate inequality measures. By investigating the intersection of labour market structures, occupational stratification, and household dynamics over a 25-year period, this research contributes to broader sociological debates about the relationship between neoliberalism, social mobility, and economic inequality.

The empirical chapters that follow illuminate three distinct yet interconnected dimensions of inequality. First, the analysis of occupational structures reveals the paradoxical effects of educational expansion and labour market transformation, whereby increased access to education has not necessarily translated into reduced wage disparities. Second, the examination of household structures demonstrates how changing family compositions and gender dynamics have reshaped patterns of economic inequality. Finally, the investigation of professional occupations exposes the persistence of social closure mechanisms and stratification within supposedly meritocratic occupational groups.

Throughout this thesis, particular attention is paid to the limitations of human capital theory in explaining wage disparities, highlighting the enduring influence of structural factors, institutional arrangements, and social reproduction mechanisms instead. The Chilean case provides a compelling context for examining how neoliberal policies interact with historical patterns of social

stratification, producing complex and sometimes counterintuitive outcomes in terms of income distribution.

By adopting a sociological perspective, this research moves beyond purely economic accounts of inequality to consider the limitations of education, the power of institutional structures, and the rigidity of social hierarchies shaping the distribution of economic resources. The findings challenge simplistic narratives about meritocracy and social mobility, suggesting that meaningful reduction in inequality requires addressing deeply embedded structural barriers and institutional arrangements that perpetuate economic disparities.

Chapter 2

Data and Methods

The use of national household data and the different approaches to examining inequality

2.1 Introduction

In this chapter, I present the methodological foundation and data sources underpinning this research, focusing on the study of income inequality within the Chilean labour market. The chapter outlines key methodological decisions, including the selection of data sources, operationalisation of variables, and choice of analytical techniques used to measure and interpret wage inequality. This section aims to provide a transparent view of the data collection process, analytical framework, and rationale behind the methodological choices, thereby situating the research within a robust empirical foundation.

The primary data source for this research is the CASEN, a nationally representative household survey widely regarded as a reliable source for socio-economic data in Chile. CASEN was selected for its extensive coverage of the Chilean labour market, detailed income data, and longitudinal continuity, allowing for the analysis of trends in income inequality over a 25-year period (1992-2017). This dataset provides insights into individual and household income, occupational status, educational attainment, and demographic characteristics, making it an ideal resource for examining the dynamics of wage inequality within a changing economic landscape. The chapter discusses the strengths and limitations of using CASEN data, including potential biases related to sampling and the challenge of capturing high-income earners in household surveys.

A key aspect of this chapter is the exploration of different approaches to measuring income inequality, each providing a unique perspective on the distribution of income within the labour market. To capture the multi-dimensionality of inequality, I employ a combination of traditional and alternative inequality metrics. The Gini coefficient, a widely used measure of overall income inequality, is the primary metric, enabling international comparisons and reflecting general trends in income disparity. However, given its limitations in highlighting income disparities at the extremes, complementary measures such as the 90/10 ratio are also introduced. This ratio compares the income of the top 10% of earners to the bottom 10%, offering a sharper view of inequality by focusing on the extremes of the income distribution. These multiple indicators provide a more nuanced understanding of income inequality, addressing criticisms that traditional metrics alone may obscure the dynamics of high-income concentration and disparities among lower earners.

Furthermore, the chapter discusses the methodological choices around operationalising variables such as wages, educational attainment, occupational categories, and household composition. Wages, the primary variable of interest, are adjusted for inflation and standardised to facilitate comparisons over time, allowing for an accurate analysis of wage trends across different

occupational groups. Occupational data are organised according to the International Standard Classification of Occupations (ISCO-08) framework, facilitating international comparability and enabling a structured examination of wage differences across skill levels and job types.

In addition to discussing the data sources and variable definitions, this chapter highlights the methodological rationale for excluding certain data, such as the 2022 CASEN wave, due to contextual and methodological differences introduced by the COVID-19 pandemic. This decision underscores the importance of maintaining consistency across data points to ensure the reliability of longitudinal analysis.

By detailing the methodological choices and measurement strategies employed, this chapter provides a foundation for the subsequent analysis. The comprehensive approach to measuring and examining income inequality reflects the complexity of the labour market and allows for an in-depth exploration of how economic and social factors shape wage distribution in a neoliberal context.

2.2 Challenges of Using National Household Surveys to Measure Income Inequality

This research focuses its analyses on wage distributions in the Chilean labour market. Accordingly, the CASEN survey has been selected as the primary dataset to better understand the trajectory of wages, as well as the distribution and transformation of wage inequality levels in the country. CASEN is a national household survey that periodically collects socio-economic information about households and their inhabitants. The data collected by the survey are used for public policy planning and for reporting Chile's socio-economic situation to international organisations such as the OECD, the UNDP, the World Bank, and the International Labour Organisation (ILO), among others.

National household surveys have been widely used in the literature to measure inequality levels in various regions, such as Europe and the United States (US), where datasets like the Current Population Survey (CPS) (Bacolod & Blum, 2010; Larrimore, 2014; Lemieux, 2003, 2006), the Luxembourg Income Study (LIS) (Boertien & Permanyer, 2019; Fernández-Macías & Arranz-Muñoz, 2019; Kenworthy & Pontusson, 2005), and the European Statistics on Income and Living Conditions (EU-SILC) (Eeckhaut & Stanfors, 2019; Kranzinger, 2020) are frequently employed. Similarly, in Latin America, individual countries have their own national household surveys, including the Encuesta Permanente de Hogares in Argentina, the Pesquisa Nacional por Amostra de Domicílios Contínua in Brazil, the Gran Encuesta Integrada de Hogares in Colombia, and the

Encuesta Nacional de Ingresos y Gastos de los Hogares in Mexico, to name a few. Some of the strengths of this type of data set are its national representation, its methodological robustness, and its use for international comparisons.

These national datasets enable countries to plan future public investment and expenditure based on trends observed over time and forecasts about future needs. However, a key issue with such data is the difficulty of capturing information from certain types of citizens and households due to the sampling techniques used and the availability and willingness of people to respond. When studying wages, incomes, and wealth, these surveys have been criticised for inadequately capturing the incomes and wealth of individuals at the top of the income distribution.

In this context, national accounts have been identified as more reliable sources of information on wages, income, and wealth, as they are based on data recorded by institutions such as national tax services. As highlighted by Piketty and other scholars (2018), there is often a mismatch between national accounts and income data derived from national household surveys, affecting the perception countries have of their levels of income inequality. Nevertheless, the use of national accounts is not without its disadvantages, such as the lack of disaggregated data required for generating behavioural and structural analyses of households, which are typically available in household surveys.

One way to overcome this limitation is to harmonise data from household surveys and national accounts, thereby enabling a more accurate analysis of the socio-economic situation of households at a national level. The harmonisation process involves combining data from different sources, identifying discrepancies between them - primarily between national accounts and household surveys - and addressing these through the imputation of missing data, the adjustment of top incomes, and scaling based on national accounts. National accounts data, collected by institutions such as tax and social security services, thus complement the information from national household surveys.

Canonical examples of harmonising data include the work of Piketty, Sáez, and Zucman (2018), who used tax, survey, and national accounts data to provide a more precise picture of income distribution in the US. Similarly, Lakner and Milanovic (2016) analysed global income distribution by harmonising national accounts and survey data from different countries to generate a comprehensive global account of income inequality. In the context of Latin America, Nora Lustig (2018) developed the Commitment to Equity (CEQ) methodology, which harmonises household survey data with national accounts and tax data. This approach assesses how taxes, subsidies, and social spending affect income inequality, focusing on the role of fiscal policies. This is particularly

relevant in the Latin American context, where there are significant disparities in public transfers and public spending (Lustig, 2018).

Despite the advantages of harmonisation, several challenges remain, particularly concerning data reliability and the difficulty of reconciling macro and micro perspectives, which vary depending on the data source. Ruggles & Ruggles (1986) highlight these challenges, noting that because different information sources serve different purposes, misalignments persist in income concepts and definitions. For instance, tax records typically provide more detailed income information than household surveys, making it challenging to match and reconcile income data across these different sources. This disparity in detail and definition can lead to inconsistencies when attempting to create harmonised datasets.

Another challenge is the accuracy of self-reported data on wages, income, and wealth. People may fail to accurately recall how much they earn from different jobs, or they may provide inaccurate information when answering on behalf of other household members. Furthermore, high-income earners may intentionally underreport their income due to concerns over future taxation or cultural reasons, and this is the case in household national data surveys.

As this research seeks to explore the dynamics of wages and their relationship to the composition of the formal labour force, with a focus on professional occupations and households, the data provided by the CASEN survey offer sufficient detail to conduct the analysis effectively since it offers a comprehensive overview of the labour force, and particularly of employees in formal jobs. The next session delves into the available sources of information in Chile and provides more detailed information about the CASEN.

2.3 The context of data availability in Chile

As previously mentioned, international organisations such as the OECD and the World Bank present much of their statistics on countries based on information provided by national household surveys. In Latin America, ECLAC, particularly through its Statistical Division, utilises surveys such as CASEN to analyse the socio-economic situation of countries and the region as a whole, proposing public policy recommendations based on that information.

Despite the benefits of household surveys for public policy and the comprehensive overview they provide at a national level, reflecting various aspects of a country's socio-economic standing, there are issues inherent to this type of data collection, which generally apply to household surveys and are particularly significant in the Latin American context.

One of the principal challenges with household survey data is the precision of sampling techniques and the presence of measurement errors. Since the aim is to collect nationally representative data more frequently than censuses, several decisions must be made regarding how households are selected to ensure representativeness, both at the national level and within more localised settings. The level of estimated error based on the sample varies from survey to survey, with a major factor influencing these decisions being the level of funding available to conduct the survey. This aspect is especially relevant for data concerning income and wages, as evidence suggests that such surveys tend to underestimate the earnings of households and individuals with the highest wages and incomes (De Gregorio & Taboada, 2023; Rodríguez-Castelán et al., 2022). As previously outlined, one way to address this challenge is to harmonise data from national surveys with national accounts and tax data to obtain a more accurate picture of the overall income distribution. This approach is particularly pertinent when comparing the income distribution of the majority of workers and households with that of the top 1% and the top 0.1% of earners.

A second issue, more relevant in regions like Latin America, is trust in public institutions. When surveys are perceived as serving the interests of the respondents and are utilised by public institutions to plan and implement policies based on the results, public trust in these institutions tends to increase, encouraging greater participation. In Chile, public institutions generally enjoy a positive reputation, as national surveys and censuses have historically been conducted in a systematic and organised manner. A notable expectation of this tradition was the Census conducted in 2012 when the methodology of data collection was changed, and the data was collected again in a brief format since, based on analysis from experts, the data was inaccurate (CIPER, 2013).

2.3.1 *The CASEN survey*

As mentioned earlier, the primary data source for this analysis is CASEN, which has a strong international reputation for providing comprehensive and reliable household data on areas such as income, poverty, employment, education, and health. The survey is administered by the Ministry of Social Development and Family, and its first wave of data was collected in 1987. Since its inception, the Ministries responsible have received support from third parties, who have contributed to its implementation by offering technical assistance in designing the questionnaire, determining the samples, conducting the survey within a specific timeframe, and processing and analysing the data. One such organisation is the UNDP, which not only provided technical and financial support during the early years of the survey but also used the data from CASEN in all its Human Development Reports for Chile. Additionally, the survey is technically supported by the

National Institute of Statistics (INE), which contributes to survey design and data validation, as well as various prestigious academic institutions such as the Universidad de Chile and Pontificia Universidad Católica de Chile. Other institutions, such as Universidad Alberto Hurtado, have also contributed to the analysis of the survey's results for research purposes and public reports.

The decision to use this survey for analysis across the different empirical chapters of this research is based on several factors: the extended timeframe it covers, allowing for the examination of trends from 1992 to 2017; its national representativeness; the detailed information it provides on occupations, wages, education, age, gender, and household situations; its established use in previous research related to the topics covered in this thesis; and its potential for future international comparisons. Moreover, the datasets for each year are publicly available and widely used in both national and international reports.

Other potential sources of information on workers' wages include the Encuesta Nacional de Empleo (ENE), which is conducted quarterly by the National Institute of Statistics (INE). The ENE provides general information about the labour market, including employment, unemployment, types of contracts, hours worked, and wages. However, only aggregated data is publicly available, and most of the information is stored at the individual level, with limited details on household situations[1]. Additionally, the Encuesta de Ocupación y Desocupación (EOD), run by the Universidad de Chile, collects relevant labour market data, but its focus is limited to the Metropolitan Region, offering no coverage of other territories. Finally, the Encuesta Nacional Suplementaria de Ingresos (Supplementary National Income Survey), also conducted annually by the Institute for National Statistics, provides detailed information on wages, occupations, and types of employment. While this was a potential second option for the research, CASEN was ultimately chosen because it offers richer data at the household level and includes more detailed socioeconomic information, which is critical for the analyses presented in the empirical chapters.

Given all the arguments previously presented, I chose to work with the CASEN survey over other potential data sources, given the comparability and continuity it offers with previous research on income inequality, its reliability, and availability.

Another relevant methodological decision was to examine the period between 1992 and 2017 (25 years) and exclude the latest wave of the survey run in 2022. One of the main reasons was the

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[1] There is the option to ask for the data, which can be granted based on the purposes of the research. The reason not to apply for access to this data was based on the decision to use information from the CASEN as the main reference point since it's the main source of data for international comparisons and provides comprehensive household and individual-level data with consistent methodological rigour.

timeframe of this research. Starting in 2018, the latest wave of the survey was close enough to provide an account of the current situation of the labour market at the time and also account for the main trends observed over the last decade of the 20th Century and the first two of the 21st Century. The release of the data collected in 2022 was in early 2023, when I had already conducted most of the analysis and done the data cleaning and translations of the datasets, which did not give me much time to include the latest wave in this thesis.

Another reason for excluding the 2022 wave was the different context in which it was collected and the impact of the COVID-19 pandemic on the survey results, both of which fell outside the scope of this research. Moreover, changes were made to the sampling strategy, updating the methodology used until 2017; this update was based on the results of the 2017 short-form Census, which would have required additional considerations had the data been included in the analysis.

In addition to the 2022 wave, there was another wave in 2020, renamed "CASEN 2020 en pandemia" (CASEN 2020 during the pandemic), which was conducted via telephone using Computer Assisted Telephone Interviews (CATI) methodology. It is worth mentioning that this wave is not included in the official list of CASEN surveys, given the significant methodological differences from all the previous waves. Whilst this survey provides valuable insight into the situation during the health crisis, several factors led to its exclusion from this analysis: the strategy used to collect the data, the reduced questionnaire length, and the introduction of new questions to assess the situation centred around the effects of the pandemic. These modifications make it difficult to distinguish whether any observed continuity or discontinuity in trends could be attributed to genuine socio-economic changes or to the substantial methodological differences, and whether these changes are transitional as a reaction to the socio-economic shakes created by the pandemic or more permanent.

According to De Gregorio and Toboada (2023), the data collected in the latest wave of CASEN 2020 was impacted by COVID-19, and therefore, the changes in the modes of application and newly introduced faces to its application make comparisons over time less reliable than previous waves.

Another reason not to include the 2022 wave was the larger gap between waves, five years instead of three or two, which also leaves more room for uncertainty on the factors that could be explaining the changes in the trajectories, leaving a bigger hole in terms of data between waves.

As a whole, since the purpose of this research was to examine trends, the time covered in most of the analyses is comparable for most of the years. Although the main disadvantage of this approach is to miss the opportunity to give continuity to the analysis and extend the trends for another five

years, the challenges and transformations posed by the global pandemic and its economic effects at a global and local scale, require further examination of the latest trends alone. Given the purpose of this research, the decision not to include the latest wave of CASEN was made to produce a comprehensive analysis of the situation in Chile up to 2017. The challenge posed by not including this data can be tackled in future research, which can include the latest wave of the survey and generate a comprehensive analysis of the impact and transformation generated in the labour market and the economy due to the pandemic.

In addition to the exclusion of the 2022 wave, it is worth mentioning that another important change in the format of the survey was introduced in 2011. During this wave, the method of establishing the poverty line changed from that of previous versions. Consequently, the statistics generated on poverty measures need to be readjusted when comparing the statistics to previous years. Similarly, the questionnaire included more detailed questions to capture the different sources of income and collect more data, particularly around sources of income from informal work, self-employment, pensions and transfers from public services. The drivers for these changes were to align the collection of national data with international standards, particularly regarding poverty, income, and the impact of social services. In 2010, Chile joined the list of OECD members, and part of the commitments made to be accepted was to follow international guidance on these issues, hence the introduction of these changes (De Gregorio & Taboada, 2023).

The effects of the changes introduced in 2011 are relevant for this research as they provide more detailed information on the different sources of income individuals and households report. However, in terms of the conducted analysis, there are no changes to the collection of data about wages from the main occupation, which is one of the main studied variables. The main effects of the changes could affect the measurement of household income; nevertheless, for the analysis of households, the main variable used is total household income from work for those households where either the head or the partner of the head of households declared to be employed. Hence, it is expected that the changes in these variables due to the modifications to the survey should not have a significant effect on the specific variables used in the analyses.

2.3.2 *Technical aspects of the survey and analysis*

The CASEN is a panel survey that has been conducted biannually or triennially since 1987 in the following years: 1987, 1990, 1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009, 2011, 2013, 2015, 2017, and 2022. The data that is publicly available starts in 1990 when the Ministry for Social Development and Family took over the responsibility of running the survey.

The survey aims to create regular reports on the status of households and the population, with a specific focus on individuals experiencing poverty and targeted groups for social policies. It covers topics such as demographics, education, health, housing, employment, and income. The survey enables the government and other national and international organisations to gauge the extent of poverty and income distribution, assess the population's needs in these areas, and evaluate disparities among various social groups and regions. In more recent years, it is also possible to analyse the impact of different protective social policies at individual and household levels, providing a general assessment of the distribution of public expenditure and the reach of social programmes.

Although the survey has experienced changes over the years in the questions included in the questionnaires, as well as the options provided in some of the same questions, it is possible to track most of the dimensions and questions over the years, and the changes introduced give us a sense of the transformation experienced by the Chilean society, which demanded the need for an update in the way a certain type of data is collected. The main modules asked in the survey are:

- Household identifiers and characterisation
- Residents' information
- Education
- Work
- Income
- Health
- Identities, networks and participation[2]
- Housing and surroundings/environment

In the items which are relevant to this research, it is worth noting that since some of the questions added to more recent versions of the survey include questions about parents' education, more options in civil status, more detailed information about education and the different levels of attainment, as well as the type of institution, which is relevant in all primary, secondary and tertiary levels. In 2017, the survey included a section of questions to gather data on people's social networks to capture more information about their social capital.

There is, however, a lack of consistency across years in the collection of data within the Work module, particularly regarding key items such as union membership, workplace training, and employment classification. The latter has seen an expansion of categories over time, alongside changes in the measurement of working hours. These modifications reflect both shifting

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[2] This module was introduced in 2017, and some of the data previously collected included in this model was labelled as "Residents characteristics".

governmental priorities and broader cultural changes that have been incorporated into the survey's design.

To provide a consistent analysis, I have used most of the variables which have been continually collected to show trends over time, and in the cases where possible, I have added new variables and categories to more recent trends, particularly for the case of professional occupations.

2.3.3 *Sampling strategies*

The CASEN survey employs probabilistic, stratified and bi-stage sampling to ensure national representativeness at both household and individual levels. Representativeness is assessed by limiting estimated absolute errors on income-based poverty rates to a maximum of 4% nationally and 6.5% regionally. Each survey wave enables data analysis using regional and communal weights (equivalent to UK boroughs), allowing for sample analysis that closely approximates national population measurements.

The following sections detail the specific sampling strategies employed for each empirical chapter, providing justification for the selected population groups[3].

Chapter 3: Labour Market Transformation

This chapter examines formal sector employees aged 18 to 65 who hold contracts and work full-time. For education-specific analyses, the age range narrows to 24-65 years to account for typical tertiary education completion. The sample excludes workers reporting main occupation earnings below the statutory minimum wage, establishing a threshold aligned with institutional regulations.

The focus on income from the main occupation enables tracking of wage trajectories and estimation of wage gaps over time. As the research aims to assess human capital's impact on wages, analysis centres on the 'ideal worker' operating within market regulations, specifically, individuals with formal contracts, full-time employment, and legal working age status.

Whilst excluding informal sector workers presents challenges, particularly in providing a partial view of the labour market (addressed in detail in Chapter 3), this choice aligns with the research objective of examining wage trajectories within formal market structures. Informal workers represent a distinct case, with less reliable income data and unclear distinctions between work-

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[3] Most analyses of wages and incomes across occupational groups exclude the armed forces due to their distinctive nature. This group includes a range of roles, with wages and pay structures determined by public budgets and governmental priorities, rather than by market forces as with other occupations.

related wages and other income sources. The primary dependent variable is the monthly wage from the main occupation.

Chapter 4: Household Analysis

This chapter examines households where the head or partner is employed, enabling analysis of income trajectories based on household structure. The sample includes households with heads aged 24-65 years, accounting for higher education completion whilst allowing assessment of education's impact. Although this potentially excludes more vulnerable, lower-earning households, it aligns with relevant previous research where higher education is a key variable.

The analysis excludes the bottom 1% and top 0.1% of cases. Unlike Chapter 3, this chapter examines work income regardless of employment status (part-time or full-time). Some reported salaries were notably low, potentially reflecting measurement errors or temporary employment. The top 0.1% of cases can distort statistical analysis of income distribution and central tendency measures.

Whilst income inequality analysis traditionally examines all available data, practical statistical considerations necessitate outlier treatment. These outliers, more pronounced at the distribution's upper end, often require data transformations such as logarithmic wage conversion. These statistical constraints present methodological challenges requiring complementary qualitative research and descriptive analysis.

This raises an important methodological question: to what extent must data be 'adjusted' for meaningful statistical analysis? For example, in 2017, five individuals reported monthly wages exceeding 20,000,000 Chilean pesos (two declaring 40,000,000), whilst three reported just 2,000 Chilean pesos (one case reflecting 20 hours' work). In such skewed distributions, reliable statistical analysis and population characterisation often require extreme case removal.

Chapter 5: Professional Occupations

This chapter focuses exclusively on professional workers aged 18-65, examining the occupational group exhibiting the highest wage variation despite limited educational attainment variation. The analysis includes only workers with documented three-digit classification level occupations working a minimum of 30 monthly hours.

The deliberate exclusion of managerial occupations reflects their considerable heterogeneity in educational requirements and work nature. Conversely, professional occupations present greater educational homogeneity whilst showing notable income variation. Recent increased higher education access has introduced greater socio-economic diversity within this group, resulting in

significant wage variations and making it particularly suitable for detailed wage inequality examination.

2.3.4 *Occupational categories: The ISCO-08 classification*

It is worth noting that CASEN uses the ISCO-08 classification for occupations from the ILO, where jobs are categorised into occupations based on skill levels and specialisation. This classification structures occupations into a four-tier hierarchical structure, the first one grouping ten major groups and the latter offering 436 unique categories, also known as unit groups. The different levels are organised by codes, where the first one is a single number, and the fourth level is a four-digit code, which offers the most detailed specification of the jobs. Each category has a definition that includes its main tasks and duties. This classification aims to offer categories of types of work and workers, allowing for national and international comparisons.

Occupations are defined by the ISCO-08 classification as "the kind of work performed in a job. (…) a set of jobs whose main tasks and duties are characterised by a high degree of similarity." (ILO, 2012, p. 12). As such, we expect to see homogeneity within the groups and heterogeneity between them in terms of skill levels and specialisation.

In this research, I work mostly with major groups to analyse the changes in occupational groups over time from different perspectives, and in the chapter focused on professional occupations, I centre the analysis on minor groups (three-digit classification) since it is a deeper analysis of a specific major occupational group, whilst providing a sufficient number of workers on each group. This limitation does not apply to the unit groups (four-digit classification), as the sample sizes within specific worker groups were insufficient to conduct reliable statistical analyses. The table below shows the number of categories for each group:

Name of the group	N of digits	Number of categories
Major Groups	1 digit	10
Sub-Major Groups	2 digits	43
Minor Groups	3 digits	130
Unit Groups	4 digits	436

As most of the analysis is conducted on the major groups and the following table presents a summary of the levels of skills required in each major group, according to the ILO[4]:

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[4] A more detailed description of each major group is provided in the Appendices section.

ISCO-08 major groups and skill level

ISCO-08 Major groups	Skill level	Skill level and education
Managers		Second stage of tertiary education (leading to an advanced research qualification)
	3 + 4	First stage of tertiary education, 1st degree (medium duration)
		First stage of tertiary education (short or medium duration)
Professionals		Second stage of tertiary education (leading to an advanced research qualification)
	4	First stage of tertiary education, 1st degree (medium duration)
Technicians and Associate Professionals	3	First stage of tertiary education (short or medium duration)
Clerical Support Workers		Post-secondary, non-tertiary education
Service and Sales Workers		Upper secondary level of education
Skilled Agriculture, Forestry and Fishery Workers	2	Lower secondary level of education
Craft and Related Trades Workers		
Plan and Machine Operators, and Assemblers		
Elementary Occupations	1	Primary level of education
Armed Forces Occupations	1+2+4	

Whilst the ISCO-08 maintains widespread use in cross-national research, two other significant classification systems merit detailed examination: Goldthorpe's Schema and the Standard Occupational Classification (SOC).

The Goldthorpe Schema, operationalised in British national statistics as the National Statistics Socio-Economic Classification (NS-SEC), represents a theoretical approach to occupational classification. This framework, developed by John Goldthorpe and his colleagues at Oxford University, distinguishes itself through its explicit focus on employment relations and working conditions (Goldthorpe & McKnight, 2006). The schema's theoretical underpinning stems from its attempt to capture the multidimensional nature of socioeconomic conditions, providing a more nuanced portrait of social stratification, where these occupational categories can also inform us about worker's social class. Its primary innovation lies in its detailed examination of workplace hierarchies, offering more detailed information about power dynamics within labour markets and their effect on broader social spheres.

The NS-SEC categorises occupations into several main classes:

- Higher managerial and professional occupations
- Lower managerial and professional occupations
- Intermediate occupations
- Small employers and own-account workers
- Lower supervisory and technical occupations
- Semi-routine occupations
- Routine occupations

Despite the NS-SEC's prominence in British social class analysis, scholars have identified significant limitations in its approach, particularly regarding its scope in capturing the multifaceted nature of social class in contemporary times. Most notably, Savage et al. (2013) developed the Great British Class Survey, which offered a more nuanced understanding of class formation by incorporating Bourdieusian concepts of capital. Their study expanded traditional occupational classifications by examining how different forms of capital interact in contemporary British society.

The survey presented an innovative methodology which included measures to capture respondents' economic capital (wealth and income), cultural capital (tastes, interests, and activities), and social capital (networks and connections, with a particular focus on occupational groups). This comprehensive approach allowed the researchers to develop a new classification system, identifying seven distinct social classes:

- Elite
- Established middle class
- Technical middle class
- New affluent workers
- Traditional working class
- Emerging service workers
- Precariat

Savage's (2015) research demonstrated how conventional occupational classifications often fail to capture vital dimensions of contemporary class formation in Britain, particularly the crucial roles of cultural capital and social networks in reproducing class distinctions. His work revealed that traditional classification systems inadequately reflect how cultural preferences, social connections, and lifestyle choices interact with economic position to shape class identities and trajectories. Whilst this theoretical contribution significantly advanced our understanding of modern social stratification, the UK's official statistics continue to rely on the NS-SEC as their primary occupational classification system and proxy for social class categories. This persistence of the NS-SEC, despite its limitations, reflects the practical challenges of incorporating more nuanced sociological insights into standardised classification systems.

A second alternative classification is the US SOC system, which organises workers into 23 major groups, which are further subdivided into 98 minor groups, 459 broad occupations, and 867 detailed occupations. This hierarchical structure allows for varying levels of analytical granularity (U.S. Bureau of Labor Statistics, n.d.). The SOC's emphasis on task content rather than educational attainment offers certain advantages in capturing labour market dynamics, particularly in sectors where formal education may not directly correspond to job complexity or compensation (Autor & Handel, 2013). This approach proves especially relevant in the American context, where career

paths often display greater flexibility and where educational requirements for specific occupations may vary significantly across regions or organisations. The main difference with the ISCO-08 is the focus on education and skills and the level of detail, which is tailored to the US labour market and relevant for employment projections and job training programmes. Therefore, its use is restricted mostly to the U.S. context.

It is worth mentioning that conversion matrices provide methodological bridges for cross-national occupational to facilitate international comparisons. However, the theoretical and methodological differences should be acknowledged.

The ISCO-08, whilst providing a comprehensive occupational taxonomy, presents certain limitations in directly capturing social class distinctions and mobility. This limitation becomes particularly evident when examining occupational groups sharing skill level two, where differentiation primarily stems from work specialisation rather than qualification levels or broader class indicators. Whilst distinct class differentials are observable between Managers, Professionals, Technicians, and Elementary occupations, the boundaries become less distinct among middle-tier groups such as Clerical Support Workers, Service Workers, and Skilled Agricultural Workers. These groups often exhibit overlapping characteristics in terms of earnings, working conditions, and other traditional class markers (Crompton, 2010; Wright, 1984). This can also be seen in the results presented in the upcoming empirical chapters.

Nevertheless, ISCO-08's major groups still serve as valuable proxies for social class analysis, particularly in examining socioeconomic positions through multiple dimensions. These include wage differentials, educational attainment, authority relations (notably in managerial positions), and skill levels. These categories effectively reflect variations in economic capital derived from occupational roles and human capital accumulation through formal education and skill development.

However, the classification system shows limitations in capturing what Bourdieu terms cultural and social capital (Bourdieu, 1986). These forms of capital, crucial to understanding class reproduction and social mobility, often transcend occupational boundaries and may operate independently of skill levels or specialisation. For instance, cultural capital's embodied state - manifesting through dispositions, tastes, and cultural competencies - and social capital's network resources are not directly reflected in ISCO-08's structural framework.

Despite these limitations, ISCO-08 remains a valuable tool for examining occupational stratification while recognising the need for more nuanced analyses of class dynamics beyond skill levels and specialisation alone. Although it does not present a complete picture of the social

structure, it highlights various components of the labour market and its evolution, reflecting aspects of the economy and productive structure that directly impact individuals' living conditions and livelihoods. In this way, occupational categories can serve as proxies for social class.

Another important methodological choice was to focus the analysis of wages in the chapter on the Chilean labour market solely on formal workers. This decision reflects the aim to understand the specific dynamics of workers who are employed full-time, under contract, and as employees, in contrast to broader analyses that typically consider the entire labour force. Formal workers represent the core of the employment structure and are the group most fitting to the application of human capital theory. According to CASEN data, employees consistently make up between 70% and 75% of active workers, while independent workers account for about 25% of the workforce (Ministerio de Desarrollo Social y Familia, n.d.).

From a sociological perspective, formal workers are a crucial group to analyse in the study of income inequality. The main argument is that the labour market is structured by social forces beyond just supply and demand, such as institutional regulations, social networks, and power dynamics (Granovetter, 1985; Tilly, 1998). Formal employment, in particular, is embedded within a framework of labour laws, collective bargaining, and organisational hierarchies that shape wage-setting processes and income outcomes. By focusing on formal workers, this research can shed light on how these structural factors influence wage trajectories and occupational mobility – key drivers of income inequality – for this specific group of workers.

At the same time, this research recognises that informal work constitutes a significant and influential segment of the workforce. According to a recent OECD report (2024), approximately two-thirds of the population in Latin America reside in households that are either entirely informal or contain a mix of formal and informal employment. In Chile, the data indicates that 20.2% of the population lives in fully informal households, while 20.6% reside in mixed households. These findings position Chile at the lower end of informal work prevalence within the region, suggesting a comparatively lower degree of labour informality than in neighbouring countries.

Alongside these figures, formal work has also experienced changes due to labour market flexibilisation and the decline of standard employment relationships. When studying social class structures and workers, Portes & Hoffman (2003) propose that the shift in the economic model of development during the 1990s led to a rise in income inequality, a persistent concentration of wealth within the top decile of the population, a rapid expansion of the micro-entrepreneurial class, and stagnation or even growth in the informal proletariat. The authors emphasise the deterioration of real wages, affecting not only informal workers, as seen in the 1980s, but also a

segment of formal workers, contributing to an increasingly polarised income distribution. This outcome is attributed to the flexibilisation of labour, the reduction of the state, and the implementation of market-driven policies. (Portes & Hoffman, 2003) Analysing informal workers would provide important insights into the diversification of work arrangements and their implications for income inequality. However, the challenges of data analysis for this population were beyond the scope of the current project. Since the focus is on the trajectory of wages and occupational structure, formal workers represented an appropriate group to analyse, given their similarities and the expectation that they will perform as economists predict when situated within the broader socioeconomic context.

2.3.5 *Variables operationalisation*

Apart from the use of occupational categories, the analysis in the following chapters includes variables on wages, education, economic sector and household structures. This section presents a detailed description of these variables and how they have been operationalised in the different analyses.

Regarding wages, the CASEN survey, as previously presented, since 2011 follows international standards of income measurements. Some of the variables available in the data set include:

Name of the variable	Description
Wage from the main occupation	Wage from main occupation pre-taxes. It includes bonuses and commission payments.
Household wage from main occupation	Sum of wages of all household members from their main occupations, pre-taxes.
Income from work	Total sum of wages from work including main occupation and any other economic activity, pre-taxes.
Household income from work	Sum of total wages earned by all household members, including main occupation and any other economic activity, pre-taxes.
Autonomous income	Total income from work and capital gains, excluding any public or private transfers, such as subsidies or transfers from third-parties or institutions.
Household autonomous income	Sum of total income earned by all household members, excluding private and public transfers.
Monetary income	Sum of total monetary income a person receives, including all sources of income. It does not include income in kind.
Household monetary income	Sum of total monetary income received by all household members, excluding income in kind.
Total income	Sum of all income including income from work, public and private transfers, capital rent and income in kind.
Household total income	Sum of income perceived by all household members, including income from work, public and private transfers, capital rent and income in kind.

Although not all income categories are available across all waves of the survey, three key measures – wage from main occupation, income from work, and household income from work – remain

consistently retrievable throughout the period. The focus on wages from the main occupation in this research aims to provide insights into the relationship between occupations and wages, and by analysing its evolution, it shows how these factors structure the labour market and influence wage inequality. The interest stems from the perennial question about the value of work and the multiple factors that affect its distribution.

It is worth mentioning that the survey's evolution from 1992 to 2017 is marked by a substantial expansion in income categories available for analysis, growing from 25 variables to 344. This significant increase reflects both the survey's methodological development and enhanced governmental requirements for detailed income data, particularly regarding private and public transfers and the evaluation of public spending effectiveness. The latest waves offer exceptional detail on wage composition, pensions, and capital gains. Nevertheless, this research focuses on wages from the main occupation to examine the relationship between human capital theory and labour market outcomes, investigating the correlation between educational attainment, working experience, and monetary remuneration. The value of the other variables is certainly relevant for research focused on the multiple components of income these days.

The decision to centre the analysis on wages is based on the limitations of the CASEN survey in its ability to fully capture other forms of income, particularly for individuals at the upper end of the income distribution. This focus is especially pertinent given that, in 2022, income from work constituted approximately 82% of the total average monetary income according to CASEN data for that year. This heavy reliance on work-based income underscores the survey's constraint in reflecting wealth and capital gains, which are more common income sources among the highest earners (Ministerio de Desarrollo Social y Familia, n.d.).

As for the use of wages, all the values presented in the empirical chapters are in Chilean pesos, and they have been modified based on inflation in two ways. The first one is the conversion of nominal wages to their real value in 2017 using data provided by the World Bank on yearly Consumer Index Price (CPI). This allows us to compare the values over the years with a specific point in time used as a reference. The formula for this transformation uses the CPI for year X, divided by the CPI for the year 2017, which is the reference year, to then multiply it by the wage reported for year X. This method was used when comparing wages from different years to present them from the perspective of the most recent year included in the analysis.

The second method adjusts wages according to each year's inflation rate to reflect their real purchasing power at that specific point in time. This was applied to cases where the value of the wages was only compared against other values from the same year.

The analysis employs multiple measures to examine wage inequality, including inflation-adjusted wages, the Gini coefficient, and various income ratios. The Gini coefficient, which remains the primary metric for inequality analysis, measures income distribution through the Lorenz curve, a graphical representation plotting cumulative income share against cumulative population share arranged by ascending income. A perfectly equal distribution would appear as a 45-degree line, while actual distributions typically curve below this line (A. B. Atkinson, 2015).

The coefficient ranges from 0 (perfect equality, where all individuals have identical income) to 1 (perfect inequality, where one individual possesses all income). Its widespread adoption by international organisations, including the United Nations (UN), World Bank, OECD, and ILO, reflects its utility for both cross-national comparisons and longitudinal analyses of inequality trends (Cowell, 2007). These institutional analyses typically examine annual household disposable income, encompassing employment earnings, self-employment income, capital returns, and public transfers, considering both pre-tax and post-tax distributions to evaluate redistributive policy effectiveness.

However, recent scholarship has highlighted significant limitations of the Gini coefficient. Notably, Piketty (2014) and Atkinson (2015) argue that it inadequately captures changes within the highest income brackets, where wealth concentration is most pronounced. The coefficient's insensitivity to shifts at the distribution's extremes makes it particularly ineffective at representing the growing disparity between the wealthiest individuals and middle- to lower-income groups.

To address these limitations, economists have developed complementary measures. The 90/10 ratio, comparing incomes of the top 10% to the bottom 10%, offers a clearer picture of income disparities between social strata (Acemoglu & Autor, 2012). Cowell and Flachaire (2017) demonstrate that such ratios often reveal more pronounced inequality patterns than the Gini coefficient alone. Jenkins and Van Kerm (2011) advocate for a "dashboard" approach, employing multiple inequality indicators to capture income distribution's multifaceted nature and inform targeted policy interventions.

This research, therefore, employs both the Gini coefficient and income ratios to provide a comprehensive analysis of wage inequality. The Gini coefficient facilitates international comparisons and examines overall distribution patterns, while income ratios offer deeper insight into specific disparities between earning groups. This combined approach allows for a nuanced examination of wage distribution across the Chilean labour market.

All statistical analyses were conducted using STATA (version 16), handling data management, regression analysis, and statistical outputs. Detailed analytical procedures are provided in the

Appendices. Excel was employed to format graphs and tables, ensuring the consistent and clear visual presentation of findings throughout the thesis.

2.4 The importance of CASEN in the study of income inequality

Several researchers interested in the levels of economic inequality in Chile have used the CASEN survey as the primary data source, as well as to examine the dynamics of social mobility and poverty. One of the most renowned researchers in this area in Chile is the economist Dante Contreras, who has used data from the CASEN for several papers analysing the dynamics of income inequality in Chile (Contreras, 1999, 2007; Contreras & Gallegos, 2011). Most of the analyses used the national dataset to examine the trajectory of income, with a focus on poverty, income inequality, and social mobility. In his paper "Income distribution in Chile. Nine facts and some myths", he finds that analysing the levels of income inequality using the CASEN survey shows similar results to those obtained using the ENE, showcasing that there is consistency in the data obtained by this national survey. The results at the end of the 20th Century showed that the high levels of income inequality, measured by comparing deciles and using the Gini coefficient, were closely associated with educational levels and the rising income at the top due to an increased demand for skilled workers.

In addition to these studies, the work done by Solimano and Torche (2008), which analysed income distribution in Chile from 1987 to 2006, also uses CASEN as the primary source for their analysis at the household and individual levels. The results show a high concentration of wages at the top of the distribution, and towards the end of the period analysed, the main findings are the beginning of a decline in income distribution compared to the results from the 1900s, based on the Gini coefficient. The results delve into the importance of education and economic sectors, as well as the unequal regional distribution of income.

A more recent study analysing the trends of income inequality in Chile conducted by Parro and Reyes (2017) also uses the CASEN survey, particularly hourly wages, arguing that most of the inequality in wages stems from the endowment of skills and the market prices of those skills. Their results show that education was the key factor driving income inequality to higher levels in the 1990s, as well as its shrinkage over the following two decades. Interestingly, when decomposing income by source, they found that more than 80% of inequality between 1900 and 2011 can be attributable to income from labour, strengthening the case to look at wages for the analysis of economic inequality.

Other researchers have also used the CASEN survey to characterise the labour market, such as Castex and Sepúlveda, who analysed the different waves of the survey from 1990 until 2011 (2014). The focus of the analysis is on people's decisions to enter the labour force, concluding that the boost experienced in the labour market was largely driven by the increase in female labour force participation, in line with an overall increase in wages and a reduction in the gender pay gap.

The survey has also been used as a reference point for studies on the perception of inequality, largely led by Juan Carlos Castillo, who examines people's perceptions and legitimisation of economic inequality, using data from the CASEN survey to present the distribution of income examined in contrast to people's perceptions and opinions. (Castillo, 2012; Castillo et al., 2013; Castillo Valenzuela, 2012).

The sociologist Vicente Espinoza, also looking into social mobility and dynamics of the labour market, has looked at the ENES survey (V. Espinoza & Núñez, 2014a). Nevertheless, in other papers, the author also chooses to use data from the CASEN survey as a point of reference to characterise the context of the labour market and the socioeconomic situation of the country (V. Espinoza & Barozet, 2008b). Similarly, a study led by Flores, Atria & Meyer (2019) looked at the top incomes in Chile, and used the data from the CASEN survey to compare the results with tax data and national accounts.

Hourton (2012) examines the trajectory of income inequality in Chile using the CASEN survey from 1990 to 2006, adjusting incomes based on national accounts, and found that there has been a reduction of income inequality between age groups, increasing inequality due to increasing higher education, and the rise of demand for lower-skilled workers.

All this research showcases how the CASEN has been previously used extensively to analyse the dynamics of income inequality in Chile, at the household and individual level, from different lenses. This data set is also the building base for public policy planning and international reporting.

2.5 Chile: grappling with persistently high levels of income inequality

The thesis uses Chile as a case study to explore the dynamics of income inequality and the changing characteristics of the labour force in the context of a liberalised labour market. For years, Chile represented a laboratory to implement radical changes linked to neoliberalism (Brender, 2010; Clark, 2017; Collins, 1995; Sheahan, 2013). These revolutionary changes aimed to propel the country to more advanced development stages and improve its economic performance. Since the reinstatement of democratic governments in 1990, Chile has shown noteworthy trends in development: a significant reduction in poverty (from 38.6% in 1990 to 8.6% in 2017), increased

access to education, economic growth and high standards of economic performance (Agostini & Brown, 2007; Kennedy & Murray, 2012; López & Miller, 2008; PNUD, 2017; Sheahan, 2013). In 2010, Chile became a member of the OECD countries, signalling to other countries that the neoliberal model was an effective way to achieve economic development. Income inequality, however, has persisted over time, with a Gini coefficient of household disposable income of 0.45 in 2021[5].

By analysing the trends of wage inequality over 25 years of democratic governments (1992 to 2017), I will depict wage inequality drivers in the Chilean labour market in a neoliberal economy. The research will focus on how recent trends of wage inequality relate to changes in the occupational structure and the political and economic transformations associated with neoliberalism.

2.5.1 *The neoliberal economic transformation*

Neoliberal economics proposes that less intervention on the part of the state contributes to improvements in development processes. According to Steger, one of the main features of neoliberalism is the "D-L-P formula", which calls for the deregulation of the economy, the liberalisation of trade and industry, and the privatisation of state-owned companies (Steger & Roy, 2010).

Based on these assumptions, the "Chicago Boys"[6] implemented a series of neoliberal policies to foster development and economic growth in the country. According to Verónica Montecinos (1993), the model implemented in Chile can be synthesised into four claims. First, the market should be the main allocator of resources. Second, individuals must solve their problems isolated in the market and not through a collective organisation – individualism. Third, only experts can make 'scientific' decisions, not politicians – technocratic. Furthermore, the state's intervention restricts individual freedom, and without economic freedom, there is no political freedom. The argument was that markets are more efficient than states; therefore, to achieve economic development, the country needed to apply this market logic to different spheres such as education, health and pensions (Collins, 1995; PNUD, 2017).

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[5] In 2021 the average of OECD countries was 0.31, ranging from 0.22 in the Slovak Republic to 0.47 in Costa Rica. Source: http://www.oecd.org/social/inequality-and-poverty.htm
[6] A group of Chilean economists trained at the University of Chicago, under Milton Friedman who specialised in neoliberal economic policies.

2.5.2 *Features of the Chilean labour market: a case of a Liberal Market Economy*

The effects of implementing the neoliberal model have turned the country into a case of a Liberal Market Economy. Within the studies of political institutions and economic inequality, Hall and Soskice (2013) introduced the concept of Varieties of Capitalism (VoC). Similar to the work previously conducted by Esping-Andersen in 1990, the authors studied several countries to find commonalities and differences regarding the relationship between the states and the markets, to create categories of countries and to explain the trajectory of income inequality. One of the categories they produced was countries with Liberal Market Economies or LMEs. These countries structure their actions based on principles of competition between individuals and firms, whilst the allocation of wages is set through price mechanisms, with zero or minimal regulation from the state. The key feature of this approach is that it centres the analysis of income inequality on how markets are structured, the role of firms, and their relationship with the state. I will argue that Chile is a case of LME because of the extreme deregulation of the markets carried out since the 1980s. This categorisation is relevant since it sets out the political and economic context to analyse wage inequality and its relationship with a particular development model.

The shift towards neoliberalism started in a very particular political context. The military coup in 1973 dramatically transformed the political context. During their time in power, the leaders introduced a series of reforms aimed, in their view, at rescuing the country from economic collapse. Among these, the most significant change to labour market regulations was the introduction of the new Labour Code in 1979.

The reform aimed at depoliticising relations at work, promoting individual negotiations and restricting state intervention. The assumption was that "wages, they explained (Chicago Boys), should be allowed to find their natural level, free of distorting guarantees against wage cuts or inflation" (Lear & Collins, 1995, p. 22). According to Collins (1995), there was a drastic transformation to organised forms of labour due to social and political repression, pervasive unemployment, and the implementation of a new labour code. This culture change came as a shock, and there was no space for revision or resistance; therefore, those who did not accommodate the new system were simply left out of the labour market.

Over the past 30 years, democratic governments have taken some measures to improve workers' security and promote the de-commodification of labour. Some of these changes included strengthening the minimum wage, reinforcing unemployment insurance, increasing social security for unemployed workers, extending maternity leave periods, and introducing subsidies to employ young people (Castex & Sepúlveda, 2014).

To put these reforms in context, the diagram of political reforms, social movements and economic events relevant to the analysis from 1990 to 2021. The top of the diagram presents specifically some of the most relevant labour reforms introduced in this period, including minimum wages, labour rights, the increasing regulation of labour markets, collective bargaining, parental leave, etc. Additionally, at the bottom, there is information about economic crises that affected the national economy, social movements, and other relevant reforms that indirectly affected the labour market. Finally, the diagram also includes the names and political affiliations of the presidents who have been in office over the years.

Diagram with political reforms, social movements and economic events relevant to the analysis, 1990-2021

Minimum wages		Collective bargaining and negotiations		Collective negotiation reform
Labour righs and regulations			Outsoursing and subcontracting	Parental leave extension - includes fathers
			Reduction of working hours	

Alwyn (Centre-left) — Frei Montalva (Centre-left) — Lagos (Centre-left) — Bachelet (Centre-left) — Piñera (Centre-right) — Bachelet (Centre-left) — Piñera (Centre-right)

1990 1991 **1992** 1993 **1994** 1995 **1996** 1997 **1998** 1999 **2000** 2001 2002 **2003** 2004 2005 **2006** 2007 2008 **2009** 2010 **2011** 2012 **2013** 2014 **2015** 2016 **2017** 2018 2019 2020 2021

Asian economic crisis — Global financial crisis — Tax reform increasing corporate tax — Tax reform Simplification of tax structures — COVID-19 crisis

Social movement secondary students — Social movement Secondary and higher education students — Social movement anti-neoliberal

Secondary education mandatory — Pension reform - Solidarity Pension Fund — Educational reform free higher education
Plan AUGE - universal access to care

Legend:
- Labour reforms
- Economic crisis
- Social reforms
- Social movements
- Tax reforms

Sources: The diagram was created using information from multiple sources. Detailed information can be found in the Appendices.

As an overarching observation, the diagram illustrates a marked increase in political and social reforms implemented from the 2000s onwards, and this is not exclusively seen in Chile. This period has been highlighted by scholars such as Lustig and Gasparini (2011) as a critical juncture where the Latin American region begins to experience a decline in income inequality. These measures were specifically designed to counteract the neoliberal policies enacted during the dictatorship, which had systematically dismantled labour market institutions and encouraged workers to conceptualise themselves as atomised individuals rather than collective actors.

The reforms covered several key areas of social policy. In education, secondary schooling was established as mandatory in 2003, with a consequential student-led social movement emerging three years later. The prevailing discourse emphasised that mere access to education was insufficient; instead, educational quality became paramount in promoting equality of outcomes and cultivating more egalitarian societal structures.

Simultaneously, the introduction of the Acceso Universal a Garantías Explícitas (AUGE) public health plan secured free healthcare for specific medical conditions. This initiative sought to address systemic vulnerabilities in healthcare provision, with the explicit intention of positively impacting household resilience and workforce productivity.

A parallel transformation occurred in the pension system. The private pension institutions, Administradoras de Fondo de Pensiones (AFP), had demonstrably failed to provide secure and adequate pension provisions commensurate with living costs and social security requirements, and as a response, Bachelet's government implemented a Solidarity Pension Fund, which aims to secure a minimum pension to all citizens, independently of their pension contributions. Subsequent educational reforms in the mid-2010s, coupled with targeted tax reforms, aimed to generate increased public revenue through corporate taxation and expand investment in social initiatives, such as providing free higher education access for students from lower-income households.

Although these measures aim to strengthen labour market institutions, workers still face high vulnerability levels because of the weak levels of social protection and the low levels of labour market regulation (Contreras, 2007). I will argue that due to the lack of regulation, wage inequality has persisted over time, and the marginal reduction experienced in recent years indicates the effects of more regulation over markets.

2.5.3 *Improved access to education and the upscaling of the labour force*

The Chilean labour market has experienced significant changes over the last 30 years. From 1990 to 2013, college-educated workers increased from 14.8% to 27.3%, while the average workers' age rose from 35.8 to 40.4 years old, and the share of female employment grew from 35% to 45%. According to Fernández and Messina (2018), these changes in the composition of labour can be correlated to the trajectory of income inequality until the 2000s. Nevertheless, after this period, compositional changes are not sufficient to explain the decline in wage inequality since the drastic decline in wage premia associated with experience and years of schooling contributed to reducing the gap between high and low earners but compressing those at the top.

Some of the characteristics of income inequality in the Chilean labour market include the escalation in the relative wages of individuals with higher education and those categorised as "Premium wage" workers, a trend that persisted until the early 2000s (Gindling & Robbins, 2001; Larrañaga, 2009). This phenomenon contributed to a notable uptick in overall inequality levels. Furthermore, this surge in income disparities has been correlated with variations in earnings among skilled workers, sparking further inquiries into the dynamics of income trajectories in contemporary neoliberal nations (Ruiz-Tagle, 2007; Tejada, 2016).

Simultaneously, a marked dearth of investment in human capital prevails among the impoverished and semi-poor segments of the population, primarily attributable to the great costs associated with education. This situation combines the difficulties confronting workers with lower qualifications, making it challenging for them to secure higher wages (López & Miller, 2008). This situation is exacerbated by the prevalent high levels of indebtedness.

Other relevant factors to differences in income among workers, apart from educational levels, include differences in gender, social class barriers, ageing working population and household composition. In terms of gender, according to a recent study by the UNPD in Chile (2017), female workers earn 15.6% lower wages than males. Additionally, with regard to social class, gaining access to prestigious occupations such as lawyers, doctors, and engineers continues to be highly correlated to people's last names. In the case of Chile, last names operate as accurate proxies of status and social class in Chile's case, once again due to the colonial heritage, where European surnames occupy the top ranks of the social scale (Núñez & Pérez, 2007).

All these features cast doubts on the advances made in the expansion of opportunities, as well as on equality of outcomes. Examining how these factors affect wage setting is sociologically relevant since it can shed light on the relationship between development and inequality, how structures of power shape wages and the degree to which neoliberal economies offer equal opportunities.

The Chilean labour market has undergone substantial transformations over the past three decades, characterised by significant shifts in workforce composition and educational attainment. From 1990 to 2013, the proportion of college-educated workers nearly doubled from 14.8% to 27.3%, whilst the average worker age increased from 35.8 to 40.4 years, and female labour participation expanded from 35% to 45% (Fernández & Messina, 2018). These compositional changes in the labour force correlate strongly with income inequality patterns through the early 2000s. However, the post-2000 decline in wage inequality cannot be attributed solely to these compositional shifts. Rather, as Fernández and Messina (2018) demonstrate, a marked reduction in wage premiums associated with experience and educational attainment has contributed to narrowing the gap between high and low earners, particularly by compressing wages at the upper end of the distribution.

A defining characteristic of income inequality in the Chilean labour market has been the substantial increase in relative wages for individuals with higher education and those categorised as "premium wage" workers - a trend that persisted until the early 2000s (Gindling & Robbins, 2001; Larrañaga, 2009). This phenomenon contributed significantly to heightened overall inequality levels. Moreover, this surge in income disparities has been linked to earnings variations among skilled workers, prompting a deeper investigation into income trajectory dynamics within contemporary neoliberal economies (Ruiz-Tagle, 2007; Tejada, 2016; Contreras & Plaza, 2020).

A persistent barrier to economic mobility remains the limited investment in human capital among lower-income segments of the population, primarily due to prohibitive educational costs. This circumstance, as documented by López and Miller (2008) and later confirmed by Repetto (2016), compounds the challenges facing workers with lower qualifications in securing higher wages. The situation is further exacerbated by high levels of household indebtedness, which, according to the Central Bank of Chile (2022), has reached historic levels, particularly affecting middle and lower-income households.

Beyond educational disparities, several structural factors contribute to income inequality among workers, including gender discrimination, entrenched social class barriers, an ageing workforce, and household composition. Gender-based wage discrimination remains significant, with the UNDP (2017) reporting that female workers earn 15.6% less than their male counterparts, even when controlling for education and experience. This gap widens to nearly 30% in senior management positions (Comunidad Mujer, 2018).

Regarding social class mobility, access to prestigious professions such as law, medicine, and engineering remains highly correlated with family surnames. Núñez and Pérez's (2007) seminal

work, later expanded by González and Mackenna (2018), demonstrates how surnames in Chile function as reliable proxies for social status, reflecting the country's colonial heritage where European surnames continue to occupy the upper echelons of the social hierarchy. This phenomenon has proven remarkably resistant to change despite decades of economic growth and educational expansion.

These persistent features raise fundamental questions about the effectiveness of opportunity expansion policies and the achievement of equitable outcomes in Chilean society. The sociological significance of examining wage-setting mechanisms lies in its potential to illuminate the complex relationship between economic development and inequality, revealing how power structures influence wage determination and questioning the extent to which neoliberal economies genuinely offer equal opportunities. Recent research by Torche (2018) and Espinoza et al. (2023) suggests that despite Chile's impressive macroeconomic performance, intergenerational mobility remains significantly lower than in other OECD countries, indicating deeply embedded structural barriers to economic equality.

This analysis underscores the need for more comprehensive policy approaches that address not only educational access, but also structural inequalities embedded in Chilean society's social and economic fabric. Future research directions might productively explore the intersection of these various inequality dimensions and their cumulative effects on social mobility and economic opportunity.

2.6 Original contributions and main research findings

Although several sociologists and economists in Chile have researched inequality of income in Chile before, this research provides insights into specific groups of workers and households to assess how the transformation of labour structures sheds light on persistent and new ways of social stratification based on occupations and income.

The analysis in Chapter 3 examines the transformation of the labour force, with a specific focus on workers in a particular employment category. These are full-time employees with formal contracts, aged between 18 and 65 years, representing what can be considered the archetypal employment model. Such positions are characterised by relatively greater security compared to informal employment, with income protected by the monthly minimum wage and the potential for more stable earnings over time.

However, this idealistic portrayal is nuanced by significant caveats, particularly within the Chilean labour market. Research by Sehnbruch, Carranza, and Prieto (2019) reveals that approximately

30% of workers are employed on short-term contracts, introducing substantial elements of employment precarity and economic uncertainty. Notwithstanding these challenges, these formal employment positions continue to be perceived as the gold standard in terms of job security and associated benefits, a key rationale for their selection as the primary unit of analysis in this research.

Diverging from conventional approaches in income inequality research, which typically examine total work income or per capita household income, this study adopts a more granular perspective. It focuses specifically on wage distribution across different worker categories, thereby assessing the valuation of labour within a relatively deregulated market and its temporal evolution.

From a sociological perspective, the research contributes to critical discourse in several dimensions. It challenges and seeks to expand the conceptual boundaries of human capital theory, revealing a complex wage dynamic where workers at the lower end of the income distribution have experienced relative improvements. Notably, this wage compression occurs concurrently with continued wage growth at the upper-income echelons, although the resultant wage disparities remain less pronounced than those observed in wealth-inclusive analyses.

The research's significance extends beyond academic abstraction, addressing a topic of universal relevance for individuals whose economic survival depends on monthly remuneration. Illuminating the differential factors generating wage variations provides crucial insights into the mechanisms of labour market stratification.

Chapter 4 offers an innovative approach to analysing income inequality at the household level, distinguished by its exploration of counterfactual scenarios. This statistical method allows for a sophisticated examination of potential alternative trajectories in household dynamics. While previous studies of household structural changes in Chile have predominantly employed qualitative methodologies to explore cultural transformations and social reforms, this research adopts a more quantitative perspective.

The analysis focuses specifically on patterns of household formation, with particular emphasis on the income distribution from work earned by household heads and their partners in coupled households. This methodological approach represents a novel application of statistical analysis to Chilean household data, offering potential insights for targeted governmental interventions and family policies aimed at mitigating income inequality.

From a sociological perspective, the research contributes significant empirical evidence to our understanding of contemporary household structures. The findings illuminate the complex impacts of market liberalisation on women's labour market participation. While the liberalisation

process has ostensibly expanded opportunities for women's workforce engagement, the research reveals persistent structural inequalities. Women continue to exhibit markedly different work patterns compared to their male counterparts, with the liberalisation process frequently accompanied by increased economic precarity.

Chapter 5 provides a comprehensive analysis of professional occupations, building upon the methodological approach established in Chapter 3. The chapter focuses on an occupational category traditionally perceived as socially desirable and offering superior economic stability and security. Professional status serves as a critical marker of social and economic stratification.

By disaggregating the compositional elements of this occupational group and employing Weeden and Grusky's conceptualisation of micro-occupations (2005), the research offers a nuanced examination of occupational fragmentation. This analytical approach illuminates the intricate relationship between social class origins and professional trajectories, challenging simplistic narratives of meritocracy and providing a more sophisticated understanding of professional workforce dynamics.

The analysis presents a detailed comparative account of variations across professional occupation groups, distinguishing itself through a longitudinal perspective that is relatively uncommon in existing scholarship. A notable previous study by Mizala and Romaguera (2003), conducted using CASEN data, had already identified significant fragmentation within professional categories. However, they also included technicians in the analysis. The current research builds upon this foundation by introducing an innovative grouping methodology that highlights workers' similarities and distinctive characteristics.

Sociologically, the research's contribution extends beyond descriptive analysis. It critically engages with complex theoretical discussions surrounding meritocracy, social mobility, and occupational structuring. By exposing the persistent barriers to high-remuneration occupations, the study reveals the professional landscape as a highly segmented and heterogeneous social domain, challenging simplistic narratives of equal opportunity and professional advancement.

2.7 Research questions

This section presents the different research questions guiding the thesis. Although every chapter covers different aspects and forms of wage and income inequality, the common thread is the picture of wage inequality trends for different groups and at individual and household levels. The aim of this thesis is to provide a comprehensive analysis of the complexities of wage inequality. To achieve this goal, the main research questions for this thesis are:

What are the principal drivers of wage inequality in the Chilean labour market from 1990 to 2017?

How have the transformations in labour force composition and economic restructuring under neoliberal policies mediated and shaped these mechanisms of wage inequality?

The sub-questions for Chapter 3 on the restructuring of the formal labour force are:

- How have changes in the composition of the formal labour market affected wage inequality trends in the Chilean labour market?

- Which workers have been responsible for the decreasing levels of wage inequality?

- How do the trends of wage inequality between and within occupations relate to changes in human capital valuation and education?

The sub-questions for Chapter 4 on the reshaping of household structures are:

- How have changes in household structures impacted income inequality levels, and which types of households have benefited most from these changes?

- Has the trajectory of households' income inequality followed a similar shape to the individual income distribution? How has the sociodemographic and occupational composition of households impacted the income distribution?

The sub-questions for Chapter 5 on professional occupations and new grouping categories are:

- How does residual inequality manifest within professional occupations in Chile, and what factors contribute most significantly to wage disparities within these groups?

- What roles do gender, parental education, and economic sector play in shaping income trajectories and opportunities among Chilean professionals?

- How effective is the existing occupational classification in capturing wage disparities, and could an alternative classification improve our understanding of income inequality within professional groups?

Chapter 3

Unprecedented decline in wage inequality

The divergent path of Latin America and Chile's compared to developed nations

3.1 Introduction

The increasing levels of income inequality in developed countries over the last decades have raised questions regarding the trade-offs of what we know as advanced economies (International Monetary Fund, n.d.). Since the Industrial Revolution, technological development has been associated with higher productivity and efficiency levels and, consequently, better economic results and more wealth. The positive relationship between technological development and economic growth confronted a new element to the equation at the beginning of the post-industrial era: inequality. The current trends of high-income inequality call into question the cost we must pay for high economic development levels under a capitalist production system.

Some of the most prominent explanations for the rise in income inequality have highlighted changes in the valuation of skills within the context of knowledge-based economies. The concept of Skill Biased Technological Change (SBTC) refers to the overvaluation of specific occupational skills, mainly demanded by the new economic structure, in technology, information, and communication (Autor et al., 1998). This process generates an increasing wage premia for a selected group of workers, traditionally highly educated, reinforcing ideas around merit and productivity as the source for high wages aligned with their contribution to economic growth and development.

Sociologists and labour economists have pinpointed the importance of non-meritocratic factors when studying income distribution dynamics. Aspects such as gender, ethnicity and social class continue to play a central role in income inequality despite the expansion of opportunities observed over recent years (Blau & Kahn, 2013; Cotter et al., 1999; England et al., 2007; Kilbourne et al., 1994; Laurison & Friedman, 2016). The persistence of non-meritocratic factors associated with income inequality challenges the notions of fairness and the rational allocation of wages advanced by economic theories based predominantly on workers' human capital and merit.

In opposition to trends of increasing inequality in most advanced economies, Latin America - a world region with a long history of high levels of disparities - has called researchers' attention due to the unprecedented reduction of income inequality over the past two decades (Gasparini & Lustig, 2011). Some of the factors highlighted as crucial to understanding inequality patterns in the region have been its colonial heritage and discriminatory practice, the development of peripheral capitalism, a lack of technological development, and the institutionalisation of inequality. The advent of a new wave of left-wing governments in several Latin American countries at the beginning of the 20th Century led to a series of progressive reforms in public spending, which contributed to reducing inequality by raising the income bar at the bottom. These policies were

facilitated by a commodity boom which boosted countries' GDP, allowing them to increase their expenditure on protective social policies (Ariza & Montes-Rojas, 2019; Gasparini & Lustig, 2011; López-Calva & Lustig, 2010; Signor et al., 2019).

Over this period, Chile was regarded as an example of development for middle-income countries, given its economic growth, political stability and international integration into the global markets (Agostini & Brown, 2007; Contreras et al., 2001; Hourton, 2012). The shift towards a neoliberal model of development implemented during Pinochet's dictatorship determined the reshaping of the labour market, amongst other social dimensions. Actions such as the liberalisation of trade, the deregulation of the labour market, the weakening of unions' negotiation power and the privatisation of prior public services led to a more competitive scenario, leaving workers far less protected than before. To compensate for these losses in workers' rights, Chileans were promised better living conditions and broader access to opportunities due to the economic growth boost expected from the introduction of these changes. Although, over time, there has been a reduction in poverty and overall income inequality, especially from the 2000s onwards, the imposed system started showing its cracks over recent years, culminating with the recent social rebellion that began in October 2019 (Garcés, 2019a). This social event of national magnitude made many social scientists in the country ask what motivated people to rebel when Chile seemed to be the exemplary case for development in the region.

This question could have manifold answers. Some of the factors identified by experts in Chile included workers' wage stagnation close to the median, the heightened competition of those at the bottom, and the significant improvement of top earners. Additionally, the sense of insecurity with limited working protection and the privatisation of health, pensions, and education led the people of Chile to demand more social security and protection from the state (Garcés, 2019b; Sehnbruch & Donoso, 2020; Somma, 2021).

The data presented in this chapter delves into the compositional changes in the labour force regarding educational levels, occupational restructuring, female participation, and the overall upscaling of the economy. The chapter aims to provide a more nuanced account of the dynamics of income inequality by examining in detail which groups have benefitted from the neoliberal shift of the economy. Despite the reshaping of the occupational structure and the increased education levels, which have been presented as advancements in people's opportunities to better living standards, the results indicate a persistent structural closure to privileged positions, urging for alternative accounts to income inequality beyond meritocratic beliefs.

This chapter is divided into five sections. The first part reviews recent studies on income inequality in Latin America and Chile, providing insights into how the issue has been addressed in the region. Revising the propositions and explanations offered at a local level against those emerging in countries with advanced economies makes it possible to draw upon the similarities and differences between them. The aim is to generate alternative and complementary sociological narratives on the dynamics of income inequality emerging from middle-income countries. The second section describes the methodology used to analyse the trajectory of income inequality in Chile. The third section provides information about the specifics of the Chilean case. Using a national dataset (CASEN), the descriptive analysis elaborates on the main changes in the Chilean economy, its labour market, and the distribution of occupations over a period of 25 years. The fourth section contains the main results and analysis, focusing on the importance of occupational distribution and socio-demographic changes. The analysis allows us to discern between the multiplicity of factors that play a central role in the persistence of income inequality, as well as changes in the balance between and within occupational wage inequality. The final section provides the concluding remarks in light of the main findings.

3.2 Literature review

3.2.1 *Occupations, inequality and social stratification*

Occupations have long been used as proxies for social class and have provided meaningful content for understanding social structures' shape (Western & Bloome, 2009). The idea of grouping people according to the type of work they perform assumes that jobs are an essential element of everyday life, impacting people's access to resources of all kinds and having attached specific social roles. Sociologically, as a category, it contains multiple references to people's welfare, consumption levels and access to resources such as power and authority (Barozet, 2007). Along these lines, occupations have been sociologically defined in terms of social relations of production (Mills, 2000), basic production units (Grusky & Sørensen, 1998; Weeden & Grusky, 2005), and proxies for employment relations (Goldthorpe, 2007), among others.

Although the conception of work as the backbone of identity formation and social class has been contested by the idea that identities are composed of a wider array of elements (Bauman, 2012; Savage, 2015), occupations remain an effective form of social classification. One of the reasons is the centrality of work in people's lives, and the differences in life chances, which remain contingent on the type of work individuals can access. Although people now have other sources of references to form their identities, such as cultural preferences, social connections and belonging to groups, activities outside the realm of work, and so on, in countries like Chile, questions like "What is your job? Or what is your occupation? Continue to provide enough information to situate people on the social scale.

Considering occupations as classifiers for a social class provides a deeper understanding of the position individuals occupy in terms of status, domination, power, and authority (or the lack of) over other occupational groups with regard to the ownership of the means of production. In other words, where workers are situated in relation to others, their access to opportunities and social integration (Barozet, 2007). Thus, occupations and changes in their composition over time are considered appropriate areas of study to better grasp the dynamics of income inequality in this thesis.

Simultaneously, occupational categories can be proxies of income levels, drawing upon the idea that workers get rewarded according to their skills. One of the markers of occupations refers to educational and skill levels. This relationship between wages and occupations is of paramount importance in the analysis of income distribution since changes in the occupational structure and the shares of different occupational groups are expected to impact the overall levels of inequality (Mouw & Kalleberg, 2010).

In the last decades, there has been a considerable increase in the number of highly skilled workers in different economic sectors. This upsurge meant that a larger proportion of workers were earning higher salaries, which can reduce the wage premia due to the increase in supply. Nevertheless, it still raises the average level of wages for all workers. To study the effects of these changes, we have to observe the whole occupational structure since inequality only makes sense when we compare groups or individuals against each other. For instance, the upscaling of the workforce and the increase in the average wage could increase income inequality if there are no increases in wages for workers with lower educational qualifications. However, if there is an increase in minimum wages, the gap between those at the top can be reduced or maintained since the whole wage structure shifts simultaneously. Therefore, to provide an accurate account of the dynamics of income inequality, we need to study all occupational groups, their evolution in composition, and wage levels.

While there are multiple ways of classifying workers into occupational groups, the following section presents three of the main occupational classification systems, starting with the International Standard Classification of Occupations (ISCO), promoted by ILO and used in Chile to classify workers. The other two occupational classifications are the ones used in the UK (NS-SEC) and the US (SOC).

Systems of occupational categorisation

Societies have developed different understandings and conceptualisations of how social stratification operates; consequently, occupations have been operationalised in various ways. The International Standard Classification of Occupations (ISCO) – from the ILO – clusters types of jobs based on the "similarity of skills required to fulfil the tasks and duties of the job", but not necessarily within the same industry[7]. The European Union widely uses this classification under the name of ESCO (European Skills/Competences, qualifications and Occupations).

A second classification is the Goldthorpe Schema, also known and used in the UK as the NS-SEC, in which categories are structured around employment relations and conditions of occupations[8]. It aims to capture individuals' social class and has been used as a predictor of health, education and other social outcomes. It is the official classification used by national agencies and the ONS (Office for National Statistics) and is used primarily in the UK.

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[7] https://www.ilo.org/public/english/bureau/stat/isco/isco88/index.htm
[8] www. https://www.ons.gov.uk/

A third one is the SOC, which is used in the US and defines occupational categories based on the similarity of tasks and work performed, regardless of the levels of education required. Despite the differences between the systems, there are conversion tables which allow for international comparison.

For the analysis, I used the ISCO-08 classification since it is how the data is collected and reported for national statistics in Chile. The classification is structured as a continuum scale based on the tasks associated with specific occupations, as well as formal and practical skills required for their execution, encompassing factors such as education and years of working experience. The choice of this classification system is particularly pertinent to the present study's objectives since it allows us to consider occupations as proxies for human capital, thereby facilitating an examination of the influence of education and working experience on income distribution.

In Chile, the occupational classification predominantly revolves around the nature of work undertaken by an individual and the corresponding skills required to carry out these tasks. Consequently, it needs to be addressed with the caveat that occupational categories are not directly tied to social class as in the UK and other countries. This distinction becomes even more salient when considering social class as a classification that includes various forms of capital, including economic, cultural, and social.

While the ISCO-08 classification categorises workers who share specific attributes related to prestige and social esteem associated with specific types of work, it is less efficient at capturing elements such as ownership of the means of production and power dynamics within employment relationships. However, using the ISCO-08 classification enables us to analyse changes in the demand for human capital and its direct impact on income distribution.

Occupations as a source of income inequality

One of the current debates among sociologists and economists about income inequality revolves around the centrality of occupations as the primary source of economic disparities (Lemieux, 2006; Mouw & Kalleberg, 2010; Williams, 2013; Xie et al., 2016). If differences in income continue to be strongly linked to people's occupation, one would expect that the lion's share of wage variation would be explained by their occupational membership and, therefore, linked to workers' human capital. Nevertheless, if there is an increase in wage dispersion within occupational groups, it could be signalling higher levels of heterogeneity in those groups and, consequently, the need for new categories to group workers. Those differences in wages would no longer be strongly related to the type of work or qualification levels but rather to other personal features. If that is the case, we need to rethink the relationship between social justice, equality, meritocracy and the authority we

give markets to distribute resources since there would be failures in the provision of opportunities if individuals reported significantly different outcomes.

The next section presents the literature on income inequality between and within occupations in more depth. It is followed by a revision of recent studies on inequality in Latin America and Chile to situate the debate at a regional level and connect it to global discussions about the trajectory and dynamics of income inequality.

Between-occupations wage inequality: Polarisation of wages in the context of knowledge economies

One way to assess the importance of occupations as an appropriate category for studying wage inequality is by examining the wage variation trends between occupations. Since occupations refer to specific types of jobs and skills, they can be used as proxies for human capital. Sociology researchers have approached occupations as sources for social stratification and wage inequality since they can, most of the time, be effective wage predictors and provide information about individuals' social status (Massey & Hirst, 1998; Weeden & Grusky, 2005).

A study conducted by Mark Williams (2013) estimated the relevance of occupations in the UK labour market as the primary source of income inequality. By examining the differences in income between and within occupations, the author found that the lion's share of income inequality between 1975 and 2008 can be explained by increasing differences in wages between occupations. These results indicate that the overall dispersion of wages was higher compared to the averages of each occupational group than the dispersion within groups of workers in the same occupation. The author, therefore, argues that occupations have not lost their relevance as the main source of income inequality in the current state of the labour markets and, thus, should continue to be central in the study of wages.

In a similar vein, Mouw and Kalleberg (2010) revealed that in the US, 49% of the increase in wage inequality since 1992 could be attributed to changes in wages between occupations. Their results also challenge claims stating that occupations are not as effective in distinguishing between workers and their incomes as they once were.

According to neoclassic economics, it is expected that workers with higher skills will earn more than those with lower skills, given their presumed more significant contributions to the overall economy. Nevertheless, the unexpected and remarkable rise in income disparities favouring college graduates, juxtaposed with the erosion of wages for low-skilled workers, raises profound questions about the current development model and its unequal effects on people's livelihoods.

Within-occupations wage inequality: unobservable skills and personal attributes

Despite the findings previously presented, the debate around the relevance of occupations remains open. One of the alternative ways to study wage inequality is to examine the differences in wages within occupations. This type of analysis focuses on changes in income levels within groups of workers who share the same occupation and, therefore, should have relatively similar levels of income. If there is an increasing disparity of income among workers with similar skill levels and education, the market might be signalling that not only does human capital matter in determining workers' wages, but other factors also play a role.

From a sociological perspective, this is particularly relevant since it indicates that wages are not set solely according to the logic of markets – seeking efficiency and profit – but are also based on the cultural valuation of elements such as gender, race and social class. Likewise, it questions whether occupations continue to constitute an accurate approximation to social stratification and wage inequality or need a revision and adjustment to current times.

A study conducted by Kim and Sakamoto (2005) delved into the landscape of wage inequality in the US during the period spanning from 1983 to 2002. Their research underscores the pivotal role played by within-occupation wage differentials in comprehending this trajectory. The study suggests that variations in firms and organisational structures have been instrumental in driving wage inequality.

The expansion of educational access has broadened the horizons of higher education attainment, enabling individuals from diverse backgrounds to achieve higher education degrees at a rate never experienced before. This, in turn, has increased the socio-demographic heterogeneity among workers with similar skills. Consequently, employers find themselves in the need to discern additional markers among these similarly skilled workers to identify the optimal match for their companies. Traditional educational credentials and work experience, deemed as 'observable skills', seem to be falling short of providing enough information to employers about the specifics of workers' performance.

To overcome this lack of specific markers, companies are starting to focus on what has been conceptualised as 'unobservable skills'. These tend to encompass intangible markers such as innate talent, personality traits and the quality of educational institutions attended. They are much more difficult to assess since there is still no consensus on their objectivity, measurability, and operationalisation.

According to Krishna et al. (2012), some firms have developed specialised recruitment systems to improve their matching processes by capturing these 'unobservable skills' when selecting workers. The link with wage inequality is that more productive firms will have better systems to capture these unobservable skills and hire more productive workers who will be highly rewarded. In contrast, firms that do not have the resources to invest in sophisticated recruitment processes and instruments cannot capture these markers. A crucial issue is the assumption behind the benefits of being more able to assess most of the productive characteristics of workers by including unobservable skills into the equation as a form of optimising hiring practices. Nevertheless, the risk of installing systems which place more value on workers' personal characteristics, whether they refer to their personality, their communication and social interaction skills, is that they will benefit a specific type of worker who has not acquired those traits via effort or merit, but rather through social class transmission.

The sociological relevance of studying increasing residual inequality levels stems from the possibility of unveiling mechanisms of discrimination and unfair structural allocation of resources in the labour market. By observing the trends of wage inequality over time, it is then possible to assess how much differences in wages are based on workers' merit or achievement and how much they may reflect the reproduction of inequality institutionalised in structures of power unrecognised by the logic of markets. More importantly, studying the drivers of wage inequality can shed light on the relationship between the current development model and the rise in inequality. - which, depending on how they are assessed, could be weighting non-meritocratic factors into the equation of wages and hiring practices.

The following section will present the recent literature on income inequality in Latin America to provide a context for the region where Chile is situated, the debates that include occupations as a social marker, and the increasing value of higher educational degrees.

3.2.2 *Inequality in Latin America*

Although Latin America has historically high levels of social and economic disparities, the region has shown a downturn in income inequality in recent decades. According to authors like Gasparini and Lustig (2011), some of the contributing factors to high levels of income inequality in the region in the late 1990s were the increasing trade liberalisation, a reduction in demand for unskilled labour, along with weak labour market institutions and safety nets.

Portes and Hoffman (2003) contributed to explaining the high levels of income inequality during the 1990s by stating that low wages and high levels of income inequality have traditionally been associated with the high proportion of individuals working in the informal sector. The low wages

of these workers and their precarious working conditions have historically been a critical element in explaining the high levels of income disparities in the region. Nevertheless, according to the authors, during the 1990s, formal workers experienced a detriment in their pay and the quality of their jobs due to the implementation of neoliberal policies. Workers in the formal sector were negatively affected by lowering the regulation of labour markets, implementing market-driven policies, and encouraging a retrenchment of the state in public expending. In the long run, these measurements worsen the working conditions of those workers who have traditionally been more protected.

However, in the early 2000s, the region started experiencing a reduction in the overall levels of income inequality, diverging from the trend of higher levels of income dispersion experienced in many other developed countries. Some of the explanations for this downturn have been the fall in wage premia, in tandem with an increase in wages for workers at the bottom of the income distribution. All are happening in a political context where more progressive public spending was introduced by left-wing governments, partially moving away from the neoliberal changes implemented in the previous decade (Messina & Silva, 2021; Rodríguez-Castelán et al., 2022). One of the progressive measures taken to raise the living conditions of individuals at the bottom of the income scale was the implementation of direct monetary transfers to workers. The aim of this policy was to compensate workers for the historically low levels of wages paid to unskilled workers in the context of poorly regulated labour markets.

The increase in public spending was possible due to an improvement in macroeconomic conditions, in particular, what is now known as the "commodity boom"[9] (Messina & Silva, 2021; Ocampo, 2017; Tornarolli et al., 2018). The increased public revenues allowed countries to invest in public services and improve people's general living standards. All this was possible thanks to the juxtaposition of measures such as reforming tax systems to generate more revenues and fostering macroeconomic stability, which fostered higher levels of employment and a general state of stability. However, after 2010, inequality in the region started to rise again. Based on recent studies, the reinstatement of market-oriented policies, along with the increased demand for specific skills related to technology and information and the persistent weakness of labour market institutions, seemed to have blocked or at least paused the progress on levelling income inequality

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[9] The commodity boom experienced during the first decade of the 20th Century was described by the UN Economic Commission for Latin America and the Caribbean as a process of returning to export primary goods or re-commodification of the economy where the main exporting products from the region were natural resources. China's rise as a trading partner for the region prompted an increasing demand for primary goods representing a boost to the economy (Ocampo, 2017)

started in the early 2000s (Ciaschi et al., 2021; Messina & Silva, 2021; Rodríguez-Castelán et al., 2022).

The winding trends of income inequality in the region are still open to debate on how to ensure that the high levels are reduced more permanently and provide a more stable environment for workers and societies as a whole.

Peripheral capitalism and the role of elites in Latin America

In addition to arguments posing the relevance of political structures and the role of education as crucial in the study of wages, Rodríguez Weber (2018) argues that income should also be analysed from the prism of countries' economic model. For the author, the most salient feature of Latin American economics is the adoption of what has been conceptualised as peripheral capitalism. The term refers to economies characterised by heterogeneous productivity levels between industries. Exports concentrated on primary goods and natural resources, high levels of price fluctuation due to the high dependence on international markets and political, social, and economic power asymmetries (Rodríguez Weber, 2018). The introduction of this model started during the 19th Century, when several countries progressively agreed on international trade regulations to foster economic integration at a global scale, including developing regions such as Latin America, Africa and Asia. In this context, the region's competitive advantage has historically been the provider of low-cost labour and primary goods, connected to the low levels of technological development and the large availability of natural resources (Robinson, 2001).

The role played by the region as one of the global providers of natural resources and raw materials has been supported by economic and political elites. The economic system has been shaped in a way that allows the extraction of primary goods at a very low cost with precarious working conditions and weak environmental regulation. According to several authors, elite groups have hindered innovation and technological development because they perceive progress and development as a threat to their economic power and social status (Coatsworth, 1994; Engerman & Sokoloff, 1994; Williamson, 2010).

In a similar vein, a study conducted by the ECLAC stresses the centrality of the culture of privilege as a central feature of the historical trends of income inequality:

> *(…) the region still bears the colonial vestiges of a culture of privilege that normalises social hierarchies and highly unequal access to the fruits of progress, political participation and production assets. This culture of privilege is the symbolic substrate underlying territorial segregation, weak taxation and the appropriation of rents by power groups. (CEPAL, 2018, p. 16)*

For the ECLAC, the culture of privilege contrasts with the culture of rights, which is characterised by an expanding knowledge society, strong democratic institutions, and consolidated redistribution policies. This feature adds a new facet to the analysis of income inequality since it has been traditionally omitted when examining developed countries. The reason for adding this variable to the mix lies in how critical elite groups have been in making economic and political decisions that favour them disproportionally to the rest of the population. The ECLAC has highlighted the tension between economic development and the institutional setting as a space of dispute that has not been resolved and has affected the historic levels of income inequality in the region.

3.2.3 *Chile: Testing the effects of neoliberalism over the labour market, economic inequality and social stratification.*

In the context mentioned above, Chile represents a relevant case for the literature since it ranks as a country with one of the highest economic inequality levels among the OECD members (OECD, 2018c). Furthermore, Chile is often cited in the literature as an exemplary case of neoliberalism and the introduction of policies of liberalisation of trade and privatisation of traditionally publicly owned companies (Ganti, 2014; Steger & Roy, 2010). I will argue that, although the country has a long history of economic inequality, the neoliberal shifts introduced during the military dictatorship transformed the beliefs about social mobility and meritocracy, increasing the tolerance to economic inequality and thus leaving the responsibility of the distribution of wages to individuals and their life choices.

"Replacing the class struggle for the firms' struggle"[10]

In the 1960s and 1970s Chile faced a period of high levels of economic and social inequality. As a response, the people voted for a socialist government led by Salvador Allende, who promised social reforms that would empower the workers and improve the livelihoods of those living in poor conditions. The government was committed to reducing inequality through redistribution and the promotion of the state as a protective institution. Although the emergence of this socio-political movement took years in the making through a democratic path, the response from the economic and political elite to the attempt to reshuffle the social structure was a military coup that altered the development trajectory of the country. The military dictatorship, which started in 1973, implemented a series of reforms to radically transform the relationship between the state and the market, with the purpose of increasing economic growth and providing financial stability.

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[10] "La revolución laboral en Chile" José Piñera, 1990. Former Minister of Labour and Social Security (1978-1980).

Some of the reforms introduced included the deregulation of international economic trade, the privatisation of public services and companies, several cuts to social spending, as well as the lifting of control processes and the reduction of tariffs, all advanced as means to foster economic recovery (Steger & Roy, 2010). These transformations were framed into neoliberal economics rhetoric, which stressed the inefficiencies of public bureaucracy, the positive economic results of competitiveness, and the idea that less intervention from the state in the market will lead to economic progress, enhancing the chances of every citizen of moving up in the social ladder (Borzutzky, 2005).

To solidify these changes and render them enduring, the political strategy employed was the enactment of a labour reform imposed in 1979. This reform changed the nature of labour relationships by disempowering workers and their right to organise collectively. The guidelines for these new labour market relations were based on the idea that workers and employers have similar capacities and liberties to agree on working conditions. The notion of individual bargaining came to play a central role in how power relations were conceived in the workplace (Sehnbruch, 2006). For the ideologists of this revolutionary shift, collective bargaining altered the market allocation of wages and other forms of benefits provided by companies. Therefore, the new legislation limited the power of unions and the support for collective action was penalised. The underlying premise was that the market would allocate resources according to everyone's effort and merit since it operates under objective principles. Since there was no political opposition due to the violent oppression of the dictatorship regime, and these reforms had the support of countries such as the US and the UK, they followed the maxims of neoliberalism verbatim (Lear & Collins, 1995).

These radical reforms transformed the social fabric of the country and transpired to dimensions outside the labour market. Public discourses exalting individualism over collectivism and competition over solidarity bonds profoundly altered the relationships in all social spheres among Chileans. According to Escobar and Le Bert (2003), deregulation processes transformed the role of the labour market from a medium for social integration into an instrument for the reproduction of poverty. Building trust and social bonds in the workplace became more challenging since every individual worker needs to defend their place, and their co-workers are presented as threats to them.

Moreover, the uneven negotiation power of individual workers vis-a-vis employers and the reduced social protection provided by the state severely increased workers' vulnerability (Contreras, 2007). In this context, education was promoted as an alternative to overcoming social exclusion and vulnerability, primarily through accessing higher education.

In turn, the conversation shifted away from workers' rights towards widening access to educational opportunities in the context of promoting meritocratic societies. Since 1990, with the return of democracy, several governments have boosted their expenditure on education and facilitated the expansion of the educational sector with private providers as a way to continue a path to development. As a consequence, there has been a rise in educational achievement, which allowed the expansion of the middle class (Méndez, 2008). The higher number of individuals within this class increased its heterogeneity and potentially generated new sub-divisions. The possible emergence of new classes represents an opportunity to study new forms of social closure and the reshaping of the social valuation of skills (Méndez & Gayo, 2018; Quaresma & Villalobos, 2018).

Moreover, a recent report from the UNDP centred on inequality and highlighted the importance of institutionalised practices that have facilitated the reproduction of income inequality. Among these practices, the report identifies social class and gender as the most salient factors for discriminatory differences in wages in the context of low salary levels. Nevertheless, the introjection of meritocracy has fostered the idea that individuals are the sole responsible for their position in the social structure and, therefore, contributes to legitimising the configuration of the labour market. The report highlights a dual stigma towards groups at the top, who have inherited their privilege, and people at the bottom for being recipients of redistributive policies, who are not recognised as making enough effort to improve their situation. In this scenario, education plays a central role as the main engine of social mobility (PNUD, 2017).

One of the discussions in the country has centred around the relationship between income inequality and social mobility. Florencia Torche's work "Unequal but Fluid" (2005) highlights that although the country has been inefficient in tackling income inequality, social mobility has shown improvements. The analysis indicates relatively low barriers to moving from the lower to the medium strata. Nevertheless, the top continues to have significant access barriers. In addition to these results, Espinoza and Núñez analysed the period from 2001 to 2009 and found persistent hierarchical and sectorial obstacles with low fluidity of social mobility. The authors describe the observed relationship between occupational and income mobility as a resource dependency thesis, where the availability or lack of resources impacts the reproduction of inequality. Given the lack of external regulation of these dynamics, their transmission can be perpetuated over several generations (Espinoza & Núñez, 2014).

The study of wages and occupations from the early 1990s to the late 2010s offers an opportunity to understand changes in the structure of labour markets, their composition, and whether human capital remains the best proxy for wages, supporting theories linked to meritocracy. By examining

wage disparities between occupations, it is possible to shed light on aspects of occupational closure and occupational polarisation driven by shifts in production modes, as well as cultural obstacles, in an apparently fluid social structure. Simultaneously, analysing wage inequality within occupations allows for testing ideas regarding the formation of social classes, social mobility, and the distribution of opportunities and social resources when workers achieve the required human capital but still face significant wage differences with other workers within the same occupation.

In addition to the analysis of occupations and wages, this chapter incorporates an analysis of labour and educational reforms to contextualise the data and assess the role of neoliberal policies in the trajectory of wage inequality. The longitudinal analysis of wage distribution enables the examination of changes in light of structural reforms, as well as the trajectory of different groups of workers, their skills, and their earnings. The subsequent analysis aims to generate relevant insights into the relationship between wages, occupations, and human capital and how shifts in these relationships have either fostered a labour market that allocates resources fairly based on workers' contributions or perpetuated their segregation.

3.3 Methodology

The methodology for this chapter uses a deductive approach, providing descriptive statistics and multilevel analysis to show the changes in the composition of the labour market. The selected data aims to present an overview of a specific portion of the labour market, the trajectory of workers' wages from their main occupation, and their relative position to the rest of workers.

The rationale for conducting a quantitative analysis is manyfold. Firstly, analysing large datasets allows for the generation of major national trends over time, which is valuable for national social policies and comparative studies between countries. Secondly, this type of analysis ensures the effective utilisation of government-collected data, which is costly to obtain and requires continuous analysis by social scientists for various purposes in order to generate value for the general population. Finally, measuring the impact of different components previously researched in relation to wage inequality can be better assessed using quantitative analysis, which also allows for the examination and comparison of trends over time at a national level.

The research questions for this chapter are:

- How have changes in the composition of the formal labour market and labour market regulations affected wage inequality trends in the Chilean labour market?

- Which workers have been responsible for the decreasing levels of wage inequality?

- How do the trends of wage inequality between and within occupations relate to changes in human capital valuation and education?

This research presents a descriptive analysis covering wages from the main occupation, educational levels, gender, economic sector, and occupational distribution. By providing a comprehensive examination of these variables captured at an individual level and placing them in an aggregate context, a fuller picture of the structure for workers in the formal sector of the economy can be obtained.

Additionally, to examine the changes in the differences between and within wage inequality for the nine main occupational groups defined by ISCO-08, a multilevel analysis is conducted. Researchers have used this technique to capture differences in income by race and gender, as it allows for the measurement of wage variation associated with individual and group characteristics (Behm et al., 2013).

The multilevel analysis uses the log of wages since this transformation provides a more normalised distribution of the data and reduces the risk of non-convergence. This is particularly important

when dealing with low numbers of outliers, as well as cross-sectional data, as is the case of the CASEN (Wooldridge, 2010). Given the nature of wage distribution, using the logarithmic transformation of wages provides a better fit for multilevel analysis and facilitates the comparison of wage levels over time. The disadvantage of using logarithmic transformations is that by normalising the distribution of wages, the impact of extreme outliers is reduced. This might sound counterintuitive when we want to assess the full extent of wage disparities; nevertheless, not using log wages raises issues of convergence, which are needed for this type of analysis, and since the aim is to analyse patterns of income distribution between and within groups over time, the decision to use this transformed wage, seemed statistically justifiable.

A fixed-effect random intercept model is used to examine whether the relationship between occupations as a source of economic inequality has declined over time. This form of decomposition allows for a more granular examination of wage differentials between and within groups, in this case, occupational groups. This particular model of wage decomposition was selected because it is suitable for working with a small number of groups and a large number of individuals within each group. As a result, we are able to examine individual and group-level variations of wage distributions (De Leeuw & Meijer, 2008).

The model includes only one independent variable to exclusively measure the variation between and within groups without any other explanatory variable, and the estimation is based on the following function:

$$Y_{ij} = \beta_0 + \mu_j + \varepsilon_{ij}$$

Where Y is the log of the monthly real wage from the main occupation of individual i in occupation j; β_0, or overall intercept, represents the basic log of monthly real wage from the main occupation across occupations; μ_j represents the occupation-level residual; and ε_{ij} represents the individual-level residual. The results of this analysis allow us to disaggregate the proportion of wage differences which are due to being part of a group and that of individual characteristics (De Leeuw & Meijer, 2008). The assumptions of μ_j (the random intercept of cluster j) are:

- The random intercept has a mean of zero, i.e., $E(\mu_j)=0$
- The random intercepts have a constant variance across all groups, i.e., $Var(\mu_j)= \sigma_\mu^2$
- Random intercepts are normally distributed, i.e., $\mu_j \sim N(0, \sigma_\mu^2)$
- Random intercepts for different groups are independent of each other.

The assumptions for ε_{ij} (individual-level error, level-1 residual) are:

- The residual error has a mean of zero $E(\varepsilon_{ij})=0$

- Homocedasticity, residual errors have a constant variance across all levels of predictors, i.e., $\mathrm{Var}(\varepsilon_{ij}) = \sigma_\varepsilon^2$

- The residual errors are normally distributed, i.e., $\varepsilon_{ij} \sim N(0, \sigma_\varepsilon^2)$

- The residual errors for observations within each group are independent of each other, no autocorrelations within groups

- Deviation of Y_{ij} from its true cluster mean $\beta_0 + \mu_j$

- Random intercepts μ_j are independent of residual errors ε_{ij}

The rationale for employing multilevel analysis stems from prior research that questions the significance of occupational categories in explaining wage differentials (C. H. Kim & Sakamoto, 2008; Lemieux, 2003; Williams, 2013). Multilevel analysis is particularly suitable for this study as it allows for the accurate measurement of the proportion of wage variation attributable to differences between occupations, where workers are nested, and the proportion attributable to individual characteristics within those groups.

This differentiation is crucial due to its connections to human capital theories, which suggest that individual attributes such as education and experience significantly influence earnings (Becker, 1993). By conducting a multilevel analysis, it is possible to differentiate how much of the variation is due to individual features and how much is due to belonging to a group.

Since education is a main predictor of wages, and occupational categories tend to group workers with similar levels of education, it is expected that these groups would have lower levels of income inequality within groups than between. Nevertheless, the increasing socioeconomic diversity within occupations, particularly among professionals, technicians, and managers, who are generally situated at the top of the income distribution, underscores the importance of this analysis to test whether there are emerging forms of economic differentiation within groups who used to be more homogeneous (C. Kim & Sakamoto, 2005; Williams, 2017).

By distinguishing between these sources of wage variation, multilevel analysis provides a nuanced understanding of income inequality, addressing both individual-level and occupational-level factors. This methodological approach not only enhances the precision of the analysis but also aligns with the findings of studies highlighting the importance of both individual human capital and occupational context in shaping wage outcomes (Hox et al., 2018; Snijders & Bosker, 2011).

3.3.1 *Dataset and sample*

All the analyses use the CASEN as the main source of data. The CASEN is a cross-sectional, nationally representative household survey carried out since 1985. It aims to provide detailed data on Chileans' socioeconomic situation and living conditions, covering topics such as education, health, work, social networks and housing. To provide a thorough analysis of a 25-year period, the selected datasets cover 12 waves of data collection from 1992 to 2017.

The sample selected for the analysis is composed of full-time employees aged between 18 and 65 who work in the formal sector. The reason for selecting this sample was to compare the type of worker who has better working conditions in terms of what the Chilean market offers as security: a contract, a full-time job, and a monthly income. I apply regional weights in all estimations. These were provided by the survey company (statistics Chile) to allow for nationally representative findings.

Although some of these questions have varied over time in the response categories, *Table 1* presents a detailed description of each one of them and the categories used in the analysis.:

Table 1: Variables used to select sample

Variable list	Categories
Activity status	Employed
	Unemployed
	Inactive
Age	Numerical value – ranging from 0 to 117
Age groups (new variable)	15 to 17 years old
	18 to 65 years old
	65 and older
Employment status	Employer
	Self-employed
	Employee
	Other
Working with a contract	Yes
	No
Working schedule (new variable, categories are created based on classifications from the ILO and the working regime in Chile, where the standard working week was 45 hours)	Part-time (between 1 and 34 hours per week)
	Full-time (between 35 and 50 hours per week)
	Overtime (between 50 and 60 hours per week)
	Over 60 hrs per week

Note: Further details on the different names of the variables for each year are presented in the Appendices section.

Table 2 shows the percentages of workers in each of the indicators that I used in deriving my sample. From all those who answered the question about economic activity, an average of 52% declared to be employed throughout the studied period, 96% of active workers were aged between

18 and 65 years old, 70% worked as employees, 61% declared to have a contract and, 63% worked full-time.

Table 2: Distribution of cases for each category of workers, 1992 to 2017

Year	Employed (%)	18 to 65 years old (%)	Employed (%)	Working with a contract (%)	Full-time (%)	Sampled workers (%)*
1992	51.0	96.1	66.8	62.3	58.3	39.5
1994	50.9	96.4	65.0	58.7	63.5	40.2
1996	51.7	96.3	67.8	56.1	58.2	37.8
1998	50.4	96.2	68.1	55.5	57.2	36.9
2000	50.1	96.5	67.4	55.8	57.6	36.3
2003	51.5	96.6	67.0	56.1	55.5	37.3
2006	53.1	96.0	69.0	59.6	63.9	43.9
2009	50.0	96.2	70.7	61.4	66.1	46.4
2011	51.8	96.0	70.1	64.0	66.9	48.0
2013	53.3	95.5	73.7	66.7	67.7	50.4
2015	54.0	95.3	73.0	66.8	70.2	52.1
2017	54.8	94.5	71.4	64.8	70.7	51.2
Total in all years	74,916,282	71,836,373	52,071,698	45,794,628	47,687,781	33,068,595
% of workers within the category	52.0%	95.9%	69.5%	61.1%	63.7%	44.1%

Note: *The percentage is estimated based on the total number of workers who declared to be employed or unemployed, excluding inactive workers, since they are the ones who could be active but choose not to.

The total number of workers selected for the analysis amounts to 44.1% - on average for all years - of all workers who are active in the labour market. This figure provides more information about the workers included in the analysis in terms of their representation within the workforce. It is worth noting from the data that the levels of formal work have increased over the years, which could signal a strengthening of formal jobs and better working conditions for a larger number of workers.

One of the groups excluded from this analysis is workers who work fewer than 35 hours a week (representing between 10% and 19% of workers, depending on the year) since the analysis of wages looks into monthly wages instead of hourly wages as it is done in other contexts, such as the UK or the US (Atkinson, 1999; Atkinson et al., 2011; Atkinson & Salverda, 2005; Causa & Hermansen, 2019). Similarly, workers who declared working more than 50 hours per week (representing between 10% and 30% depending on the year) are also excluded since the focus of the analysis is to capture the trajectory and dynamic of full-time workers, following international standards of measurement. The main effect of excluding these workers is the reduction in the number of individuals who are studied, reducing the scope of the results to a more specific group of workers.

Monthly incomes are captured directly by the survey; for this analysis, I used the monthly wage from the main occupation for all wage-related analyses. The sample excludes workers whose monthly wages from the main occupation fall below the minimum wage for the respective years, considering that the sample includes only full-time workers. This approach helps focus the analysis on those workers who are expected to be protected by institutional frameworks, such as the minimum wage, at the lower end of the wage distribution. At this stage, of the individuals who declared to be working, 44% had enough information and fell into the categories relevant to the analysis[11].

Additionally, all wages were adjusted by inflation to reflect their real value using 2017 as the reference year. The transformation was based on the annual CPIs reported by the World Bank for each year used in the analysis. More detailed information can be found in the Appendices section.

In addition to monthly income, the analysis also examines the distribution of workers by income deciles and quintiles based on national per capita autonomous income[12]. This grouping is determined by dividing the total post-tax income received by the household by the number of household members. Consequently, households are divided into groups representing 10% or 20% of the population in an ordinal manner, ranging from those with the lowest autonomous per capita income (first decile and quintile) to those with the highest (tenth decile and fifth quintile).

A relevant methodological caveat is the exclusion of informal workers from the analysis. The primary rationale for this decision stems from the analytical focus of this research, which seeks to engage with theories of human capital and their application to formal labour markets. As such, human capital theory is expected to better predict workers' wages based on their productivity levels in a formal labour market setting. It is in these contexts that employers provide incentives for workers to invest in their education, with the expectation of productivity returns. In these contexts, there tends to be less wage dispersion due to labour regulations, and therefore, the relationship is stronger(Becker, 1993; Mincer, 1974). Similarly, the formal sector is where rules dictated by the government apply more systematically, and thus, changes in legislation or regulations will predominantly affect this segment of the workforce. Lastly, income from the formal sector tends to exhibit lower levels of variation and arguably represents the value set by the market within a

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[11] Using regional weights, 74,916,282 individuals declared to be working, of whom 33,068,595 were employees with contracts, working full-time, earning at least the minimum wage for the respective year, and aged between 18 and 65 years old.

[12] As presented in Chapter 2, autonomous income refers to the total income from work and capital gains, excluding any public or private transfers, such as subsidies or transfers from third-parties or institutions. For quantiles and deciles estimation, the CASEN survey uses the total household autonomous income and divides it by the number of household members.

formal framework, where the structure of employment conditions is expected to be more stable, leading to more predictable wages as returns on investment in education and training.

While the informal sector also represents an important area of interest, given that it encompasses the most precarious jobs within the labour market, there is insufficient robust national data to include it in this analysis. Moreover, wage dynamics present in the informal sector differ from those of the formal sector, adding difficulty to the interpretation of the data. Further research into the informal sector is needed to facilitate comparisons with analyses such as those presented in this chapter, ultimately contributing to a more comprehensive understanding of the labour market and the alternative dynamics of income inequality.

In summary, the sample used for this analysis aims to represent workers in the formal sector of the economy who are employed at the time of the survey, aged between 18 and 65 years, and engaged in full-time work with a signed contract. Although this provides only a partial view of the entire labour market, it nevertheless captures the dynamics of a significant proportion of workers who are part of the most institutionalised segment of the labour force. Consequently, this is an area in which government intervention, through further regulation or policy adjustments, could be most effective in addressing wage inequalities.

3.4 Data analysis

3.4.1 *Juggling between stability and new opportunities*

This section presents some of the most significant transformations in the Chilean labour market from 1990 onwards. The analysis is presented in the context of the international makeover of production modes, trade relationships, and several economic and political reforms aimed at boosting economic growth (Fuentes & Gilchrist, 2005; Pérez Ahumada, 2018; Sánchez, 2014; Sheahan, 2013). The shift in employment relations in the context of neoliberal economies has been shown to have a significant impact on the trajectory of income inequality on a global scale and, therefore, requires further examination (Stiglitz, 2015; Stockhammer, 2011).

Due to the centrality of occupations in structuring income inequality, it is of paramount importance to observe the reconfigurations experienced since the 1990s to better understand the impact of the economic transition towards a more post-industrial and service-based economy on its occupational distribution. It is expected that the upscaling of the economy will bring better economic outcomes. However, Chile's case shows that the economic benefits of the neoliberal shift have been unevenly distributed. The main puzzle remains unsolved. If occupations are central

in shaping inequality, why have the transformations experienced over the past three decades not shown a significant impact on the overall levels of income inequality?

I will argue that the overall trends of income inequality, such as the Gini coefficient, obscure barriers within the social structure that limit access to more advantaged positions due to enduring closure practices performed by elite groups. To provide evidence on this point, I conduct a structural analysis looking into the distribution of occupations and examining the dynamics between occupations and inequality. The following section examines the trajectory of wage distribution from 1990 onwards, followed by descriptive analyses of changes in the occupational structure's shape and composition. The main results indicate that Chile has maintained high wage inequality levels and transitioned to a post-industrial service-based society by upscaling its workforce, adding to an uprise of female participation in the labour market. Although the general picture seems to indicate a widening in the participation of previously excluded groups, it seems as though only a restricted number of upward paths have become accessible for all.

3.4.2 *The trajectory of the wage distribution in the Chilean labour market*

The trajectory of the Gini coefficient for Chile in *Figure 1* shows a steady decline from 1998 (55.5) until 2017 (46.6). The closer the coefficient is to 100, the more unequal the examined distribution. Although the overall picture presents a falling trend in wage inequality, the levels are still high compared to the 32.0 mean for OECD countries (OECD, 2018a). Furthermore, the ineffectiveness of all past governments in mitigating income inequality through progressive redistribution social policies is evidenced by the modest change between the Gini coefficient before and after taxes and transfers (49.5 vs 46.6 in 2017). The average reduction for OECD countries was almost 15.0 points circa 2015, from 43.0 to 29.0 (Causa & Hermansen, 2019).

Figure 1: Gini coefficient (disposable income post-taxes and transfers) trajectory from 1985 to 2017
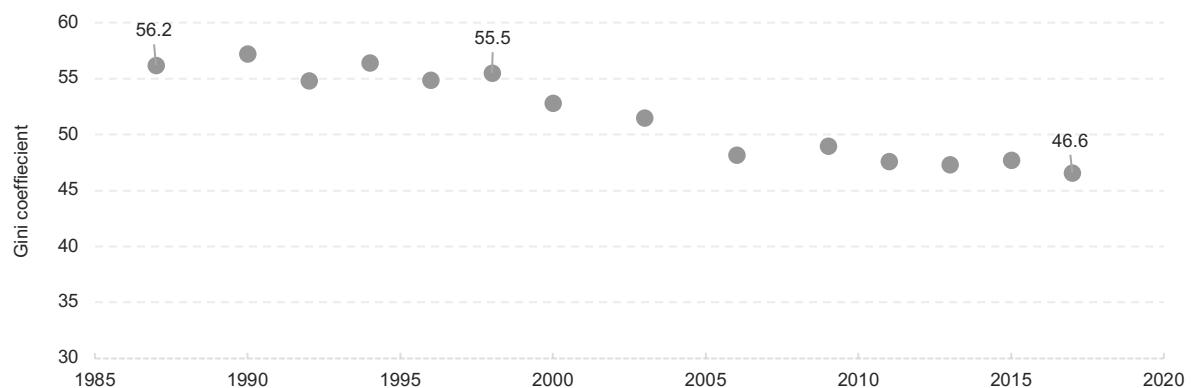
Source: World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments.

According to Flores et al. (2019), the apparent reduction in income inequality suggested by the Gini coefficient obscures the reality that income concentration persisted from 1964 to 2017. Contrary to the trends indicated by the Gini coefficient, their study reveals that the concentration of top-income shares – based on tax statistics and national accounts – remained high. While there was a downward trend in the 1990s, the trajectory since 2000 has shown a reversal, with an upward trend in income concentration.

To provide a more comprehensive understanding of the previous trends, the authors adjusted income data by imputing undistributed profits based on estimates of personal income concentration. *Figure 2* shows that the estimated share of the top 1% stood at 24% in 2015, a figure similar to what we observed in 1990. In the Latin American context, these figures situate Chile as one of the most uneven countries, on par with Brazil.

Figure 2: Top 1% share with undistributed profits, upper and lower bounds (1990-2015)
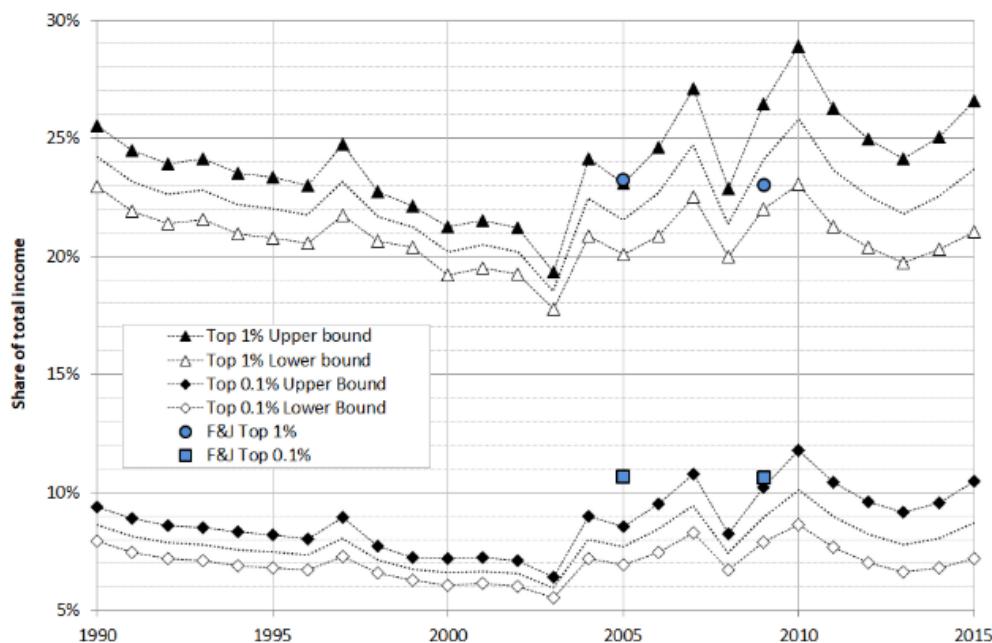
Source: Flores et al. 2019

As a point of comparison, to have a picture of what has happened with wages at the bottom of the distribution, *Figure 3* shows a trend of increasing mean and median wages from 1992 onwards. In tandem, the minimum wage ratio against the median wage has declined by 0.7 points from 1992 until 2017. The narrowing in the difference between median wages and the minimum wage can be interpreted in two ways.

On the one hand, it can signify that people at the lower end of the income distribution are getting closer to those in the middle-income bracket due to significant increases in the minimum wage. Consequently, one could argue that the situation of the lower-income strata has improved.

On the other hand, this phenomenon can also be interpreted as a levelling-off between the bottom and middle-income ranges, potentially to the detriment of the latter. Drawing upon an OECD report for Chile (OECD, 2018c), the sampled data indicates a tendency towards diminishing the disparity between minimum and median wages, resulting in a concentration of salaries within the lower and middle segments of the income distribution.

Figure 3: Trajectory of real wages from the main occupation for employed workers in the formal sector from 1992 to 2017
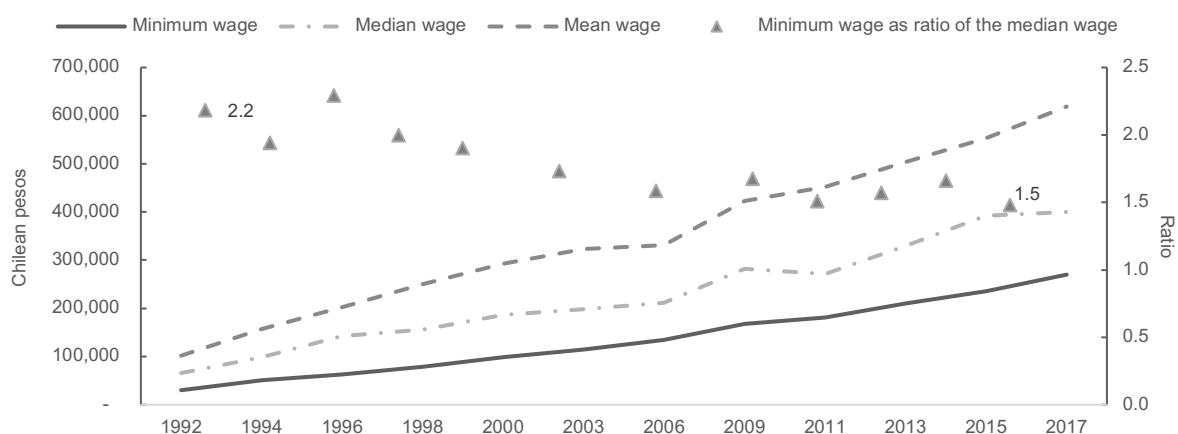
Source: Ministry of Social Development, CASEN survey.
Note: Estimation using real wages, adjusted by inflation to 2017.

Figure 4 shows two key elements of income distribution. It first presents the proportion of workers by national per capita autonomous income quintile, based on the income reported for the households. This variable is an indicator of the level of wealth in the workers' households. The higher the quintile, the more income is reported in that household. The results show a transformation in the share of workers by quintiles from 1992 to 2017, with an increased proportion of workers in quintiles IV and V households, which are the higher-income ones. The results could indicate that people from lower quintiles find it harder to get a job in the formal sector or that wage increases at the bottom have made workers move from lower to upper household quintiles. Consequently, most people in the lower quantiles are either unemployed or work in the informal sector.

These results add to the findings from the OECD report (2018c) about the intensification of a dual market since the 1990s. The continuous and dotted lines show the mean of real wages for

each quintile in 1992 and 2017. Although the trajectories seem to present a similar shape, the interesting feature is the modest differences between quintiles I and IV, followed by a sharp increase from quintile IV to V. These two measures combined can be interpreted as a concentration of wages at the top of the income distribution in the selected sample and are in line with the results found by Flores et al. (2019), even without adding the attribution elements[13].

Figure 4: Mean real wage from the main occupation and proportion of workers by household quintiles, 1992 and 2017
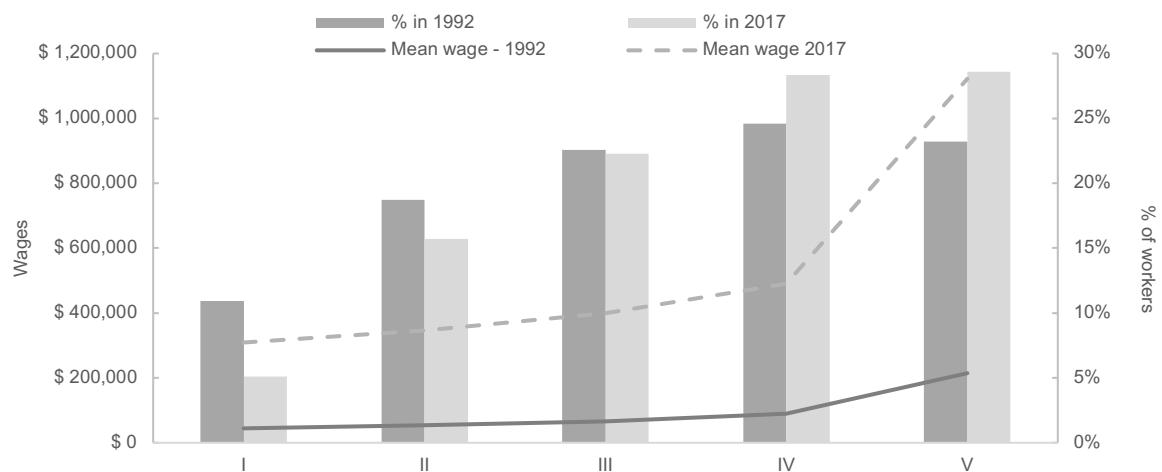
Source: Ministry of Social Development, CASEN survey.
Note: Estimation using real wages, adjusted by inflation to 2017.

To complement the results, *Figure 5* presents a series of histograms with the density log wages for all the years with available data from CASEN. The use of log wages allows for the comparison of the trajectory of wages over time through standardised values. The changes in the shape of the income distribution reveal a progressive distancing from a normal towards a skewed distribution to the right from 2000 onwards.

These trends give rise to two primary implications. Firstly, there has been an improvement in wages at the lower end of the income distribution. The series of graphs demonstrates an increase in minimum log wages, rising from 10.5 in 1992 to 12.5 in 2007. This aligns with the information presented in previous figures and indicates an enhancement in the earnings of those with the lowest incomes.

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[13] In their paper attribution elements refer to the adjustments made in the income distribution data to account for factors that influence income concentration at the top. Specifically, the authors consider corporate retained profits, which are not immediately distributed to individuals but are a significant component of top income levels in Chile. These profits, when retained within corporations, present an attribution challenge as they impact observed income inequality by artificially lowering the top income concentration if not properly accounted for.

However, it is noteworthy that in recent years, there has been a higher proportion of low-income earners compared to levels seen in the 1990s. The central implication here is that while there has been an increase in earnings at the bottom of the income spectrum, there is also a higher concentration of individuals earning low to middle incomes. These figures validate the stagnation experienced by middle and low-income earners and highlight a growing gap between them and those earning the highest wages.

When examined in the context of the declining Gini coefficient, the improvement in low wages appears to offset the widening gap between top earners and the rest of the workforce, which obscures emerging dynamics of income inequality.

Figure 5: Density of the log real wages from the main occupation for sampled workers histograms, 1992 to 2017
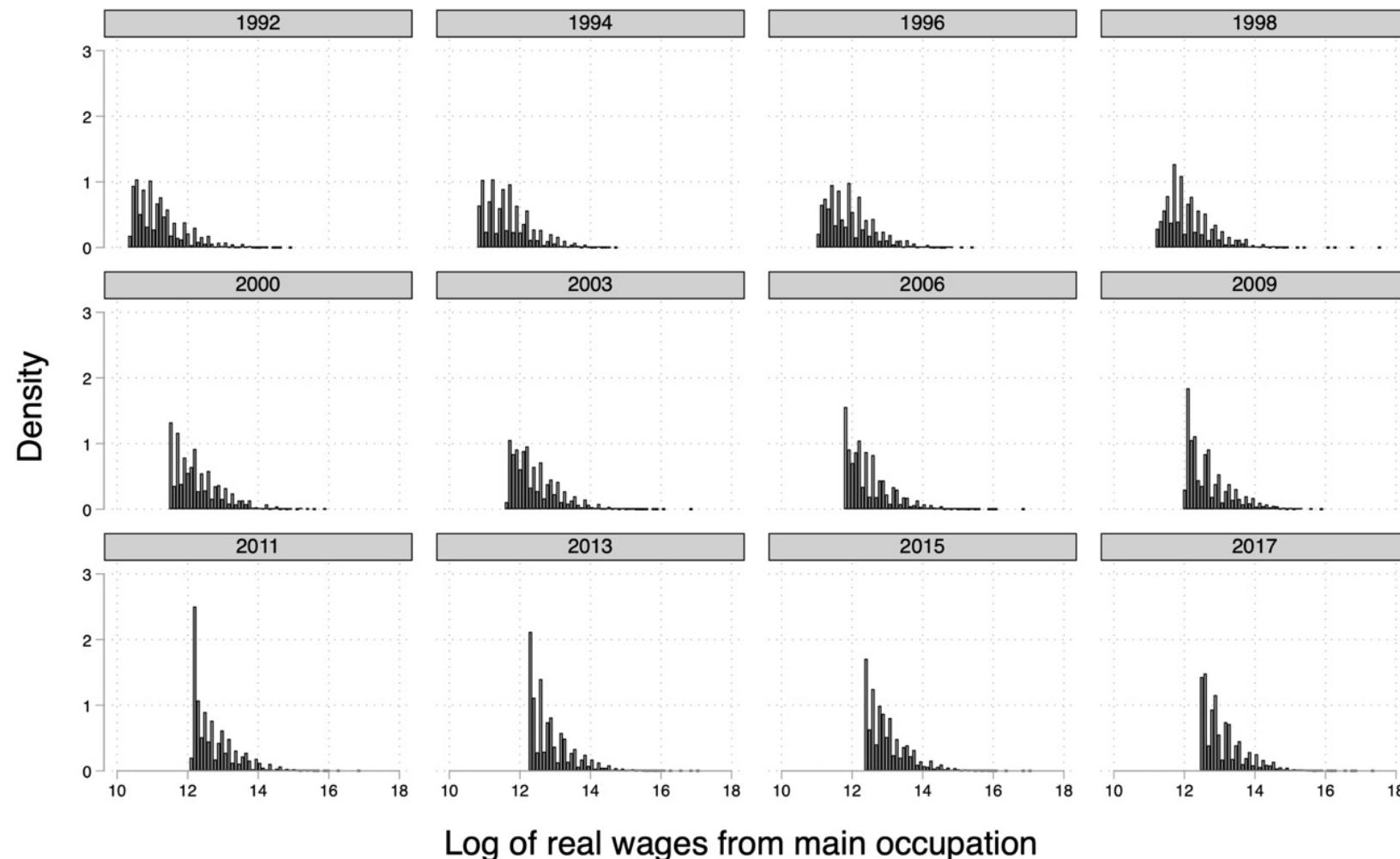
Source: Calculations based on CASEN surveys, respective years.
Note: The graphs show the density distribution of the log of wages from the main occupation for the selected sample. The choice of density over frequency allows for better year-on-year comparison, considering that the number of people answering the survey changes over time.

The following two figures capture the changes in income distribution trends between 1992 and 2017. *Figure 6* shows the ratio of the highest income decile compared to other income deciles based on their average group wages from their main occupation. Notably, workers in the 10th decile consistently doubled the average earnings of the workers from the 9th decile. In contrast, workers in the lowest decile have shown the most significant reduction in their income gap relative to those at the top. In 1992, the average wage of a worker in the highest-earning decile was 7.5 times higher than that of a worker in the lowest-income decile. This ratio decreased to 5.3 by 2017, indicating a narrowing gap between workers in households with the highest incomes and those at the bottom.

Figure 6: Ratio of the mean wages from the main occupation for the 10thdecile in relation to the 1st, 3rd, 5th, 7th and 9th deciles, 1992-2017
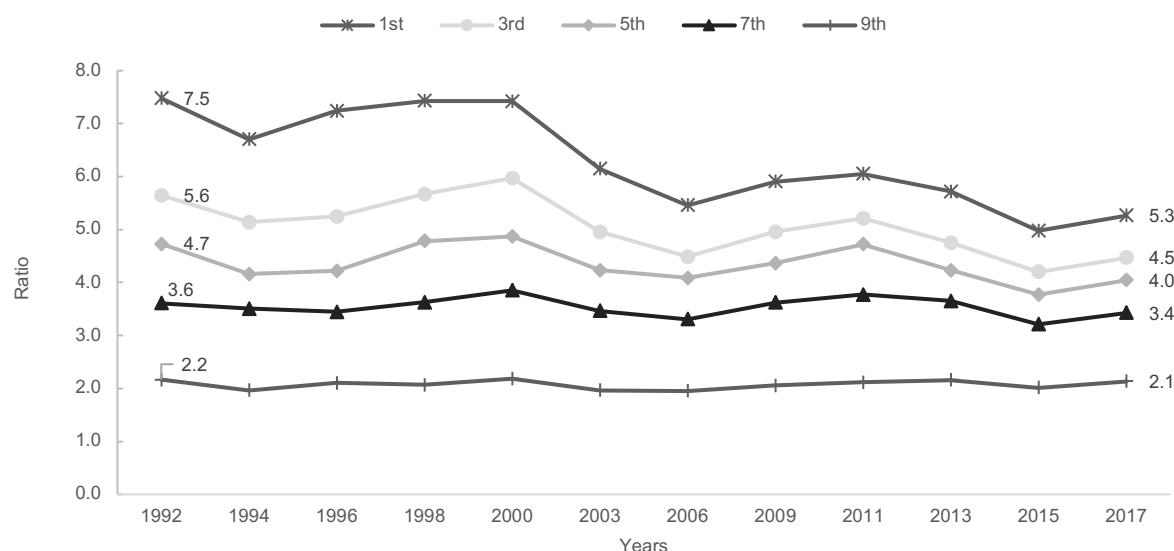
Source: Calculations based on CASEN surveys, respective years.
Note: The estimations are based on the average wage from the main occupation for each decile relative to the highest income decile (10th). The deciles provided by the CASEN are based on national per capita autonomous income.

Figure 7 presents the share of each decile of the total wages in the selected sample. The results indicate that the distribution of workers sampled for the analysis has changed over the years. The lines connecting the bars in the graph visually demonstrate how the size of the groups with the highest per capita income has increased their total share.

Figure 7: Share of workers by national per capita autonomous income deciles, 1992-2017
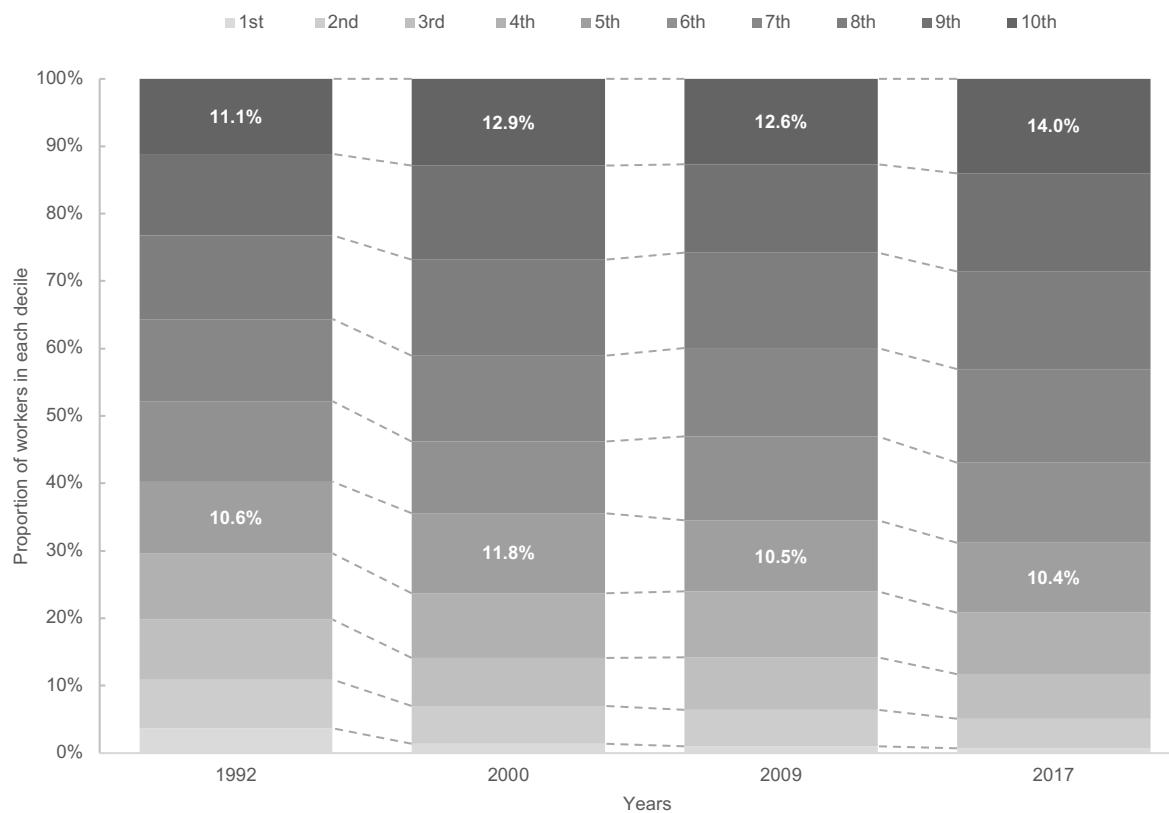
Source: Calculations based on CASEN surveys, respective years.
Note: The percentages are estimated based on the total number of formal workers and the information on their per capita autonomous income deciles.

To sum up, the analysis shows that lower-wage earners have been moving closer to middle-wage earners, which can be viewed as a positive outcome of the country's economic development over the studied period. However, the stagnation of middle-wage earners and the continued widening gap between them and high-wage earners pose a challenge for the country, particularly for workers in positions that are expected to offer greater security (full-time contracts). Despite enjoying better working conditions, a significant proportion of workers may experience increased precarity due to lower levels of job security, given the liberalisation of the labour market. The results reveal a fluctuating trajectory of wage inequality, which contrasts with the downward trend indicated by the Gini coefficient. It is, therefore, reasonable to continue examining complementary indicators of wage disparities to properly assess the impact of changes in the labour market and the benefits they provide to workers.

These coinciding movements perpetuate high levels of inequality via different mechanisms, and they have reshaped the structure of income distribution. The fact that Gini is not able to capture these nuances between groups of workers makes the case for further analysis. When compared

against previous results, the data lines up with ideas around a dual market where the top is doing significantly better in the context of formal jobs. As Portes and Hoffman (2003) presented, it is no longer the case that we exclusively observe significant differences in income based on the formal/informal divide within labour markets. In Latin America, this was a significant marker to explain the high variation of incomes and working conditions between formal and informal workers. These results, however, show that there has been an expansion of precarious and lower-income jobs to the formal sector, posing a threat to social and political stability in the country.

To complement these findings, the following section presents the main compositional changes in the Chilean labour market to get a fuller picture of how these trends match and differentiate from global trends. This is relevant since most of the literature on income inequality in the latest decades has been vastly produced for developed countries.

3.4.3 *The compositional transformation of the Chilean labour force.*

The following section focuses on the transformation of the labour force. It centres on three main dimensions relevant to the analysis of income inequality: education, gender, and economic sectors. Based on previous research, these are the main dimensions to investigate when analysing wage inequalities. The section examines the data in light of processes of widening access to opportunities, along with the integration into post-industrial, serviced-based and knowledge economies.

Education

The first factor to analyse is education. Changes in the distribution of educational attainment are expected to affect wages and inform us about the importance that countries give to human capital as a way to reach more advanced stages of economic development. The Chilean higher education system experienced a significant increment in the number of providers after the educational reform implemented in 1980, expanding the quality of education, particularly in the context of minimum regulation (Brunner, 2012). The state's marginal role as a higher education provider is to generate trustworthy information, where students are seen as consumers who potentially need protection from misleading advertising. To achieve this goal, in 2007, the government created the National Accreditation Commission to evaluate the quality of education, signalling students with accurate data to make informed decisions about their future studies[14]. Implementing the accreditation processes has created a legitimised hierarchy among higher education institutions, signalling the

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[14] National Accreditation Commission www.cnachile.cl

labour market on the quality of their graduates and reinforcing differences. Previously, Universities rested in the prestige they had achieved over the years, with the main distinction being between traditional Universities (members of the Consejo de Rectores de Universidades Chilenas – CRUCH , Counsel of Vice Chancellors of Chilean Universities) and the newer universities, in their majority, private institutions. This last group was associated with the marketisation of the higher education sector in Chile and a customer-like relationship with students. Over time, these institutions needed to build up reputation and prestige to demonstrate the quality of the education provided (Ó. Espinoza et al., 2013; Guzmán-Concha, 2017; Simbürger & Donoso, 2020). All these changes happened in a context where the education system was thought of as another market under a neoliberal approach, with reduced public control and without any limits to the cost charged to students.

In the Chilean Higher Education sector, the most prestigious universities, such as Universidad de Chile and Universidad Católica, are the ones recruiting secondary graduate students with the highest national test results to access universities. Since Chile's educational system is highly segregated, with regard to socioeconomic conditions, young people from poorer or lower-middle-class backgrounds have lower chances of accessing these highly prestigious institutions (Orellana, 2011; Cabrera, 2016). Simultaneously, private higher education institutions are more varied in terms of their status and prestige. A selected number of private universities located in Santiago's more affluent areas recruit the bulk of students with privileged economic backgrounds, with relatively good academic scores, but not necessarily excellent (Bernasconi & Rojas, 2003). The fees for these institutions are the mechanism through which access is restricted to students from lower social classes. In a similar vein, a significant number of higher education institutions target students from disadvantaged backgrounds, offering lower fees and accessible loans, generating a highly segmented higher education system. As a consequence, the quality of the education offered by these institutions has different effects on the labour market.

On the one hand, due to the expansion of the higher education sector, increases in the supply of more qualified workers expand the number of workers earning higher wages and their heterogeneity. On the other hand, the segmentation observed in the higher education sector gets passed on to the labour market. Graduates from prestigious institutions have higher chances of getting secure jobs and higher wages vis-à-vis students who may have the same degree. However, their educational credentials vary in their value in the labour market (Brunner, 2012). Overall, the structure of the higher education system in the country perpetuates disparities in the primary and

secondary levels, operating as a continuum of social differences and inequality. Therefore, the expansion of education as a promoter of social mobility needs to be considered with some caveats.

Table 3 shows a sharp increase in workers with tertiary education from 24.8% in 1992 to almost half of the selected sample (45.1%) in 2017. The table also shows significant differences in the share of male and female workers with tertiary education, favouring the latter.

Table 3: Completed educational levels for workers aged 24 years old or older by gender, 1992-2017

Year	Secondary Education			Tertiary education		
	Male	Female	Total	Male	Female	Total
1992	27.6	37.4	30.6	20.1	35.4	24.8
1994	31.6	38.3	33.7	24.2	42.0	29.8
1996	32.4	36.9	34.1	26.4	44.7	34.5
1998	33.1	37.0	34.4	28.6	47.9	35.1
2000	33.2	37.6	34.7	30.4	47.8	36.4
2003	33.2	36.2	34.2	34.3	53.0	40.8
2006	35.1	35.1	35.1	30.7	50.1	37.3
2009	38.0	38.7	38.3	29.6	47.0	35.8
2011	36.4	36.8	36.6	30.7	48.6	37.1
2013	35.5	35.1	35.4	34.1	51.1	40.8
2015	37.1	34.5	36.0	36.8	53.1	43.4
2017	36.1	32.7	34.7	38.4	54.8	45.1

Source: Calculations based on CASEN surveys, respective years.
Note: The percentages are estimated based on the total population of selected workers, considering all levels of education. The percentage of missing data ranges between 2.9% and 0%, depending on the year, with an average of 0.5%. More detail is presented in the Appendices section.

Figure 8 shows the ratio for different educational levels in relation to the overall mean wage from 1992 to 2017. The most salient aspect of this figure is the reduction in wage premia for workers with tertiary education from 1.8 to 1.4. Similarly, workers with secondary education also experienced a slight reduction in wages compared to the mean, moving from 0.8 in 1992 to 0.7 in 2017. Finally, workers with only primary education have remained stable, earning on average 0.6 times the overall mean wage. A potential explanation for the fall in wage levels for workers with tertiary education is the generalised increase in educational attainment; consequently, more workers with higher education levels are available in the market, increasing the supply and compressing wages. This information is particularly relevant for the sample of workers in the analysis since although previous research has evidenced a reduction in wage premia for workers in Latin America after 2000 (Gasparini & Lustig, 2001; Rodríguez-Castelán et al., 2022), the originality of this analysis stems from the focus on full-time workers employed in the formal sector,

where the classic strong relationship between higher levels of education and higher levels of wages starts to show some limitations.

Figure 8: Wage ratio of mean wage from the main occupation by educational level for workers aged 24 years old and older, 1992-2017
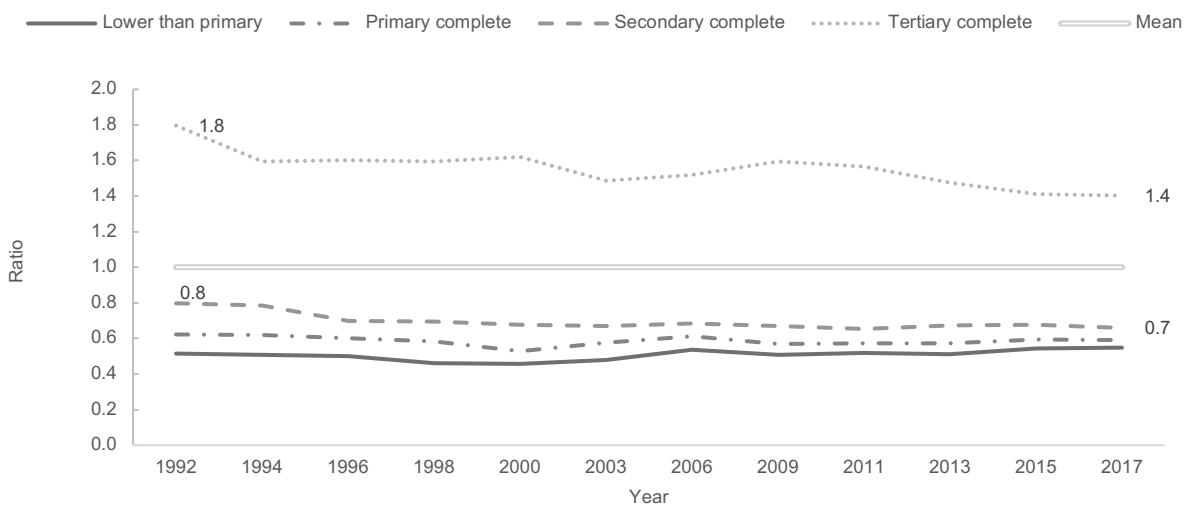

Source: Calculations based on CASEN surveys, respective years.
Note: The ratios are estimated using the mean wage from the main occupation for each educational level in reference to the mean wage for all workers aged 24 years and older with information on their income.

Figure 9 shows a clear difference between both deciles, with more than 90% of workers in the top decile reporting tertiary education in 2017 against 9.9% in the lowest decile. Although both groups have increased their education levels as a consequence of regulations such as the reform implemented in 2003[15], making secondary school mandatory, and the previously presented expansion of the higher education sector, still more than 40% of workers in first-decile households have only reached primary education. These results show how there has been a strengthening in the relationship between education and high incomes, particularly for the group at the top. These results aligned with theories of human capital, where education plays a major role in determining people's income. Nevertheless, 10% of people in the lowest household income decile have reached tertiary education, making them an interesting case for further studies.

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[15] Law 19876 Constitutional Reform that Establishes the Obligation and Free Nature of Secondary Education. Available at: https://www.bcn.cl/leychile/navegar?idNorma=210495&idParte=

Figure 9: Distribution of workers aged 24 and older by type of education, national per capita autonomous income decile and year
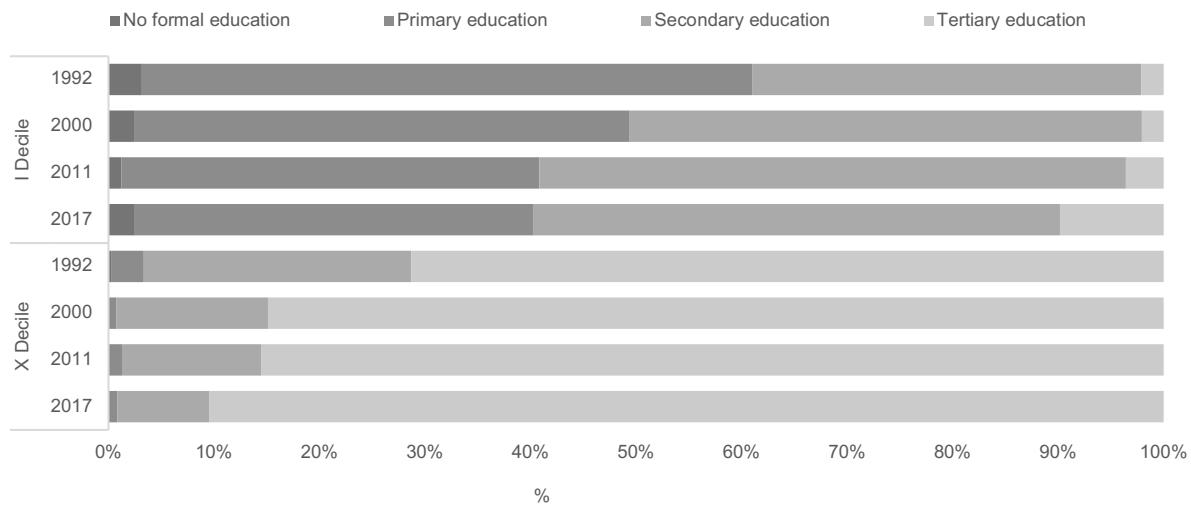
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on the total number of workers aged 24 and older with information on education and decile.

Figure 10 shows that more than 80% of workers in the highest household income decile have studied at universities. Almost two-thirds have done it in traditional universities, which are the most prestigious ones. At the lowest decile, only 2.7% have made it to public universities, and less than 50% of those who have tertiary education have studied at these universities.

Figure 10: Distribution of workers aged 24 and older by type of higher education institution and national per capita autonomous income decile in 2017
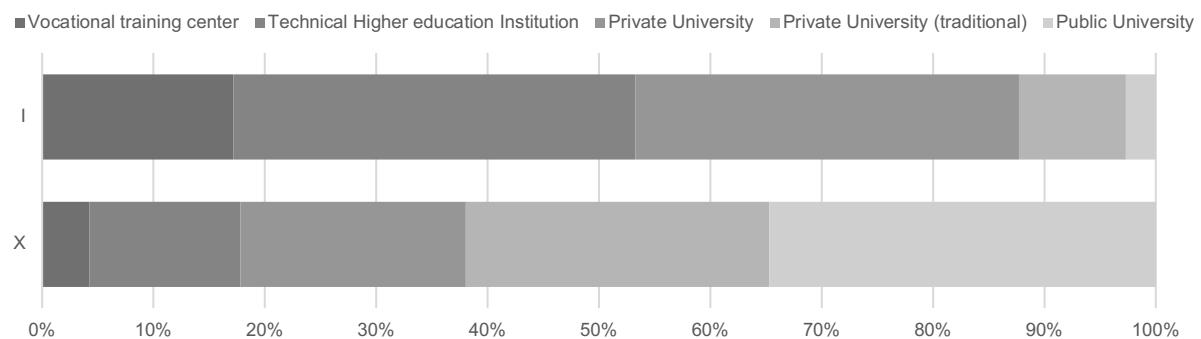
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based solely on the information collected in 2017.

Overall, the trends in education can partially account for the changes in income, particularly regarding the returns received by workers with tertiary education in recent years. As with other countries in Latin America, the region witnessed an increase in wage premiums, driven by the rising demand for highly skilled workers. Once economies began to upskill their workforce, the

wages for this group started to decline. However, it is important to note that, despite this downward trend, having a higher education degree still, on average, results in significant wage increases compared to workers with lower levels of educational attainment. The nuances of professional occupations will be explored in Chapter 5, which focuses on this occupational group.

The increasing feminisation of a highly segregated formal labour force

In addition to education, gender has been historically identified as a characteristic through which it is possible to observe significant variances in income among workers (Blau & Kahn, 2007, 2017; Bobbitt-Zeher, 2007). As mentioned in previous sections, the changing nature of the labour market has been driven by the significant increase in female participation. The cultural, political and economic implications are still being processed by governments and social policies, and this section aims to depict the specifics of their contribution to the Chilean labour market over the past few decades.

Figure 11 shows a persistent increase in the proportion of women over the years in the total composition of the labour market, from 27.9% in 1992 to 40.3% in 2017. Additionally, the absolute number of women participating in the labour market more than doubled between 1992 and 2017, with an increase of 250%. This shift in the gender composition of the formal labour force also follows worldwide trends of increasing participation of females, which in terms of income distribution has been addressed as a factor that increases inequality, since compared to male workers, females tend to earn lower wages (Blau & Kahn, 1997).

Figure 11: Composition of the formal working population by gender, 1992-2017
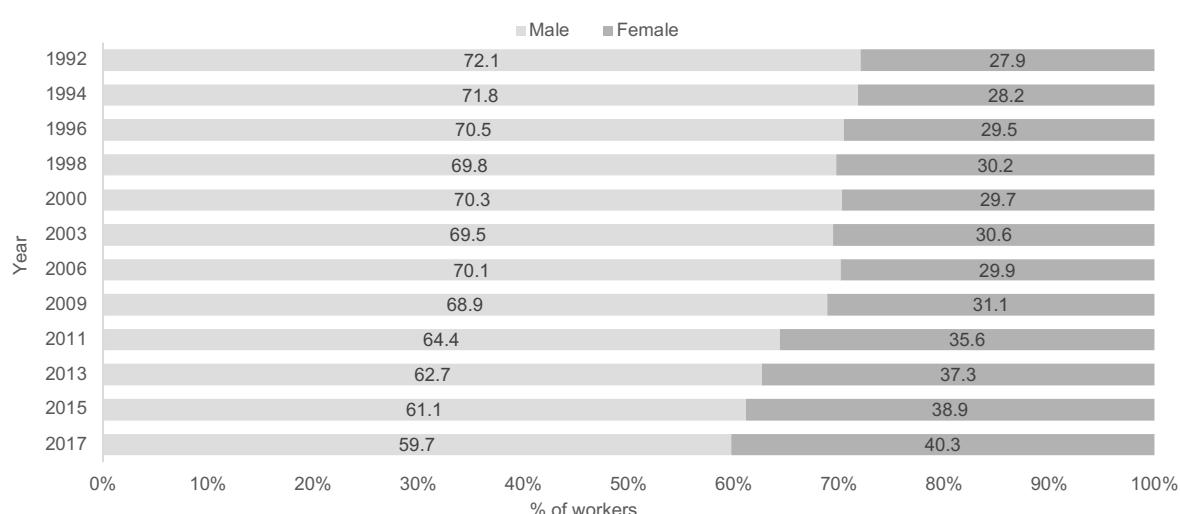
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on employed workers and their gender distribution by year.

In terms of gender distribution by sectors of the economy, there has been a significant increase in the proportion of female workers in the tertiary sector- which comprises companies that offer services- reaching 81.9% in 2017. Male workers, on the other hand, are more evenly distributed between the secondary and tertiary sectors of the economy, with 40.4% and 47.1% respectively in 2017. There has been a decline in participation in the primary and secondary sectors for both female and male workers, suggesting that the shift towards a service-based economy has been predominantly driven by female workers.

Historically, the primary sector has offered lower incomes and more precarious working conditions than the secondary and tertiary sectors. The service, or tertiary sector, has been marked by having more dispersion of wages, whereas the secondary sector – which comprises manufacturing, electricity, gas and water company providers, and workers in the construction sector has shown to have the more stable and secure working conditions.

Figure 12: Percentage of workers by sectors of the economy and gender, 1992 and 2017
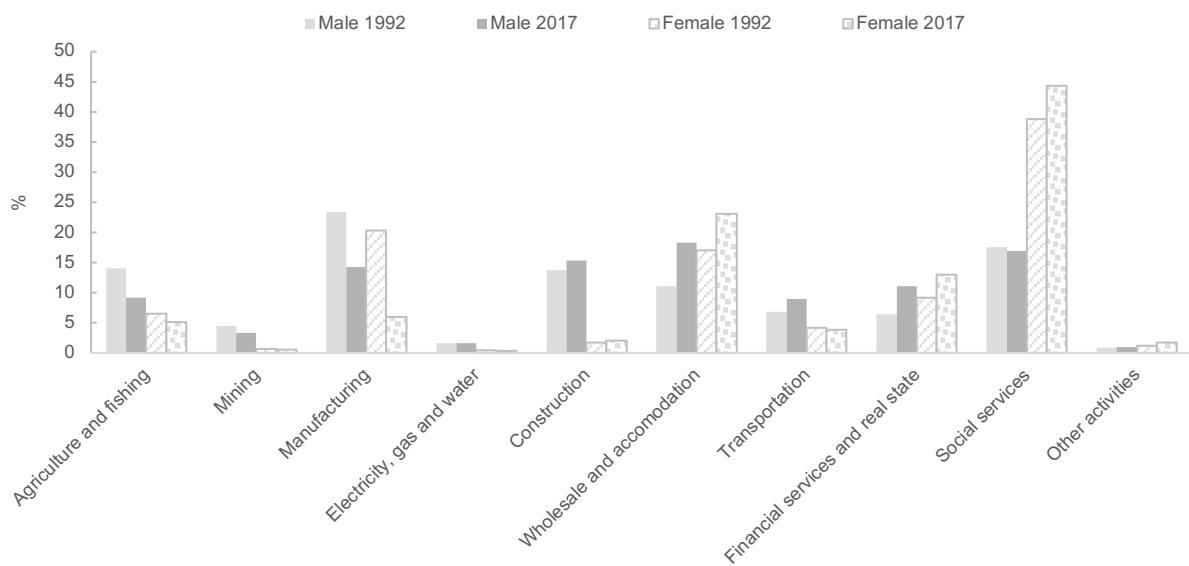
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on employed workers and their distribution by gender and declared economic sector for the years 1992 and 2017.

Examining the changes in workers' distribution by economic sector, *Figure 12* shows that the most prominent economic sector in 1992 and 2017 is Social services (24.2% and 28.1% respectively). The most notable variations over the 25 years are the increase in the proportion of workers in the areas of Wholesale and accommodation (+7.4 percentage points), Social Services (+3.9 pp) and Financial and insurance activities (+4.6 pp). On the other hand, the economic sectors that show a decrease in their total representation are Manufacturing, with a significant 11.6 pp lower, and Agriculture and forestry (-4.2 pp). Other areas such as Mining and quarrying; Electricity, gas, steam,

and water supply; Construction and Transportation and Storage did not present significant variations over the 25 years. The numbers indicate a shift in the composition of the labour market from more traditional economic sectors such as Agriculture and Manufacturing towards a Service Economy and the strengthening of Financial and insurance activities. These trends aligned with global patterns, where economies are favouring the expansion of services, technology and finance.

Figure 13: Distribution of formal workers by economic sectors, 1992-2017
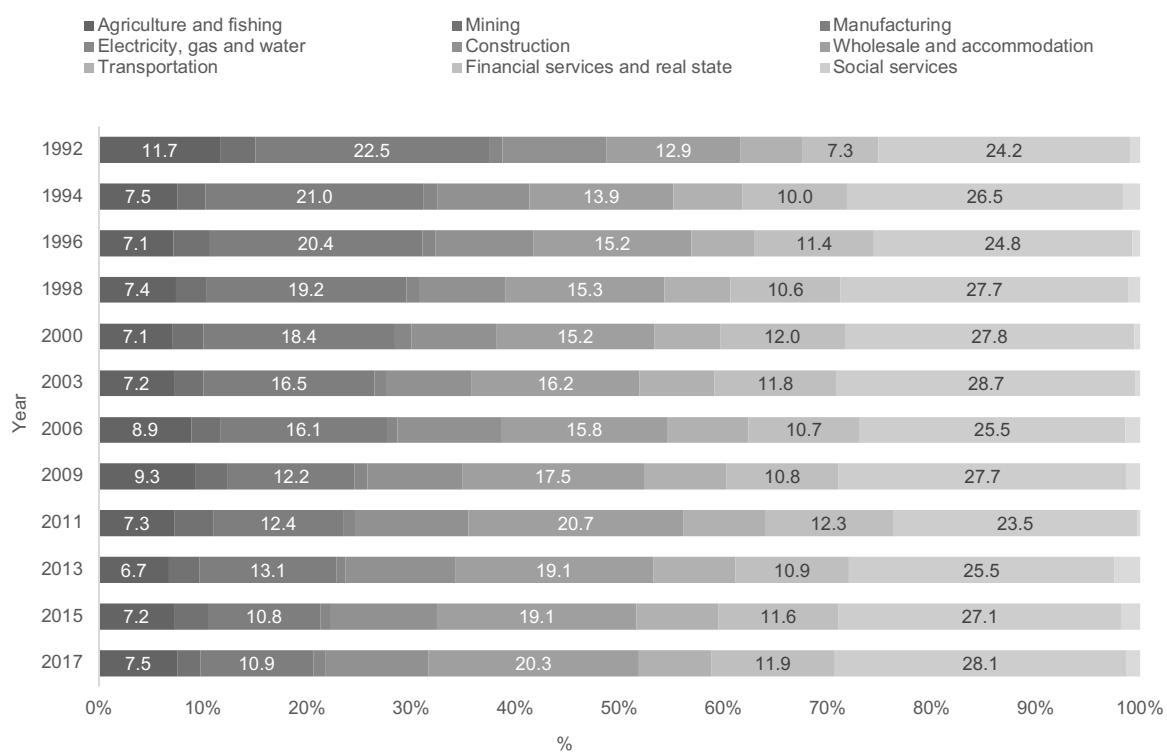
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on employed workers and their distribution by declared economic sector and years.

To have a more condensed picture of economic sectors, the following analysis merges the categories into Primary and Secondary sectors whilst keeping a detailed breakdown of those sectors traditionally grouped in the Tertiary or Service Sector sectors[16]. *Figure 14* compares the distribution between the different observed years evidencing a reduction in the Primary and Secondary economic sectors in favour of the Tertiary. This economic shift follows a process of deindustrialisation, placing the service or Tertiary sector as the largest sector. Although Chile has never fully developed an industrialised economy, there seems to be a retraction from growing and investing in the Secondary or Manufacturing sector. This change in the economic structure follows

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[16] Primary sector considers the extraction of raw materials from the natural environment. The secondary sector involves the manufacture of products. These definitions were extracted from the Oxford Dictionary of Economics, 3 ed.

the trends of increasing job positions in the service sector particularly in Financial and Insurance Activities, Social Work Activities and Wholesale, Accommodation and Food Service Activities, to the detriment of Manufacturing and Agriculture and Forestry. The increased number of jobs in the Tertiary sector can impact income distribution since there is a higher heterogeneity of types of work within that sector than in the Primary and Secondary ones. One of the reasons is that jobs in Finance and Wholesale jobs are included in the same sector. However, the working conditions, wages, types of jobs and educational levels can vary significantly. Therefore, it is expected that an increase in the Tertiary sector will impact income inequality levels.

Figure 14: Distribution of workers by sectors of the economy, 1992-2017
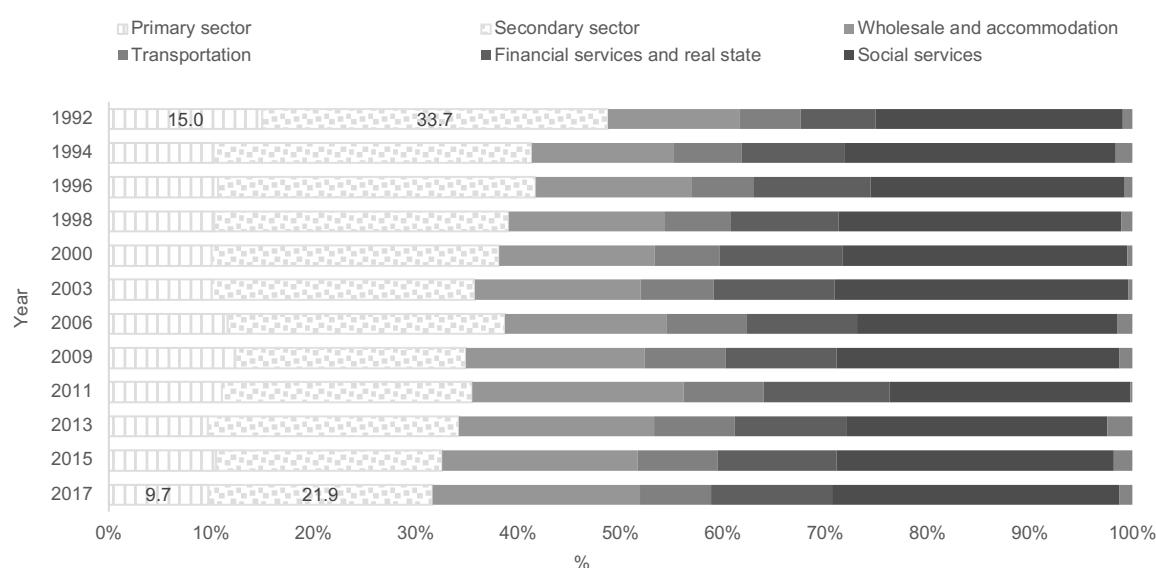
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on employed workers and their distribution by declared economic sector and years.

The main results of this section show a shift in the composition of the workforce, which has become more educated over the years, with a higher share of females and transitioning towards a tertiary economy.

The presented changes in the Chilean labour market appear to be in line with broader trends observed, particularly in developed countries. Although there are several caveats to be mentioned, such as the wide variation in quality from higher education institutions, the analysis sets the general context for the following examination of changes in the labour force's occupational composition.

3.4.4 *Trends of occupational distribution, 1992-2017*

Drawing upon Morris and Western's (1999) appeal to examine wage inequality not only in terms of gaps between groups but also into changes in the dynamics of labour markets, this section discusses the structural transformation of occupations and the reconfiguration of the economy in the Chilean labour market from 1992 to 2017, The aim is to examine how these changes correlate with broader wage inequality trends and the reshaping composition between and within occupations.

The first step in assessing structural changes in occupations is to observe the trajectory in the overall occupational groups' distribution. *Figure 15* shows that from 1992 to 2017, Professionals and Technicians and associated professionals were the occupations with the most significant increments in their share of the whole sample (6.3 and 5.7 pp, respectively). While Professionals moved from the fifth position to the second one, Technicians jumped from the seventh position to the third one. On the other hand, the highest decrease was experienced by Craft and related trades workers and Clerks, the former moving from the second to the fifth position and the latter from the third to the sixth position. These shifts in rank indicate a transformation in the overall educational level of workers, which is consistent with previous results. The larger share of Professionals and Technicians, over Craftworkers and Clerks, emerges from the government's efforts to increase access to education based on the goal of providing more egalitarian access to opportunities. As a result, the Chilean labour market exhibits an upscaling of employees' skills, positioning the country and its economy in a privileged stage within the continent. Indicators such as the percentage of the working age population with an advanced level of education who are in the labour force show that Chile ranks above the regional average and is placed above countries such as Brazil, Argentina, Colombia, Peru and Mexico (https://databank.worldbank.org).

Figure 15: Distribution of workers by occupational groups, 1992-2017
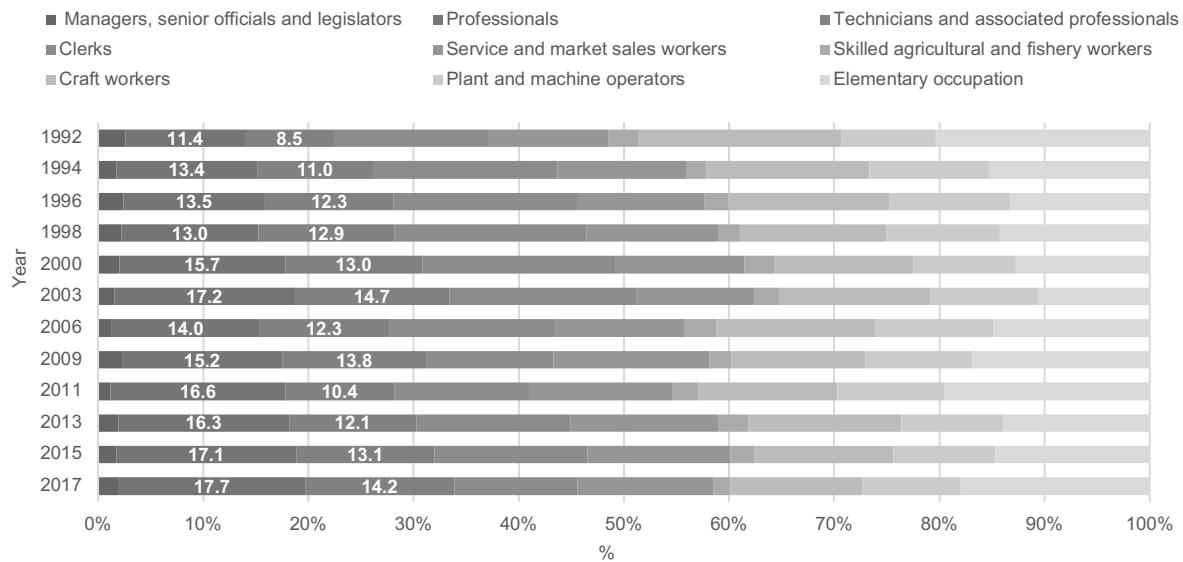
■ Managers, senior officials and legislators	■ Professionals
■ Clerks	■ Service and market sales workers
■ Craft workers	■ Plant and machine operators

■ Technicians and associated professionals
■ Skilled agricultural and fishery workers
■ Elementary occupation

| Year		
1992	11.4	8.5
1994	13.4	11.0
1996	13.5	12.3
1998	13.0	12.9
2000	15.7	13.0
2003	17.2	14.7
2006	14.0	12.3
2009	15.2	13.8
2011	16.6	10.4
2013	16.3	12.1
2015	17.1	13.1
2017	17.7	14.2

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

%

Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on employed workers and their distribution by declared occupation and years.

This shift in the distribution of occupations in Chile mirrors trends observed in more advanced economies, aligning with Daniel Bell's concept of post-industrial societies (1973). One of the main features of this model states that the transition from manufacturing to post-industrial economies is driven by the centrality of knowledge and the ability to predict outcomes. This shift is evident in the increasing number of workers in jobs requiring advanced education levels. The development of sophisticated mathematical models has placed decision-making processes in the hands of what Bell termed "intellectual technology," impacting all spheres of society. This epistemological shift has been introduced in sectors such as commercial trade, finance, recreation, health, education, research, and government, reconfiguring modes of production and the social relations between employers and employees.

Although this diagnosis was made in the 1970s, it is still relevant today, particularly in contexts like the Chilean one, where we can see that the levels of education required to drive this transition started developing from the 1990s onwards. Some of the most recent consequences of this shift, which has also been documented in the UK, Europe and the US, is the polarisation of jobs and, therefore, salaries between different classes of workers (Autor et al., 2006; Autor & Dorn, 2013; Fernández-Macías, 2012; Goos & Manning, 2007).

The area where more precarious jobs have been created is the Service sector, which, in general, requires lower levels of education and is more accessible to different types of workers than high-skilled occupations. It appears then that the changes in the economy have generated a two-layer

shift in types of workers, on the one hand providing access to secure and well-paid jobs for high-skills to ensure and promote the continuity of technological development for economic growth. On the other hand, the service sector's expansion has increased the demand for workers with lower or medium-level skills, generally offering precarious working conditions and low salaries. However, at the same time, it has promoted the entrance of traditionally excluded groups to the labour market, such as women and young workers.

Wages and occupations

Figure 16 shows that managerial and professional occupations have the highest level of wages, consistently distancing from the other occupational groups. The figure also shows a steady overall increase in wages for the other occupational groups as well as low levels of wage dispersion among them. The main distinctive trend lines can be observed in managerial, professional, and technician occupations. In contrast, the rest seem to merge into one thick line, showing that in terms of wages, these occupational groups share more similarities than the other three. One notable aspect of this figure is the drop in the mean wage for managerial occupations observed in 2009. When examining the overall trends, this result could be explained by the characteristics of the sample that year, as well as measurement errors. Additionally, from a context perspective, another possible explanation could be the early effects of the 2008-9 global financial crisis having a particular impact on managerial workers in the formal sector. Despite the decline observed in 2009, the subsequent years show a continuation of the prior upward trend in the mean wage, signalling that the most likely explanation is sampling issues.

Figure 16: Real mean wage by occupation (Chilean pesos), 1992-2017
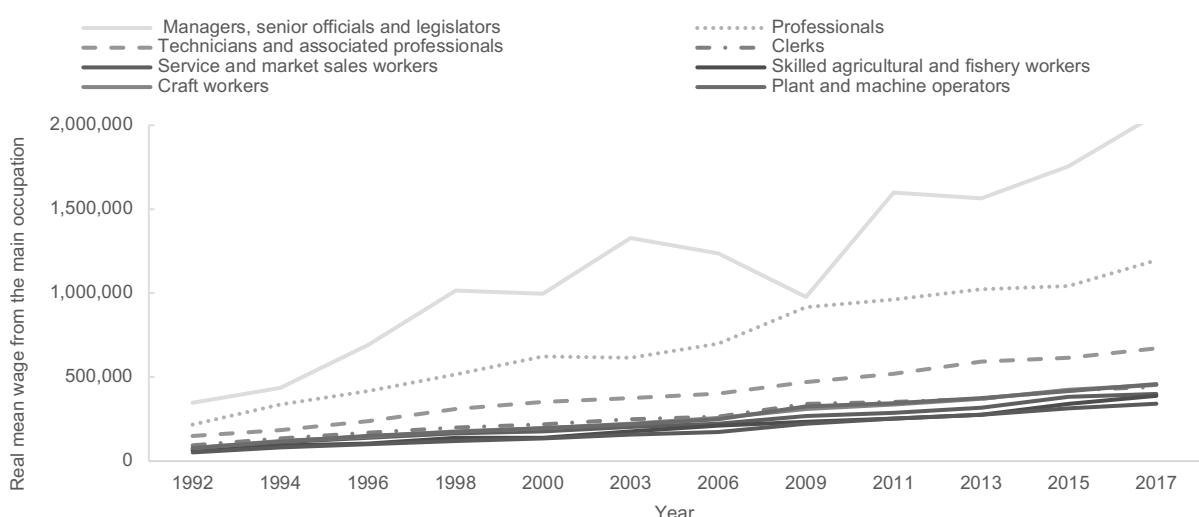
Source: Calculations based on CASEN surveys, respective years.
Note: The mean is estimated based on the total number of workers with information, and the wages have been adjusted to the real value in 2017 for comparison purposes.

Table 4 shows the ratio between each occupational group's mean wages and the average wage for all sampled workers. One can observe stability in ratios with a slight reduction in the revised period. A noticeable feature is a stark difference between the two first occupational groups and the rest – with Technicians and associated professionals in the centre of this sharp division.

Table 4: Ratio of the real mean wage by occupation against the real mean wage from the main occupation for all workers, 1992-2017

	1992	1994	1996	1998	2000	2003	2006	2009	2011	2013	2015	2017
Managers, senior officials and legislators	3.4	2.8	3.4	4.1	3.4	4.1	3.7	2.3	3.5	3.1	3.2	3.3
Professionals	2.1	2.1	2.0	2.1	2.1	1.9	2.1	2.2	2.1	2.0	1.9	1.9
Technicians and associated professionals	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.1	1.1
Clerks	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.7
Service and market sales workers	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.6	0.6	0.7	0.6
Skilled agricultural and fishery workers	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6
Craft workers	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.7
Plant and machine operators	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.7
Elementary occupation	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6

Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on the real mean wages by occupation divided by the real mean wage from the main occupation for all selected workers.

Finally, when observing the occupational distribution by deciles, as shown in *Figure 17*, there is a clear association between occupations and wage levels. The top decile shows a sharp increase in Professional occupations from 37.5% to 56.1%. The trajectory of the lowest decile suggests a slight upscale towards more skilled occupations, with a reduction in the share of Elementary occupations and a modest increase in Technicians.

Figure 17: Occupational distribution by national per capita autonomous income decile, selected years between 1992-2017
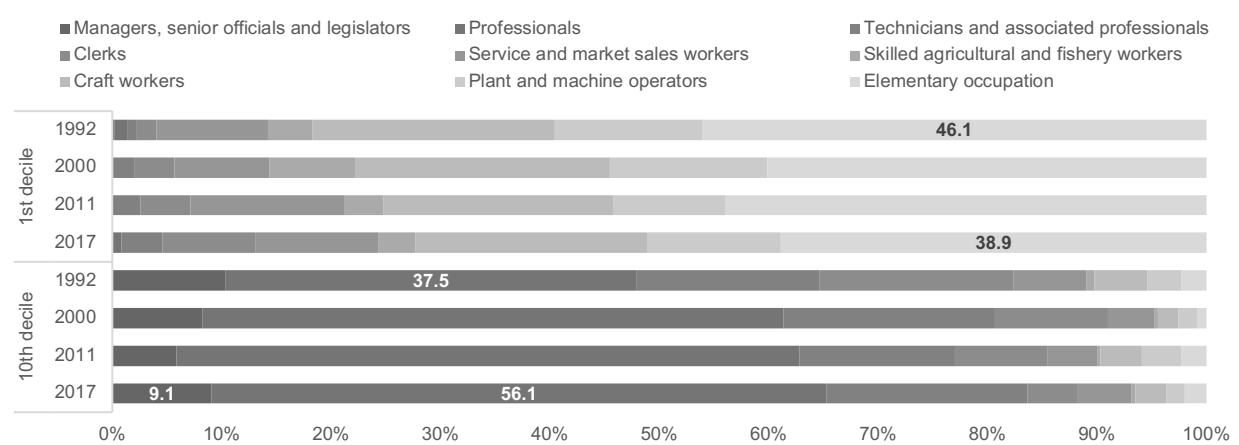
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on the total number of workers in the highest (10th) and the lowest (1st) national per capita autonomous income decile for different years.

Overall, the trends in wages and occupations show a clear correlation between the two. Therefore, shifts in the composition of the occupational structure are expected to impact the overall levels of wage inequality.

Education

This section examines the years of schooling for each occupational group in the studied period to better assess the relationship between occupations and educational attainment. In Chile, education appears to be the most salient form of equality of opportunity, whereas access to the labour market operates as a form of overcoming poverty. Therefore, based on this relationship, it is central to study the track of education to analyse wage inequality.

The country shows a steady increase in educational attainment from 10.9 years in 1992 to 13.0 years of education in 2017 (+20%). The overall rank of occupations has not changed, which is expected. Professional occupations show the highest mean of years of education (17.0 in 2017), and Skilled agricultural and fishery workers have the lowest number (9.5 years in 2017).

Figure 18: Mean years of education by occupations, 1992-2017
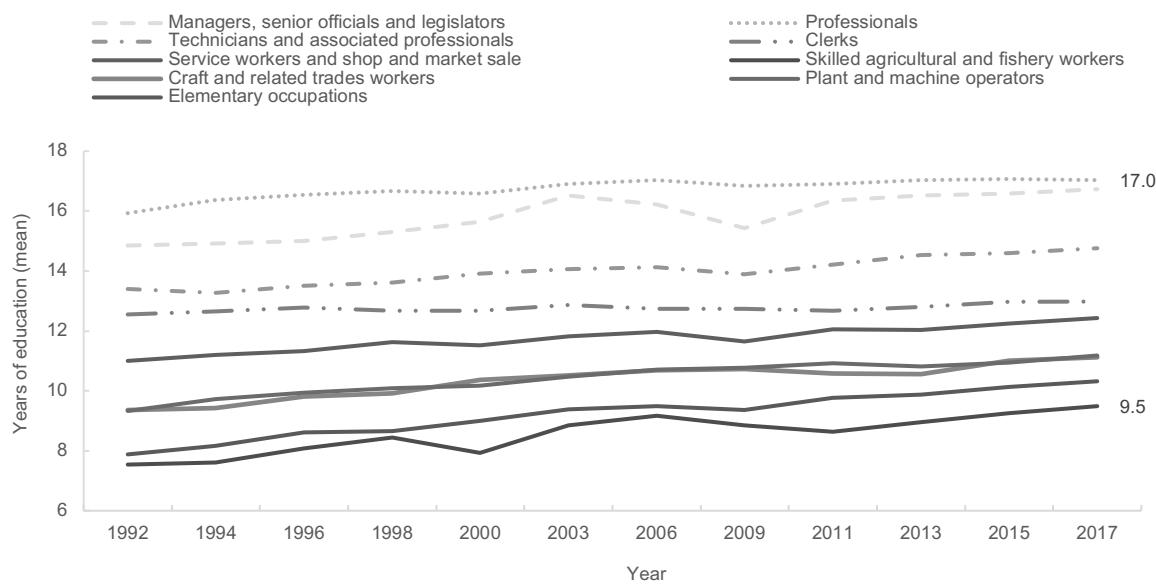
Source: Calculations based on CASEN surveys, respective years.
Note: The mean is estimated based on the average number of years of education for every occupation in each year.

Figure 18 shows three distinctive features. The first one is that a significant increase in education years is proportionally observed in occupations with lower years of education, particularly Elementary occupations and Skilled agricultural and fishery workers. The second feature is the distancing between Skilled agricultural and Elementary occupations when comparing the differences in years of education in 1992 (4 months difference) and 2017 (9 months difference).

The third characteristic is the stability of years of education for Clerks and Professionals. In Chile, secondary education is completed in 12 years. The efforts made by different governments over this period seem to have achieved an increase in educational attainment across occupations, with the groups located at the lower end being the ones who have benefited the most. As previously mentioned, the changes that have made secondary education mandatory have already shown their effects on the working population.

Figure 19 shows that in 1992 there were overall higher levels of standard deviation in workers' average years of education compared to the numbers in 2017. Professional occupations have reduced the gap from 2.6 to 1.4 years, showing a narrower distance between workers. On the other hand, occupational wages with the highest dispersion are Skilled agricultural and fishery workers and Elementary occupations, both occupational groups ranking at the bottom on the average number of years of education. The figure shows restrictive access to occupations with higher education levels, such as Professionals and Managers, a stable image in the middle and a slight reduction in the dispersion of years of education in the less qualified occupations. The significance of these numbers is an apparent closure and homogenisation of the best-positioned occupations (in terms of wages and working conditions), i.e., Managers, Professionals and Technicians. Although these occupational groups have always required higher education levels for their execution, it seems as if the labour market has increased access restrictions in later years at a time when the supply of workers with higher levels of education has also risen.

Figure 19: Workers' mean years of education by occupational groups, 1992 and 2017
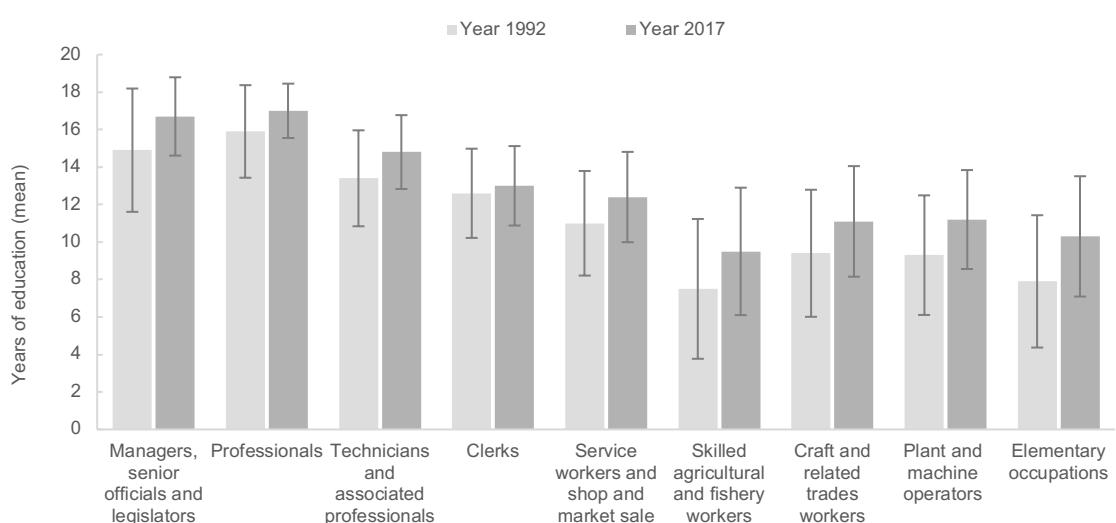
Source: Calculations based on CASEN surveys, respective years.
Note: The mean is estimated based on workers' average years of education for each year. The black vertical lines represent the standard deviation.

Figure 20 shows the proportion of workers with tertiary education for the three most educated occupational groups. The diamond shape indicates the average years of education for the whole selected workforce. As can be seen from the figure below, there has been a consistent increase in the proportion of workers with tertiary education in all groups, with Professional occupations having almost all cases in this category in 2017 (98.8%). The importance of the data presented in *Figure 20* lies in clearly showing the differences between these three groups and their advancement in the observed period over the other occupational groups.

Figure 20: Percentage of workers aged 24 years old or older with tertiary education by occupational groups, 1992-2017
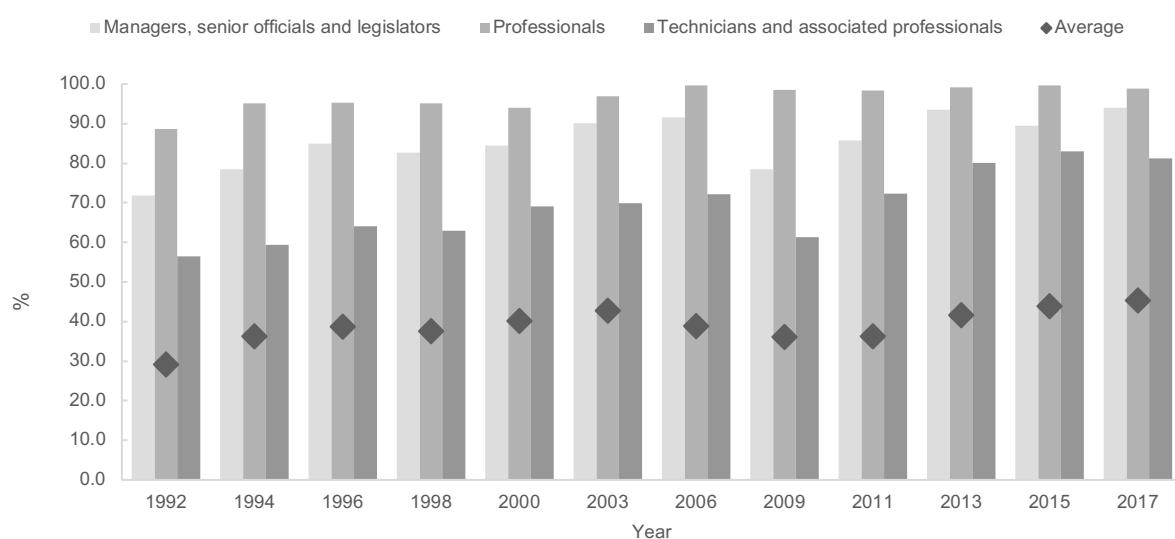
Overall, the increase in educational attainment has been a shared feature by all occupational groups, except Clerks, who have not shown variation. Nonetheless, the improvement of occupational groups with the lowest education levels still only makes it up to secondary school. According to the literature, the most significant change in earnings is driven by access to and completion of tertiary education (Autor, 2014). Identifying which groups have benefited more from the increase in educational attainment makes it possible to provide a more nuanced picture of who has genuinely done better.

Gender

As with education, gender distribution is another relevant reconfiguration of the labour market that has effects on income inequality. *Figure 21* provides an overview of the trajectory of gender

distributions of workers between 1992 and 2017. In terms of ranking, Professionals, Technicians, and Service workers are at the top of female-dominated occupational groups and have been since 1992, with the exception of Clerk workers, who have seen a significant reduction in the proportion of female workers compared to their counterparts in that same occupational group. By looking at this data in light of the previous information presented on years of education, female-dominated occupations are high and medium.

Figure 21: Percentage of female workers by occupations, 1992-2017
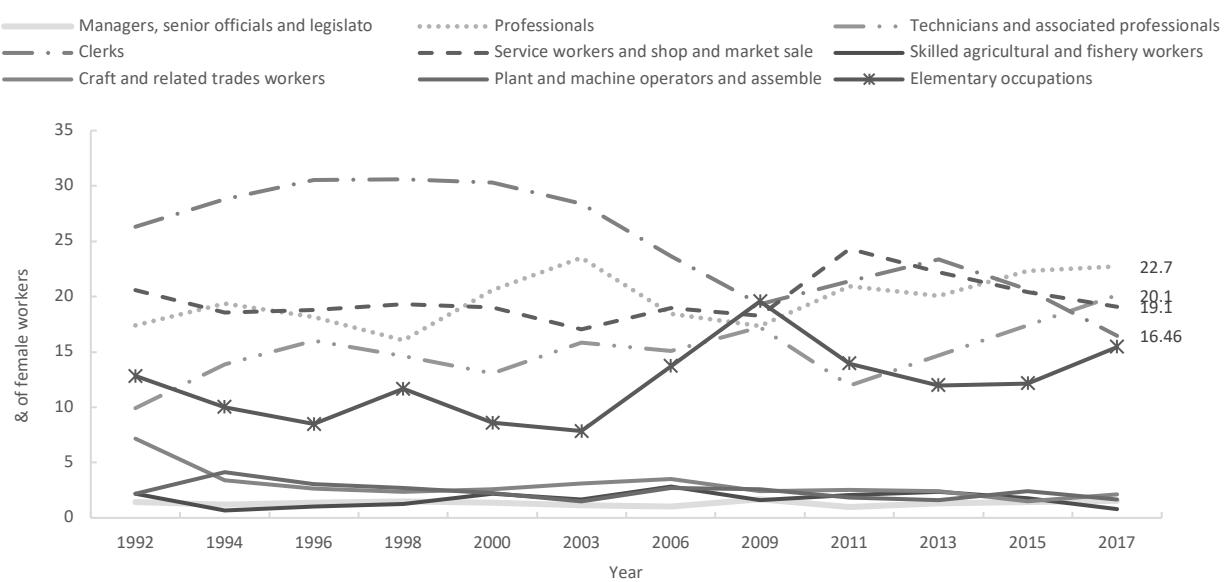
Source: Calculations based on CASEN surveys, respective years.
Note: The distribution shows the percentage of female workers in each occupation by year.

The most salient feature of *Figure 21* is the shared stability of specific occupations where female workers represent under 5% of the total workers in those occupations. Managers have been one of the most challenging ones, evidencing the persistence of barriers for female workers to get to higher hierarchical positions in the workplace.

Overall, this section has shown two main results. One is the strong relationship between occupations and wages. However, the closeness of earnings for occupational groups associated with lower-skilled jobs can signify a need to revise those categories and their current effectiveness when examining wage inequality. The other one is the sharp diversion of managerial and professional occupations from the other groups in their average incomes, reinforcing the need to continue investigating the main features of these two groups as drivers of economic disparities. This is particularly salient for professional occupations since they can have been traditionally linked

to discourses of meritocracy, adscription, and their diversity and share in the workforce has increased significantly over time.

3.4.5 *Between and within-occupational income inequality*

This section examines the differences between and within occupational wages to provide a picture of income inequality dynamics incorporating occupational variations. As previous research has shown (C. Kim & Sakamoto, 2005; Lemieux, 2003; Mouw & Kalleberg, 2010), *Figure 22* presents the fluctuation in the importance of between-occupational wage inequality from 1992 to 2017, ranging from 44% in 1994 and 2009 to 61% in 2003.

Figure 22: Between and within occupations wage inequality, 1992-2017
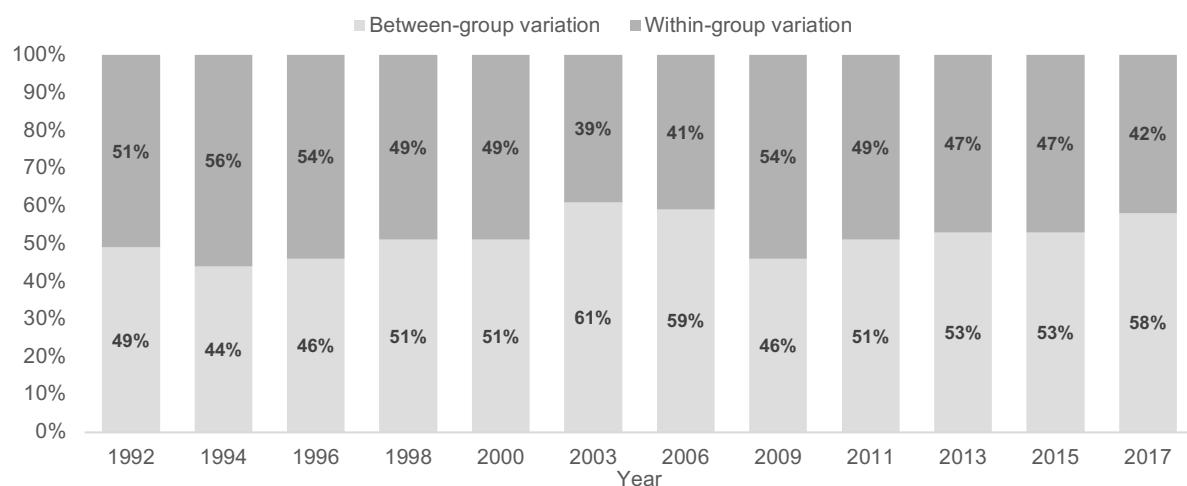
The data reveals a relatively stable share of between-income inequality over the last decade of the 1990s, experiencing a sharp rise in 2003, to start declining again with the lowest point observed in 2009. Since then, the trajectory shows an uprising movement with a higher proportion of wage dispersion, explained by differences between occupations rather than within them. When compared against the literature, the results show stability in the two components' proportion over time. The overall trend has a waving shape, moving regularly around 50%.

Despite the changes in the structure of the economy and the distribution of occupations, differences in income between occupations explain and predict more than half of wages' variation since 2011. Based on these results, one could argue that there has not been a decline in the importance of occupational groups in structuring inequality. However, the share of wage variation within occupational groups is still significant.

One reason could be the type of aggregation used in this study with nine large groupings of workers. Further analysis is conducted in the next chapter to observe how these trends change when occupational analysis groups are at a more disaggregated level, with a specific focus on professional occupations, following the propositions of Weeden and Grusky around the importance of micro-class occupational analysis (2005).

The debate remains in terms of how much of the residual part of wages can be linked to changes in the valuation of "unobservable skills", such as talent in more advanced economies with a larger supply of highly qualified workers or relatively continuous discriminatory practices. If unobservable skills are not evenly distributed among the population, one should ask what the access mechanisms are to more privileged positions.

3.5 Conclusions

The Chilean labour market underwent substantial transformations between 1992 and 2017, reflected in significant compositional changes in its workforce. The analysis reveals three fundamental developments: a marked upskilling through increased educational attainment, particularly in tertiary education (from 24.8% in 1992 to 45.1% in 2017); a substantial rise in female labour market participation (from 27.9% to 40.3%); and a structural shift towards a service-based economy.

This transformation mirrors Bell's (1973) conception of post-industrial societies, particularly regarding the centrality of knowledge and educational credentials. However, as Brunner (2012) demonstrates, the quantitative expansion of educational opportunities masks significant qualitative differences between institutions, perpetuating existing social inequalities through institutional hierarchies. This educational stratification is reflected in labour market outcomes, where graduates from prestigious institutions consistently secure better-paid positions.

The increased female participation in the labour force represents a significant structural change but reveals a pronounced occupational segregation. Women are predominantly concentrated in service sector roles and notably underrepresented in managerial positions, reflecting what the PNUD (2017) identifies as persistent institutional and cultural barriers. This gendered occupational distribution contributes to wage polarisation, with women disproportionately represented in lower-paid service sector positions.

The structural transformation towards a service economy, while following global trends, has taken a distinctive form in Chile. Unlike developed economies, Chile's service sector expansion has not primarily created knowledge-based roles but instead has concentrated in wholesale, accommodation, and social services sectors. This pattern exemplifies what Rodríguez Weber (2018) characterises as peripheral capitalism, where economic modernisation occurs without corresponding technological advancement.

The analysis of wage inequality reveals a complex picture. While the Gini coefficient shows a declining trend (from 55.5 in 1998 to 46.6 in 2017), more nuanced measures suggest persistent inequality. Flores et al. (2019) demonstrate that income concentration at the top has remained stable, with the top 1% maintaining approximately 24% of total income. The compression of wages between workers at the bottom and middle of the income distribution has occurred primarily through state intervention via minimum wage policies rather than market mechanisms.

The multilevel analysis reveals that between-occupational wage inequality accounts for more than half of wage variation since 2011, challenging assertions about the declining importance of occupations in structuring inequality. This finding supports Portes and Hoffman's (2003) argument that labour market liberalisation has extended precarity into the formal sector, creating a dual labour market structure. Despite expanded educational access, the persistent wage premium for managerial and professional occupations suggests enduring barriers to social mobility.

A particularly significant finding is the high level of wage variation within professional occupations despite similar educational requirements. This phenomenon requires further examination of what Kim and Sakamoto (2005) term "unobservable skills" and their role in wage determination. The continued significance of occupational categories in explaining wage variation, coupled with substantial within-group wage inequality in professional occupations, suggests the operation of non-meritocratic factors in wage determination.

These results indicate that while Chile's reformed neoliberal economic model has delivered certain improvements in living standards, it has failed to substantially alter patterns of economic inequality. The findings align with Espinoza and Núñez's (2014) resource dependency thesis, suggesting that access to privileged positions remains significantly constrained by structural factors beyond individual merit or educational attainment.

The juxtaposition of these changes calls for a more nuanced approach to analysing income distribution and wage inequality. By acknowledging the complexity of the phenomenon and the context in which it is situated, the following chapters examine the importance of variables such as gender, education, and age, assessing their different effects on wage inequality across specific occupational groups and households. Particular attention is paid to professional occupations, which demonstrate the highest wage variation and are theoretically expected to produce better economic outputs and overall stability. This detailed examination will provide deeper insights into how occupational structure reconfigurations impact income distribution in Chile's evolving labour market.

Households and the impact of structural transformations:

Dismantling the male breadwinner model and the consolidation of female-paid work

4.1 Introduction

The fast-paced cultural and economic change experienced at a worldwide level over the past 30 years has not only impacted the population at large but also a foundational group of each society: households (Furstenberg, 2014). The decline of the male breadwinner model, the increasing number of single-led families, and the reduction in marriage and birth rates, among other factors, have paved the way for the emergence and expansion of other forms of less traditional household formations (Crompton, 1999; McLanahan & Percheski, 2008; OECD, 2011a). Although these transformations have been studied from different disciplines, such as demography, geography, sociology, anthropology and many more, the impact of these transformations on the distribution of household income remains a field that needs further exploration.

The relevance of observing households as the unit of analysis stems from the cumulative effect they have on the distribution of income at a societal level. By considering individuals as the sole unit of analysis to understand the dynamics of income inequality, we miss the opportunity to investigate how individual choices are influenced by their family context and their economic and social consequences at an aggregate level. We know from previous research that there has been a polarisation of wages, which has exacerbated the levels of economic inequality, particularly in developed countries (Goos & Manning, 2007). The question remains as to whether these "lovely" and "lousy" jobs are shared with other family members or not, potentially reinforcing the reproduction of economic inequalities. The question remains as to whether wage polarisation is creating not only winner and loser workers but also winner and loser households.

A second reason for using households as the unit of analysis stems from the importance of families and households as a consumption and production unit (Arriagada, 2014). Although the lion's share of research on income inequality takes individuals as their focal unit of analysis, using human capital as the main predictor for income (Becker, 1993; Mincer, 1974), from a sociological perspective, households remain a relevant social structure unit, shaping multiple dimensions in society. If we consider the way in which public policies and programmes are planned, families are central to our understanding of social dynamics and the reproduction of inequality. Therefore, this analysis offers a pivotal angle to analyse and assess economic disparities at a more aggregated level.

From the research that looked at household income inequality, the focus of the analysis has been placed on two main dimensions. Firstly, on changes in the composition of households and, secondly, on changes in the economy (Burtless, 1999). Traditionally, this type of analysis seeks to identify which factors better capture the variation in income and provide a better explanation for the distribution of economic resources in the wider economy. The aim of this chapter is to

determine whether changes in the composition of households have exacerbated or reduced the overall levels of household income inequality by analysing the differences between types of households over time.

In line with previous research conducted in the field (Burtless, 1999; Chevan & Stokes, 2000; Gottschalk & Danziger, 2005; McLanahan & Percheski, 2008; Reed & Cancian, 2001), this chapter analyses the trends of household income inequality, zooming into the transformation of household structures, in the context of cultural and demographic changes and the rearrangements of the labour market composition. Additionally, the analysis provides a better understanding of the different dynamics of income inequality for two types of households: male breadwinner households and dual-earner couples. The aim is to present the overall trajectory of household income inequality and identify the winners and losers from the cultural, economic, and demographic transformations experienced in Chile since 1990. Although there is no one answer that can be comprehensive enough to capture the manifold variables and factors involved, this chapter aims to provide a comprehensive outlook of income inequality from a household compositional perspective.

The chapter, like the previous ones, looks at income from work to measure the levels of economic inequality. In a market-driven economy such as the Chilean one, income from labour provides significant information about families' economic well-being, considering the reduced provision of social welfare given by the state (Rodriguez & Muñoz, 2017). Although, in recent years, there has been an increase in public expenditure on social policies and programmes, the levels are still significantly lower than the average for OECD countries. In 2019, the percentage of government expenditure on social protection was 5.9%, versus 13.3% for OECD countries.

The analysis conducted in this chapter provides detailed information about the current economic situation of the two main types of household structures and their change over time. The significant increase in dual-earning couples and the lower number of male breadwinner households demand a transformation of the social services families have access to, considering that their design is set under a different context. The results of this research highlight the need to look into the structure of the social protection system in Chile, as well as in similar contexts where countries choose to offer minimal or residual social protection with a highly deregulated labour market.

Additionally, this research contributes to the study of household income inequality, particularly the field that focuses on the transformations of household formations, by providing an extra category to the dual-earning couple, which has been disregarded in previous research. By examining well-educated, medium to high-income earning couples and those that work long hours,

receiving a lower income and are less educated, it is possible to capture and observe a similar phenomenon of polarisation as that seen in the types of jobs people access in the new economy. The polarisation of dual-earning couples and the increasing proportion of single-led families can potentially augment the current levels of inequality, which is particularly critical in cases where the state does not provide enough social protection for these families. Based on the findings, the chapter reflects on what structures need to change or at least be examined in order to prevent further expansion of economic disparities with the current household scenario.

This chapter is structured as follows. The first section presents a review of the literature related to family transformations and the links to income inequality, addressing issues of increasing household income inequality in developing economies and the contrast with Latin American countries, the changing nature of the economy and its impact over modes of work and economic sectors, to finally present the shifts in family structures due to processes of modernity and modernisation, focusing on the case of Chile.

The second section of the chapter introduces the research questions, the methodology, and the model used to create counterfactual scenarios using a reweighing technique and a quintile regression approach. The goal is to identify the impact of the significant transformations the country has experienced by simulating scenarios in which some of the key variables most widely used to explain income inequality are held constant over time.

The third section presents a descriptive analysis of the situation of households in Chile from 1992 to 2017, showing the trajectory of income inequality by type of household, as well as comparing groups of workers by economic sector, gender and educational levels. After providing the overview of this trajectory, the analysis focuses on counterfactual scenarios, where the main findings indicate that if the composition of households had remained the same as in 1992, Chile would have shown a Gini coefficient of disposable income 13% lower than the one registered in 2017. These results have relevant sociological implications since they offer insights into the dynamics of income inequality at the household level, which have not been considered enough in previous literature.

The final section of the chapter presents the conclusions and reflections on the contribution of the findings from a sociological perspective, as well as their relevance for public policy if the aim of future governments and policymakers is to continue reducing income inequality.

4.2 Literature review: Family formation and income inequality

In recent years, the debate around income inequality has focused the analysis at the individual level to measure which type of people or groups with similar characteristics have done significantly better and are pulling away from the rest of the workers. Although it is central to examine economic inequalities at the individual level to assess for discrimination practices and changes in pay, the study of families and their role in recent trends of income inequality also requires further sociological analysis (Burtless, 1999).

Since families can be understood as units of production and consumption, changes in the composition of households and marital arrangements can provide valuable insights into the effects of these changes on income inequality. The following sections present an overview of several studies that have examined the relationship between family composition and income inequality, focusing on economic, cultural and political changes. Additionally, this section also reflects on the ideas and sociological explanations behind these changes by looking at phenomena such as the knowledge and service economy, modernity and modernisation, the male breadwinner model, and the welfare state.

4.2.1 *Increasing Household Income Inequality*

Although academics and researchers have developed a myriad of ways to measure economic inequality, many sources of information use the Gini index of household income to draw comparisons between groups. When examining the Gini index for advanced industrial economies countries, data from Our World in Data shows an upward trend over the past 30 years, and since this coefficient is estimated based on disposable equivalised household income, it sheds light on the differences between households as well as individuals. As *Figure 23* shows, in 2015 most countries, apart from Portugal, had a higher Gini index compared to the one in 1990.

Figure 23: Gini index in 1990 and 2015 for advanced industrial economies
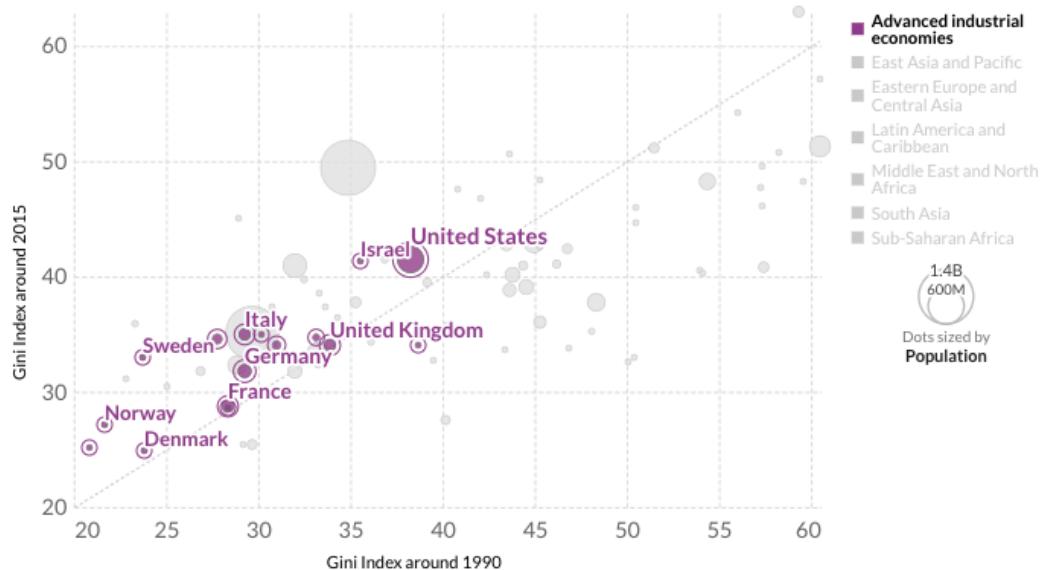
Source: Povcal (2018). The Chartbook of Economic Inequality (2017), Kandbur et al. (2017) Table 1.B.
Note: Estimates are based on household survey data on income or consumption. All countries for which comparable surveys within five years of each reference year are available are shown.

The same indicator for Latin America shows a different pattern, where all the listed countries have a lower Gini index except for Paraguay and Costa Rica. Although these trends seem to show a positive outlook for the region, most countries still have an index higher than 0.4, indicating elevated levels of income inequality, compared to advanced economies where the majority ranks below 0.35 – except for the United Kingdom (0.37) and the U.S. (0.40) in 2019.

Figure 24: Income inequality in Latin America, 1981 to 2017
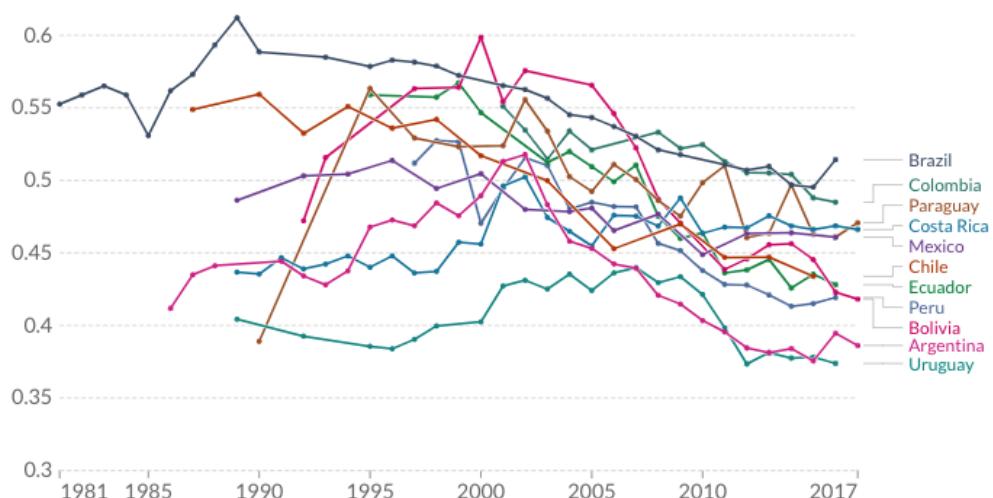
Source: Socio-Economic Database for Latin America and the Caribbean (CEDLAS and the World Bank) www.OurWorldinData.org/income inequality

For advanced economies, the conundrum has been around the factors explaining the increase in income inequality since it was expected that the advent of technology and the consequent

economic growth would lead to a more equal society. These ideas were first introduced by the economist Simon Kuznets (1955) in the late 1960s, claiming that in the early stages of economic development, societies would experience higher levels of economic inequality; nevertheless, once these stages are completed, societies would tend to lower levels of economic inequality. This has not been the case for some of the most economically developed countries, such as the U.S. and the U.K., particularly since the 1990s onward. Some of the explanations for the rise in income inequality for households pinpoint changes in the structure of families (Martin, 2006; McLanahan & Percheski, 2008; Schultz, 1982; Western et al., 2008), educational assortative mating (Boertien & Permanyer, 2019; De Hauw et al., 2017; Eeckhaut & Stanfors, 2019; Eika et al., 2019), the retrenchment of the welfare state (Larrimore, 2014; Winkler, 2022), and changes to the labour force composition (Burtless, 1999; Chevan & Stokes, 2000; Gottschalk & Danziger, 2005; Reed & Cancian, 2001).

Additionally, when looking at different socioeconomic and political contexts, Acemoglu and Robinson (2002) argue that Kuznets's predictions omitted the relevant role of traditional economic groups who are negatively affected by these changes. The authors highlight how, in the case of Latin American countries, processes of democratisation, modernisation and economic redistribution have been followed by military coups. One of the arguments posed by the authors is that democratisation processes play a central role in the processes of redistribution of wealth. Therefore, the forced interruption of these processes has significantly altered the patterns of income inequality in the region. Rather than a natural decrease in income inequality led by economic growth and development, the reduction of inequality levels in the case of Latin American countries can be associated with political reforms driven by more progressive governments elected in contexts of social discontent with the high levels of economic and social disparities (Gasparini & Lustig, 2011)

Chile is an exemplary case of an interrupted process of economic redistribution. In 1970, the country elected the first Socialist president, Salvador Allender, who came to power with a progressive economic and political agenda, where redistribution was at the centre of the programme. Even though the government managed to introduce policies such as the nationalisation of the main exported commodity, copper, expanded the budget on social services, and expropriated land from the main landowners, these transformations created an extremely tense relationship not only with right-wing and conservative politicians but also with influential economic groups. After three years in power, the military forces, in alliance with right-wing politicians and economic elites, overtook power via a civic-military *coup d'état*. The imposed

dictatorial government reversed all the progressive measures implemented during Salvador Allende's presidency, redirecting the trends of income inequality to their original pattern.

The combination of economic and political theory partially illuminates our understanding of the trends we see in the distribution of income and wealth around the globe. Economists highlight the importance of economic growth as a development indicator, with the expectation that market forces will regulate the levels of economic inequality and economic growth. Political theory complements that story by highlighting the importance of political reforms addressing issues of redistribution in order to maintain the status quo.

In sociological terms, these discussions and explanations are relevant to get a better grasp of the variety of trends and the multifaceted nature of income inequality. In addition to the arguments previously presented, the forthcoming sections present the main arguments for understanding household income inequality. These arguments encompass an examination of changes in the economy from industrial to post-industrial production systems and the cultural transformations of gender relations triggered by processes of modernity and modernisation.

4.2.2 *Industrial restructuring and its impact on income inequality*

Part of the explanations for the increasing economic inequality focus their attention on the shift from industrial to post-industrial economies, with an expansion of the service, financial and technological areas. The emphasis of current societies on knowledge as the driver of development has led to an increasing demand for highly skilled workers. At the same time, the expansion of the service sector has elevated the demand for low-skilled workers within occupations that are mostly female-dominated. These changes also transformed the composition of the labour force and the modes of employment from their canonical industrial structure to more flexible forms with a higher proportion of part-time work and fixed-term contracts, in addition to a significant increase of females entering the labour market. The following sections present a detailed account of these transformations and their relevance in the analysis of income inequality.

Post-industrial economies: the polarisation of wages between knowledge and service

In line with other academics who have conceptualised the transition from industrial to post-industrial economies, Chevan and Strokes (2000) argue that the transformation of the economy could be one of the main explanatory factors for past income trends. The authors propose that there are two main reasons that would explain this close connection. Firstly, there was an increased demand for more qualified workers in areas such as technology, finance, and more intellectual work, as opposed to what was required in manufacturing-dominated and industrial-based

economies, where manual work was essential. One of the main differences between these two types of jobs and their wages is the level of organisation as a group to demand working rights collectively. Historically, the most organised groups of workers manage to keep income gaps between workers at lower levels than those who negotiate their wages individually. This can be seen in the categorisations of countries made by Esping-Andersen (1990) in his three worlds of welfare capitalism typology and the Varieties of Capitalism, developed by Hall and Soskice (2013), where countries where workers are organised for collective negotiations on payment, and where there are higher levels of labour protection, income inequality shows lower levels, compared to the ones with more liberalised and deregulated labour markets.

As a second point, on top of economies requiring highly qualified workers, they are also highly valued in very specific areas. Over the past four decades, there has been a globally increased demand for professional workers in the areas of finance, engineering, and technological development, which, due to the low supply of these types of workers, has created wages much higher than those of other groups of workers. This is related to the phenomenon described by Acemoglu (2002) as Skill-Biased Technological Change (SBTC), which is linked to the polarisation between good and bad jobs, where workers in technological areas get access to better wages and working conditions.

In parallel, post-industrial societies have also generated a much higher demand for service-based jobs, which are also less likely to be unionised, offering lower-paying conditions and much more precarious jobs. The concept of "Service economy" has been used by economists and sociologists and is linked to the concept of post-industrial societies (Castells, 1976; Witt et al., 2019). According to Castells, one of the core aspects of this new economy is that:

> *"Economic activity would shift from goods production to service delivery. The demise of agricultural employment would be followed by the irreversible decline of manufacturing jobs to the benefit of service jobs, which would ultimately form the overwhelming proportion of employment. The more advanced an economy, the more its employment and its production would be focused on services." (Castells, 2010, p. 219)*

The combination of increasing highly-skilled and highly paid, and low-paid and low-skilled jobs, particularly in the service sector, has created a phenomenon called dual economy, or a winners and losers situation where although all workers are less protected and have to individually set their wages, creating a wider dispersion of salaries compared to industrial economies, those at the bottom experience cannot afford their job insecurity as those at the top of the income scale. The issue with the rising vulnerability of workers and individual negotiation is that qualified workers are paid for that vulnerability, and the costs are included in their salaries. In contrast, lower-skilled

workers face insecure conditions that do not compensate them monetarily. These jobs require working unsociable hours and offer part-time and fixed-term contracts, and due to this precarity, it is difficult for workers to organise and ask for better working conditions. All these explanations for the distribution of income are based and justified on a human capital perspective, as well as the logic of supply and demand under the new economic restructuring under a capitalist economic model.

Both aspects related to the changes in the way industries and the economy are structured have created higher levels of income inequality than those observed in previous industrial times. Although in the study of income inequality, these two trends have been observed most significantly at the individual level, they have impacted the economic composition of households and, therefore, are relevant for the current analysis.

4.2.3 *The persistence of the gender divide: Females entering the workplace in an occupationally segregated structure*

One of the major transformations in the composition of the labour market in the past few decades is the unprecedented proportion of women entering work in a variety of economic sectors and modes of employment. Although in different proportions across the globe, in 2020, women's labour force participation rate was 47%[17], according to reports from the United Nations (2022[18]).

Figure 25: Female labour force participation in 1980 and 2020 by countries and regions

Source: https://ourworldindata.org/grapher/female-labor-force-participation-rates-latest-vs-1980
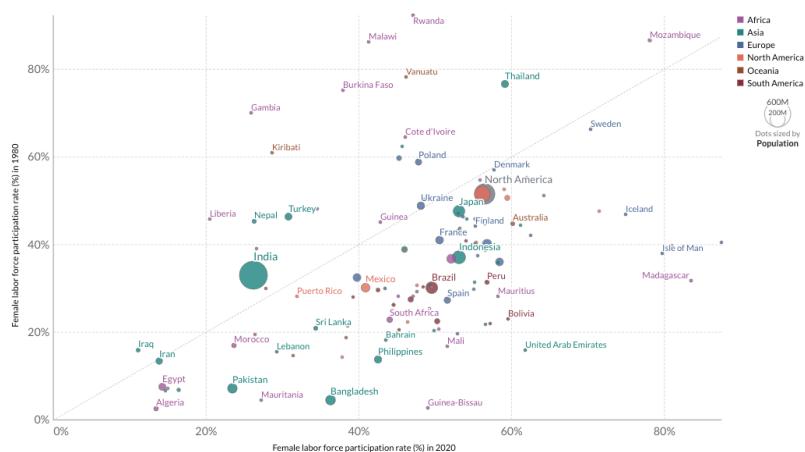
The restructuring of the labour force, in terms of gender, has led to research on the impact of women's income on the levels of household income inequality. Reed & Cancian (2001) found that

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[17] The labour force participation rate for females, has been declining moderately since 1990, where it reached 50.7% according to ILO. Since then, there has been a decrease of approximately one percentage point over the past three decades.
[18] https://www.un.org/en/desa/women%E2%80%99s-job-market-participation-stagnating-less-50-past-25-years-finds-un-report

female earnings tend to reduce family income inequality. In contrast, changes in male earnings are the major driver of the trends seen in developed economies where income inequality at the household level has risen significantly over the past few decades. The results highlight the similarities between the patterns of male and family earnings and inequality. They are relevant for the present chapter since they indicate processes of balancing and neutralising effects within households and the earnings of their members, particularly for working couples.

One of the reasons that could explain the prevalence of male earnings as a driver for income inequality is the specific occupations and sectors in which women tend to work more predominantly. The concept of occupational segregation refers to the processes where specific groups tend to dominate certain occupations (Blau & Kahn, 2007; England et al., 2007; Tam, 2002). In the case of differences by gender, it is possible to observe that women are overrepresented in occupations which are low-paid and perceived as unskilled, particularly in areas related to care. This occupational segregation can be linked to broader societal beliefs and ideas of what types of jobs are correct and adequate for women and men; they provide relevant information about gender systems.

According to Crompton (1999), occupational segregation reflects how gender relations are reproduced in different spheres of life. The ideas societies have around the role of women as being predominantly carers and being driven by their emotions in contrast to the role of men as providers, acting upon reason, productive and outgoing, are features that match the occupations where each gender is more predominant. Although these ideas are challenged at current times, they still show persistence over time. If we look at the distribution of occupations by gender in economically more advanced countries, it is possible to find patterns which can be associated with more traditional ways of thinking about gender relations, despite the significant advances achieved by generations of women fighting and claiming for a more egalitarian society (Cohen et al., 2009; Fitzenberger & Wunderlich, 2002; Magnusson, 2009; Rubery et al., 1997).

4.2.4 *Cultural shifts: de-naturalising gender relations and the demise of the male breadwinner model*

> *"(…) gender relations are produced and reproduced via already existing institutions, norms, and practices, as well as through the ongoing relationships between individual women and men"*
> *(Crompton, 2010, p. 19)*

Alternative explanations for industrial restructuring have highlighted the importance of cultural changes and their impact on family structures. The decline of the traditional male breadwinner model, where the head of the household, traditionally a male, was the leading economic provider

of the family, whilst the female partner took care of the housework and childrearing, has been replaced by two main family structures: dual-earning couples and single-led households. This cultural shift has also impacted the distribution of income at the household level as we know it, and the following sections explore the origins of these changes and their potential consequences.

Questioning the traditional hierarchical sexual division of labour

Changes in the composition of the labour force have been characterised by the increasing number of females entering the labour force. This transformation has been linked to processes of modernisation and female liberation, challenging the traditional roles of females and males within households. The development of feminist theory, particularly the second wave of feminism in conjunction with the transformation of the economy, which offered more attractive jobs for women, created alternative scenarios for women to choose from in terms of family formation and career options.

Feminist movements in the early 60s moved from the fight for political and civil equality towards sexual and family rights for women. One of the strands of the second wave of feminism focused on getting economic independence via broader access to education for women, in conjunction with less fractioned access to the labour market. The movement questioned the assumptions around the traditional sexual division of labour where men occupy a higher position than women, being associated with paid work, with women in charge of housework and childcare.

According to economists such as Gary Becker, "(…) men and women have intrinsically different comparative advantages not only in the production of children but also in their contribution to childcare and possible to other activities" (Becker et al., 1985, p. 41). This is seen as a natural difference in productivity and the potential accumulation of human capital and, therefore, considered more efficient than other options. The naturalisation of this division is disputed by feminist thinkers who are striving for more egalitarian reproductive and productive rights, dismantling traditional models of male domination over women within a patriarchal structure of social relations.

Along with the transformation of the labour market, rethinking gender roles and the sexual division of labour also had repercussions in another essential social structure: families. The rearrangement of the fraction of productive time women are allocating to paid work alters the articulation between families and labour-market systems. More women opting for paid work and achieving higher educational attainment meant that their non-paid productive activities within their households needed to be either reassigned to other members of the households or taken care of

by external providers. Some of the demographic transformations associated with this new division of labour are the postponement of marriage and lower marriage rates, higher divorce rates, and lower fertility rates, particularly in countries where the traditional breadwinner model has been questioned and challenged.

New family formations: Challenges to the traditional male breadwinner model

The constellation of rapid changes observed from the second half of the 20th Century onwards has impacted individuals' decisions about marriage and having children. Although both actions are traditionally intertwined, they are less so in contemporary times. Traditional family structures seem to be in decline in countries with more liberal beliefs, replacing the male breadwinner model for more heterogeneous family formations.

Definition of the male breadwinner model

The male breadwinner model refers to the family structure where the husband, traditionally the head of the household, participates in paid productive activities within the public sphere, and wives are charged with unpaid productive activities in the private sphere, specifically family care and housework. This model of family became prevalent in modern Western societies, particularly under capitalist regimes (Pfau-Effinger, 2004). Women make the decision to enter the workforce balancing the value of their market wages and the value of their non-market time, which explains why opting for paid work is not always the best choice for women when they are responsible for unpaid work and care within their households (Winkler, 2022). Despite all the hurdles working women face in the labour market, their presence has shifted the traditional appearance of the labour market.

Emergence of new family formations

Rosemary Crompton (1999) provides a comprehensive account of the new forms of families gaining more prevalence in Europe over the past few decades. Based on the analysis of the changes in gender relations from traditional to less traditional configurations, she elaborates a model of the gender division of labour amongst couples based on paid and unpaid work, including the state and the market as providers of the traditional role of care associated to women (housework and childrearing):

Diagram of the gender division of labour:
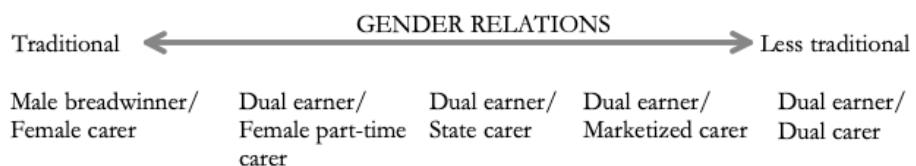
Source: Crompton, 1999: 205

In this scheme, females participate more in productive activities towards the right side of the figure. Starting with the traditional male breadwinner model, where the female is responsible for all the caring tasks, moving onto the dual-earner couple, where the female partner enters the labour market but only partially and continues to provide unpaid care within the household. The third type of family formation is the one where both members work full-time paid jobs, and the state is responsible for childcare, whereas the fourth one is the market, which creates services to provide childcare. Finally, the more progressive model is where male and female partners have paid jobs, contribute equally to the household income, and take equal parts of caring responsibilities.

The main difference between the third and fourth types of gender relations within households is the institution providing childcare: the state or the market. In more liberal economies, such as the U.S., described by Esping-Andersen as a residual welfare state, families are responsible for the costs of private childcare. In contrast, social democratic welfare regimes, such as some Scandinavian countries, offer childcare as part of the social services provided by the state. This distinction highlights the relevance of institutional structuring in terms of how much agency actors are allowed to display. In this case, stronger welfare states provide more options for both members of a couple to decide whether they want to work full-time or not, independently of having children (Blossfeld & Drobnič, 2004).

In addition to more females opting for work, consequently increasing dual-earning households, individuals are postponing or not wanting to get married and/or have children. This has been the case in the U.S., where roughly a fifth of the population never establishes long-lasting partnerships or has children. The observed shifts have been accompanied by changes in ideas around sex, marriage, non-marital childbearing, and delay of childbearing, along with differences in family formation between social classes, which has widened inequality (Furstenberg, 2014).

The increasing diversity of family formations and their impact on the aggregated income distribution

Some of the rearrangements in family formations towards more progressive gender relations were expected to improve the position of women within society compared to men. Nevertheless, when moving from an individual level of analysis to that of the households, research shows that specific

family structures continue reproducing inequalities between households (Martin, 2006; McLanahan & Percheski, 2008; Schultz, 1982; Western et al., 2008). Furthermore, some of the recent changes may have exacerbated these differences (Burtless, 1999).

The differences found between dual-earning couples and single-led families, compared to those of male breadwinners, seemed to be creating wider gaps between types of households than we used to observe, supporting the argument that family structures have a significant impact on how economic inequality is reproduced and therefore need to be further studied. A study conducted by Western, Bloome and Percheski (2008)analysing American families with children in a period of 30 years, starting in 1975, showed that increasing single-parenthood was one of the main contributors to increasing household income disparities when decomposing family incomes.

In parallel, a study conducted in Britain showed that married couples also show a sharp increase in income inequality despite the equalising effects women's income has on the distribution of family earnings. (Harkness et al., 1997). Similar findings in the U.S. showed that female earnings seemed to reduce inequality levels, whilst the lion's share of the increasing income disparities in the U.S. (around 60%) can be attributed to changes in male earnings (Reed & Cancian, 2001). Some of the explanations for these findings highlight the prevalence of the gender pay gap, positioning males in higher positions within the occupational structure in both directions: vertical and horizontal. This can be exacerbated when individual earnings are correlated among family members. As shown by Gottschalk & Danziger (2005), increases in household earning inequalities can be linked to an increase in inequality of wage rates and the family supply of labour.

4.3 Empirical predictions – What we know so far

> *"(...) this economistic mode of liberation paid little attention to the prevailing gender culture, which remained, and still is,, very traditional (...)." (Crompton, 1999, p. 205)*

Research shows that the increasing number of more varied family structures has affected the distribution of income at the household level. However, the pace of these changes has not aligned with the structures and policies of the labour market, which predominantly cater to the needs of a specific family model, namely the male breadwinner paradigm (Crompton, 1999). Consequently, some women have increasingly engaged in paid employment, while men have not experienced a significant shift in their caregiving responsibilities or unpaid work. Although Nordic countries have shown significant advances in terms of gender equality at home (OECD, 2018b), according to data from ILO, globally, women still perform 76.2% of all unpaid care work (ILO, 2024). Moreover, in Latin America, according to estimations from the UNDP, female unpaid care work can represent between 12% to 18% of countries' GDP, whereas male unpaid care work fluctuates between 4%

and 8% (UNDP, 2024) and compared to the OECD average, women in the region are taking a higher share of this type of work, than those in more advanced economies. This situation raises the question of how cultural transformations aiming to promote a more equal division of labour have led to heightened levels of income inequality among households.

One could argue that there are two main types of households that are worth continuing to study to see their impact on the overall distribution of households' income: dual-earning couples and single-led households. These have been the types of households that have grown the most over the past few decades, replacing the canonical male breadwinner structure. If we look at the increasing participation of females, the effects of those with higher qualifications and working partners with similar educational levels will be distancing economically from the male breadwinner households. However, women with lower earnings leading single households will be in a more deteriorated position than those in male breadwinner households, considering that the gender pay gap continues to be present in the labour market and the extension of the traditional sexual division of labour into the labour market.

4.4 Research Question & Hypotheses

The results from previous research offer a variety of options to measure the impact of recent changes in family formations over economic inequality. In this chapter, I centre the analysis on households where the head of the household is employed to assess the impact of the growing dual-earning couple model against male breadwinner households. The analysis also considers the impact of single-led households on the distribution of disposable income among households as one of the most transformative changes experienced over the last three decades. The aim of looking at different household formations is to examine their transition over time and the changes in gender composition and gender roles within these social structures. In line with previous research, this chapter addresses the following questions:

- How have changes in household structures impacted income inequality levels, and which types of households have benefited most from these changes?
- Has the trajectory of households' income inequality followed a similar shape to the individual income distribution? How has the sociodemographic and occupational composition of households impacted the income distribution?

This analysis investigates the educational composition of households, education and gender distributions, as well as the industry where families work. It focuses on understanding the income

trajectories of households where at least the head or the partner are active workers and where the head of the household is aged between 24 and 65 years old.

4.4.1 *Hypotheses*

- The increase in dual-earning couples increases the levels of income inequality in terms of households' disposable income.

- The reduction of male breadwinner households increases the levels of income inequality from households' disposable income.

- The increase in female breadwinner households reduces the levels of income inequality from households' disposable income.

- Household income inequality increases when more females enter the labour market in a highly segregated occupational structure.

4.5 Data and Methodology

The data to analyse the trajectory of household income inequality and the evolution of household structures over time consider four waves of the CASEN survey: 1992, 2000, 2011, and 2017. The aim is to observe patterns over periods of approximately ten years and compare the results in order to assess the distribution of different households over time, with a specific focus on couple-led households.

4.5.1 *Sample and variables*

The CASEN survey is a national household survey that includes every member of the household as a case, although only adult members are allowed to respond to the survey. The data for different household members have been combined to create aggregated indicators and variables using the identification number of each household for each year of the survey to produce an analysis at the household level. The sample included in this analysis consists of households in which at least the head or the partner of the head is employed, with the aim of comparing working households and the trajectory of their incomes from work over the studied period. Another criterion used was that the head is aged between 24 and 65 years or older. The reason for changing the age range, compared to the analysis in the first empirical chapter, is to capture information on households formed after the age at which the head of household could have potentially completed tertiary education. The potential disadvantage of this approach is the exclusion of more vulnerable households, as younger households are more likely to have lower incomes due to factors such as lower levels of human capital.

Table 5: List of variables included in the analysis

Partnership situation	Couple or Single (using the variable relationship to the head of household)
Education of the head and partner	Years of education Sum of years of education for couples Educational level – 5 levels: Primary education or lower, Some secondary education, Secondary education graduate, Some tertiary education, Tertiary Education graduate. Educational assortative mating (5 levels same as Educational level)
Children	Yes or No (using the variable relationship to the head of household) Number of children (younger than 15 years old)
Types of households based on their composition and sources of income	Single earner, Dual-earning couple, Male breadwinner and Female breadwinner
Economic sector of head and partner	Agriculture, Industry or Services sector
Occupation of head and partner	Managers; Professionals; Technicians; Clerks; Service workers; Skilled agricultural workers; Craft and related trade workers; Plant and Machine operators or Elementary occupations
Working conditions of head and partner	Working hours per week Economic activity status: Employed, unemployed and inactive.
Age of head and partner	Age in years
Income	Income from work – capped (1% bottom 0.1% top) and adjusted by inflation for each year Household income from work – capped (1% bottom 0.1% top) and adjusted by inflation Disposable income from work – total household income from work, capped (1% bottom 0.1% top) and adjusted by inflation for each year.

The rationale for using capped incomes at the top 99.9% is to assess changes in the majority of households and the dispersion of wages without distorting the overall figures. The reason for a cap of 1% at the bottom, unlike in the previous chapter where the cap was set at minimum wage, is because, in this case, the sample includes all workers, full-time and part-time. Although scholars such as Piketty and Sáez (2006) have emphasised that the top 1% is primarily responsible for the rise in income inequality, these dynamics can still be captured by focusing on the majority of households, thereby preserving valuable information while presenting a more realistic overview of what the labour market looks like for households. This is a decision based on the relevance of the results for the vast majority of workers. To fully capture the trajectory at the very top of the income distributions, other sources of data would be more reliable, such as administrative tax data from the Servicio de Impuestos Internos (SII – National Internal Tax Service). However, for the purpose of this research, the CASEN survey can still provide insightful results on the trajectory of household income inequality.

4.5.2 *Methods*

The analysis includes a series of descriptive outputs in order to provide the context of the household situation in Chile and the changes over time. Comparing types of households provides

a wider overview of the situation regarding how families and individuals have changed and the impact of a higher number of females in the workforce, increasing educational levels within the workforce, as well as reconfigurations in the distribution of workers by economic sectors. In line with these trends, the figures also explore sociodemographic variables, including age, fertility rates and number of children, marriage rates and cohabitation.

After setting the family and economic scene, the analysis uses a series of distributional regressions to compare shifts in Gini coefficients between 1992 and 2017. While the Gini coefficient for household income during this period is readily available, this research's distinctive contribution lies in its creation of simulated scenarios – counterfactuals – that examine income inequality for specific years while holding constant the conditions of earlier periods. The objective is to determine the extent to which the rising prevalence of dual-earner couples has influenced the levels of income inequality in the country.

The Gini coefficient is crucial for assessing changes in the overall distribution of income over the studied period. Despite its limitations, such as its inability to fully capture nuanced shifts in inequality – particularly those affecting the very top or bottom of the distribution – the Gini coefficient remains the gold standard for international comparisons used by international organisations, offering a clear, albeit general, perspective on the evolution of income distribution, especially when considering the majority of households.

By focusing on the Gini coefficient, this analysis aligns with established methodologies used by international organisations, such as the OECD and the World Bank, providing a robust benchmark that facilitates comparison with other nations. While recognising that more complex dynamics of wage evolution may be obscured, this measure nonetheless provides a valuable macro-level understanding of inequality and the socio-economic shifts that have occurred over the last few decades.

As discussed in the Data and Methods chapter, the Gini coefficient is a measure of income inequality that ranges between 0 and 1. A value of 0 represents perfect equality, where income is evenly distributed across the population, while a value of 1 signifies perfect inequality, where a single individual holds all the income. The Gini coefficient is typically calculated by ranking the population according to income – often household income, either pre- or post-tax – and determining the cumulative share of the population alongside the cumulative share of income. These values are then used to plot the Lorenz curve, which graphically represents income distribution. The Gini coefficient itself is derived by calculating the ratio of the area between the

line of perfect equality (a 45-degree diagonal line) and the Lorenz curve, relative to the total area under the line of equality.

By providing an account of household income inequality using the Gini coefficient, this study aims to bridge the gap between traditional economic approaches to inequality and newer, more sociologically grounded insights that emphasise the growing role of household dynamics and dual incomes in shaping economic disparities (Blau & Kahn, 2007). This approach allows for a comprehensive evaluation of how evolving family roles interact with broader economic trends to shape the landscape of income inequality in Chile.

Descriptive Analysis

The analysis begins with descriptive outputs that provide a comprehensive understanding of the economic and family dynamics in Chile. This includes examining changes in household composition, employment patterns, and educational attainment levels. The analysis also explores sociodemographic variables to capture shifts in societal trends and their potential influence on income inequality.

Decomposition Models

The study of differences in income across groups has predominantly been examined using two main approaches. The first one investigates differences between and within groups, such as multilevel analysis, which I used in this research to assess the drivers of income inequality based on workers' occupations. This approach has been the more classical one to decompose income inequality by dividing the population into groups based on characteristics such as education, human capital, and gender to compare whether differences in income stem from variations between and within these groups. The income variation between groups based on their educational level can be associated with returns to education. In contrast, the variation within groups, known as residual inequality, is usually associated with discrimination. (Kim & Sakamoto, 2005; Lemieux, 2006; Williams, 2013).

The second approach evaluates the impact of compositional changes on the evolution of income inequality. This method generates simulated distributions by reweighting relevant variables to compare counterfactual scenarios with the actual data from a given year. By modelling income distributions while keeping the size of specific subgroups constant over time, this decomposition technique enables the quantification of each subgroup's contribution to overall inequality.

This method explores the variances in the Gini coefficient under simulated scenarios; in this case, what would be the distribution of incomes if family structures for couple-led households had

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remained the same as in 1992? Although it is impossible to turn back time and change the present, the exercise creates fictional distributions of income to measure the weight of various changes in income inequality. Besides changes in the composition of households, the model also looks at the distribution within economic sectors to assess the importance of changes in the economy on income inequality, as well as the proportion of working women to assess the economic contribution of women to the total household income and hours worked per household.

Following Van Kerm (2021), in order to reweight the samples for each year (1992 and 2017), I use the ratio of the density of the covariates as the reweighting function:

$$\psi^{(1,2)}(\mathrm{X}) = \frac{g^{(1)}(X)}{g^{(2)}(X)}$$

The same reweighting function can be expressed using Bayes' rule as:

$$\psi^{(1,2)}(X) = \frac{Pr[m = 1|\mathrm{X}]}{Pr[m = 2|\mathrm{X}]} \; x \; \frac{Pr[m = 2]}{Pr[m = 1]}$$

Where $Pr[m = i|\mathrm{X}]$ is the probability that a randomly selected agent with characteristics X belongs to group i. $Pr[m = i]$ is the probability that any randomly selected agent belongs to group i. Whereas $g^{(m)}(X)$ is multivariate, the four terms in $\psi^{(1,2)}(\mathrm{X})$ can be computed following DiNardo et al. (1996).

To provide more robustness to the results, in addition to the strategy of reweighting, I applied a second approach and estimated quantile regressions to model counterfactual scenarios. This approach estimates distributional statistics conditional to different points in the income distribution, generating values for each quintile. The aim of quintile regressions is to assess how different factors have specific levels of impact based on their income level. The general formula for quintile regressions is:

$$Q_y(\tau|\mathrm{X}) = X\beta_\tau$$

Where $Q_i(\tau|\mathrm{X})$ is the conditional quintile at level τ of the dependent variable γ, which in this case is household income from work. τ represents the quintile level, which in the case of this analysis includes five quintiles (0.2, 0.4, 0.6, 0.8 and 1), X is the matrix of predictors or independent variables, and β_τ is the vector of quintile-specific coefficients to be estimated.

This approach estimates the coefficients β_τ by minimising a weighted sum of absolute residuals using the following formula:

$$\min_{\beta_\tau} \sum_i^n \rho_\tau(\gamma_i - X_i\beta_\tau)$$

Where:

- γ_i is the observed value of the household income for observation i
- X_i is the vector of the independent variables for observation i

Once these conditional quantile functions are estimated, it is possible to simulate counterfactual distributions by manipulating the conditional distributions generated using quintile regressions with the generalised Oaxaca Blinder model (Chernozhukov et al., 2013).

4.6 Findings and analysis

Chile offers a compelling case study for investigating income inequality, as the country has undergone significant transformations in three key domains over the past three decades: cultural, political, and economic. The cultural sphere has experienced a noteworthy shift marked by the decline in support for traditional and conservative values that previously constituted fundamental aspects of Chilean cultural norms. One notable aspect of this cultural shift is the transformation in family formation ideals, wherein traditional notions have been supplanted by modern family structures. Specifically, the association of having children solely within the context of marriage or long-lasting relationships has diminished, resulting in a rise in single-led households, particularly those led by women. Consequently, there has been a decline in both fertility and marriage rates.

In terms of marriage rates, the year 2020 witnessed the lowest level since the country started keeping records in 1850, reaching a marriage rate of 1.9. According to data from the National Statistics Institute (INE, 2022), there has been a relatively stable marriage rate since 2010, with small oscillations of around 3.5. However, *Figure 26* shows a significant decline from 1990 until 2004. Similarly, birth rates have also followed a downward trend, reaching their lowest level at 10.0 in 2020.

Figure 26: Birth and marriage rates, 1974-2020
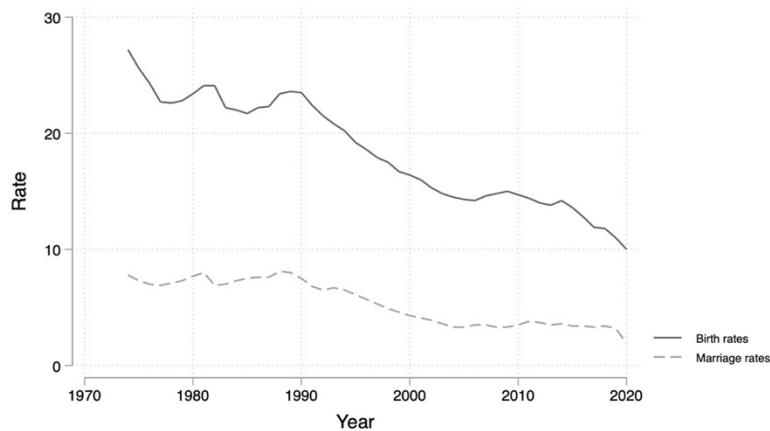
These trends can be attributed, in part, to a departure from traditional values and an increased social acceptance of diverse family formations, similar to the patterns observed in culturally liberal countries, particularly in Europe (OECD, 2011b). The progressive assimilation of modern and postmodern values has occurred in tandem with the country's economic and political transformations, albeit at a different pace.

The implementation of neoliberal policies in the 1980s had far-reaching implications, extending beyond the realms of the economy and the labour market to permeate the very fabric of society and interpersonal relationships. These policies, which emphasised the role of individuals over collectives, led to the imposition of stringent restrictions on collective negotiations and union activities within workplaces (Escobar & Le Bert, 2003). According to this new economic paradigm, collective action was seen as a hindrance to the efficient functioning of economies and was therefore discouraged in order to maximise productivity, economic growth, and overall prosperity. This emphasis on individualism as the driving force behind economic success has had a profound impact on the dynamics within workgroups and families.

The original intention of neoliberal rhetoric was not to bring about a cultural transformation towards a more liberal society. On the contrary, it was expected that the country would adhere to neoliberal values in the economic sphere while maintaining traditional values in the cultural sphere (Moulian, 1997). However, the outcome deviated from this expectation. Although it took some time for families and individuals to incorporate these more liberal values into their life choices across multiple dimensions, it is evident that the country now exhibits a much more progressive outlook than it did in the early 1990s.

Changes in two key demographic indicators linked to family formation – marriage and birth rates – can substantially affect household income inequality by influencing both household size and the distribution of economic and non-economic resources. A reduction in the number of children

leads to smaller household sizes, resulting in higher per capita income. Similarly, declining marriage rates tend to produce smaller households, particularly those with single heads. However, this trend does not necessarily correlate with increased disposable income, as households headed by single women, who typically earn less than their male counterparts, often include extended family members. Conversely, households headed by single men typically comprise fewer members.

This analysis employs the 'relationship to household head' variable to examine household composition more precisely. During the survey administration, the interviewer asks respondents to identify the household head; this position has to be recognised by other household members and is typically determined by factors such as kinship, authority, age, or economic responsibility. The survey does not offer a strict definition of this category, and it is left to the respondents to decide using their own criteria.

The head of the household is identified first, after which other household members specify their relationship to this person. For the subsequent analysis, households are classified into two main categories: those led by single individuals and those led by couples, with the latter designation applied when a partner is present in the household. It is noteworthy that recent survey waves enquire whether the household head cohabits with a partner of the same or different sex. However, due to the low levels of representation of same-sex couples in the sample (merely 0.05% in 2017), this analysis focuses solely on heterosexual couples.

Table 6: % of types of households by partnership and gender, 1992-2017

	1992	*2000*	*2011*	*2017*	*Percentage point difference 1992-2017*
Single-led households	27.2	27.9	38.9	43.4	**16.3**
Female led	95.4	86.2	75.0	73.6	-21.9
Female extended family	65.2	63.7	59.1	55.5	-9.7
Male led	9.8	10.5	16.2	21.3	**11.5**
Male extended family	46.9	49.5	44.5	39.3	-7.6
Couple-led households	72.8	72.1	61.1	56.6	**-16.3**
Female led	4.6	13.8	25.1	26.4	**21.9**
Female extended family	55.8	49.1	45.5	42.5	-13.4
Male led	90.2	89.5	83.8	78.7	-11.5
Male extended family	38.2	39.0	46.3	44.0	5.8

Source: Own calculations from CASEN
Note: Data using information from all household heads.

Table 6 presents the contrasting trends by gender in single and couple-led households across all households. As a result of declining marriage rates, there has been a substantial rise in single-led households, increasing from 27.2% in 1992 to 43.4% in 2017. This increase is primarily driven by

males without extended family, whose proportion more than doubled from 9.8% in 1992 to 21.3% in 2017. In contrast, couple-led households have decreased over time, particularly female-led households with extended family and male-led households without extended family. However, the proportion of female-led households without extended family within this group has increased nearly six-fold since 1992, reaching its peak in 2017 (26.4%). Although the overall distribution of households with and without extended family has not significantly changed since 1992 (44.3% to 46.8%), these results reveal different patterns in the composition of household types by gender.

In sum, the data indicates a growing number of single-led households, primarily driven by males, while females have seen an increase in their presence within couple-led households. Despite these shifts, the majority of households are still couple-led (56.6%), with males leading over three-quarters of them (78.7%). These changes in household composition are likely to impact the distribution of household and disposable income, particularly in terms of households' income inequality.

The reduction in single-led households with extended families may contribute to an increase in disposable income, as there are fewer household members to support. However, it is important to consider the potential impact on disposable income if those additional family members were earners with higher salaries than the household head. Traditionally, the head of the household is identified as the member who makes the highest economic contribution, suggesting that the reduction of single-led households with extended family would likely result in higher levels of disposable income within those households. Similarly, the higher proportion of male-led single households may contribute to increased household income, given that males typically earn higher wages than female workers on average.

It is important to note that there are scenarios in which both partners work and situations in which only one of them is employed. Therefore, the implications of reducing couple-led households can have different consequences, which are discussed further when they are analysed in three categories: dual-earning couples, Male breadwinners, and Female breadwinners.

Alternative explanations for households' restructuring due to the changes in household income inequality direct their focus towards shifts in the economy and the labour market structure. This perspective considers the evolution of economic sectors among active workers, as shown in *Table 7*:

Table 7: Distribution over economic sectors, women's economic participation, and education, 1992-2017

	1992	2000	2011	2017
% of Employees in Agriculture	14.5	11.6	9.1	8.6
% of Employees in Industry	29.8	25.5	23.3	21.0
% of Employees in Services	55.7	63.0	67.7	70.5
% of Employees Manufacturing	17.1	14.5	10.4	9.3
% of Employees Market services	29.1	34.0	41.8	41.6
% of Wives in labour force	29.0	38.9	46.3	54.8
% of Households led by women	20.3	23.0	38.7	42.4
% Persons 25 and over with =< 12 years of education	87.2	81.1	78.1	70.8
% Persons 25 and over with 16+ years of education	8.0	11.4	12.7	16.7

Source: Calculations based on CASEN surveys, respective years.
Note: Data for active workers aged 18-65 in households where at least the head and or the partner work. The classification in sectors is based on the ISCO-08.

The data presented above reveals notable shifts in the composition of the workforce across three main economic sectors. The Service sector experienced a significant increase, representing over half of the workforce in 1992 and expanding to nearly three-quarters (70.5%) of the total workforce in 2017. On the other hand, both the Industry and Agriculture sectors have seen a decline in the proportion of workers, with decreases of -29.5% and -40.7%, respectively.

Within the Industry sector, the Manufacturing subsector has witnessed the most substantial decline (45.6%). Meanwhile, the Services sector experienced the most significant increase, specifically in the Market Services subsector (43.0%). This subsector encompasses various industries such as wholesale and retail trade, accommodation and food services, IT, financial and insurance services, as well as real estate activities. These trends align with the transition observed in many countries from industrial to post-industrial and service-based economies (Bell, 1973).

It is important to note that while Chile did not fully achieve the status of an industrial economy, the primary and tertiary sectors have historically dominated the economy for over a century (Polanco & Osorio, 2021; Rodríguez Weber, 2015). After 1960, the secondary or industry sector surpassed agriculture and became the second-largest sector. Nevertheless, the tertiary sector has consistently remained the predominant economic sector in Chile.

These shifts in the economic structure, with the rise of the Services sector and the decline of Industry and Agriculture, hold implications for understanding changes in household income inequality.

The fact that Chile and other Latin American countries have never been industrial economies as such introduces an important caveat that alters the narrative surrounding explanations for income inequality and its implications in the region. While the transition from industrial to post-industrial

and knowledge economies still holds relevance in understanding the role of the Chilean economy within a broader context, it needs to be assessed under a different explanatory framework.

The main transformations observed in Chile are the significant growth of the service sector, reaching historically high levels, and the ongoing decline of the agricultural sector. These changes have important implications for income inequality. The expectation is that these shifts would contribute to an increase in income inequality, primarily due to two factors. Firstly, the service sector tends to exhibit higher wage dispersion, given the diverse range of jobs offered within the sector. Secondly, the reduction of the industry sector is also seen as potentially increasing inequality, as historically, industry workers have higher levels of unionisation, leading to more evenly distributed incomes (Chevan & Stokes, 2000). It is worth noting that, with the exception of workers in the mining industry, the historical trend indicates that workers in the industry sector have lower levels of inequality compared to workers in the service sector.

Considering these dynamics, the intensification of the service sector and the diminishing agricultural sector, it becomes crucial to examine how these changes impact income inequality in Chile and evaluate potential policy responses to address the resulting challenges.

Table 8: Gini by economic sector and year (full-time workers)

	1992	2000	2011	2017
Agriculture	44.5	42.4	38.9	33.5
Industry	49.9	44.3	42.8	38.9
Services	51.9	46.8	44.0	42.1

Source: Calculations based on CASEN surveys, respective years.

As *Table 8* presents, the ranking of Gini coefficients by economic sector has remained consistent since 1992, with the Service sector at the top. However, it is noteworthy that the gap between the industry and services sectors has proportionally increased over time, expanding from 4% in 1992 to 8% in 2017. Based on the distribution of workers across these economic sectors, one would anticipate income inequality to rise if there is an increase in the proportion of workers within the most unequal group. This variable is introduced in the counterfactual scenarios presented later on to evaluate the effects they had on the overall levels of income inequality.

Additionally, the inclusion of gender in the analysis of the distribution within economic sectors provides valuable insights into the dynamics of income distribution both between and within these groups. *Table 9* illustrates the distribution by economic sector and gender, highlighting significant differences in the shift from industry and agriculture sectors to services.

The data reveals that in 1992, working females, regardless of their partnership situation, accounted for over three-quarters of female labour in the service sector. This proportion increased even further to 86.8% in 2017. In contrast, their participation in industry sectors has halved over the same period. This indicates a substantial concentration of female workers in the service sector, reflecting a notable gender disparity in sectoral distribution.

Moreover, the data demonstrates that there is no significant difference in the distribution by sector and gender when differentiating based on partnership status for females, suggesting that the partnership status of females does not play a substantial role in their sectoral distribution within the economy.

These findings underscore the importance of considering gender when examining income distribution within different economic sectors. The concentration of female workers in the service sector, coupled with the significant shift away from industry and agriculture, highlights the need for targeted policies and interventions to address gender disparities in income distribution and promote equitable opportunities within various sectors of the economy.

Table 9: Economic sector by gender, partnership, and year, 1992 and 2017

	1992		2017	
	% in Industry	*% in Services*	*% in Industry*	*% in Services*
All employed workers	29.7	55.5	21.0	70.4
Females	17.0	77.3	8.2	86.6
Males	35.4	45.7	31.1	57.7
Female partners	16.6	77.9	8.0	86.6
Male partners	35.6	46.4	33.9	51.9

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes information from all employed workers aged between 18 and 65 years old.

The distribution of male workers reveals higher levels of participation in industry sectors, with no significant variation between 1992 and 2017 (35.4% and 31.1% for males and 35.6% and 33.9% for male partners). However, there has been a notable shift for male workers in the service sector, although less pronounced for male partners. Over 50% of male workers are now employed in this sector.

By aggregating data on changes across economic sectors, it becomes evident that female workers dominate the service sector. As previously mentioned, the decrease in low-paid jobs, particularly in the agriculture sector, has contributed to an overall increase in income levels, given that the remaining sectors, industry and services, offer comparatively higher wage rates. This has been identified as one of the factors contributing to the reduction of income inequality in Chile, along with the increase in minimum wages mandated by the government. To assess the impact of

changes in the economic sector, the next section of the chapter examines a counterfactual scenario where the industry sectors remain unchanged over time.

In addition to analysing household structures and economic sectors, understanding the distribution of households based on their working conditions contributes to comprehending the dynamics of income inequality at the household level.

Table 10 presents the distribution of households by their working situation, where households with only the head working have more than halved their proportion in the overall composition of households. Single-led households have experienced an inverted trend, increasing their representation to one-quarter of households in 2017. The data for 2017 demonstrates a more balanced distribution between working single-led (25.4%), dual-earners (21.9%), and single earners (25.4%) compared to 1992 when couple-led households with only the head working were dominant (45.1%).

Table 10: Households by work status, 1992-2017

	1992	*2000*	*2011*	*2017*	*Difference 1992-2017*
Couple not working	9.3	11.3	10.2	9.3	0.0
Single not working	14.4	13.5	18.1	18.1	3.7
Only head works (couple)	45.1	36.7	25.0	20.4	-24.7
Only partner works	1.7	3.5	5.3	5.0	3.3
Both work	16.8	20.5	20.7	21.9	5.1
Single-led works	12.7	14.4	20.8	25.4	12.7

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes information from all heads of households.

As mentioned earlier, Chile, along with other countries in Latin America, has witnessed a decline in income inequality since the early 1990s (Hourton, 2012; Parro & Reyes, 2017). To further examine this trend, *Table 11* presents the differences in the Gini coefficient, which serves as a measure of income inequality, for various income indicators using data from the CASEN survey. The table provides an overview of the changes in income inequality by comparing different income indicators.

Table 11: Gini coefficient for different types of income, 1992-2017

Gini coefficient x 100	1992	2000	2011	2017	% change between 2017 and 1992
Household income	53.1	53.1	49.6	46.7	-12.1%
Disposable income	51.4	52.2	48.0	44.7	-13.0%
Income from work	52.3	52.9	48.3	45.1	-13.8%

Source: Calculations based on CASEN surveys, respective years.
Note: Data based on household income measures for each head of household.

The Gini coefficient indicates that household income consistently exhibits the highest level of income inequality across all years. Household income encompasses all earnings from work within

a household. On the other hand, disposable income, which is calculated by dividing the total household income by the number of household members using the OECD-modified equivalence scale[19], consistently displays the lowest level of inequality. This measure allows for estimating income per capita from work within households and highlights differences between household income and individual incomes. Income from work falls persistently between the two, ranking in the middle in terms of income inequality.

Overall, the data shows a downward trend for all types of income, with income from work experiencing the most significant decline (13.8%). However, it remains relatively close to the other two types of income. These results are consistent with previous studies which highlight the reduction of variance in income from work as the main source for the reduction in household income inequality, along with the increase in monetary transfers from the state (Contreras, 2007; Larrañaga & Rodríguez, 2015). The variation in income inequality between households and disposable income can be explained by adjustments in family composition, which contribute to reducing wage dispersion. This suggests that household income captures the increasing diversity in family structures observed over the past three decades, such as the rise in single-led households and the decline of couple-led households where only the head is employed.

To gain a more comprehensive understanding of these trends, *Table 12* presents the distribution of households based on partnership and working situations. The first group represents households led by working single heads, while the subsequent three groups consist of couple-led households. Dual-earning households include cases where both the head and the partner are employed, male breadwinner households represent situations where only the male within the couple works, and female breadwinner households indicate cases where only the female is employed.

Table 12: Distribution of types of households, 1992-2017

	1992	2000	2011	2017	% change between 2017 and 1992
Single-working	16.2	18.7	29.0	35.1	116.9%
Dual-earning	22.6	28.0	29.6	31.8	40.7%
Male-breadwinner	59.6	49.9	38.3	29.6	-50.3%
Female-breadwinner	1.6	3.4	3.2	3.6	119.6%

Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households.

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[19] The OECD -modified equivalence scale assigns a value of 1 to the household head, 0.5 to each additional adult member and 0.3 to each child. For this analysis, every household member younger than 16 years old is consider a child.

Figure 27: Distribution of types of households, 1992-2017
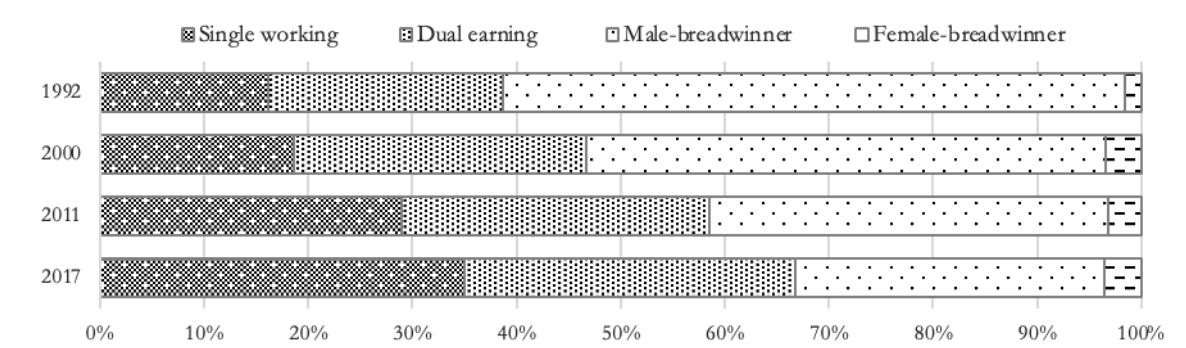
Consistent with previous findings, the only type of household that has experienced a decline in its representation is the male breadwinner household. In 1992, this household formation accounted for over half of all households (59.6%); however, by 2017, it had decreased to 29.6%. In contrast, other types of households have increased their representation, with single-working households taking the lead at 35.1% in 2017, followed by dual-earning couples at 31.8%. Although female breadwinner households have shown an upward trend over time, they still represent a small proportion of all household types, accounting for 3.6% in 2017.

These shifts have the potential to impact the distribution of household income and disposable income in different ways. The presence of two working partners may increase the income level in households. Nevertheless, the situation is more complex for single-led working households. The disposable income in these households would depend on factors such as the total number of household members. For instance, in cases where the head of the household is a working male with no children or extended family, disposable income would increase. However, in households where the head is a working female with children or extended family members, her disposable income would be lower, potentially leading to more significant wage disparities.

To gain a better understanding of the differences between households, *Table 13* provides a summary of different socio-economic indicators. Firstly, the average number of people within different household types indicates a reduction in the number of household members and the number of children for all types of households, except for single-working households, where the average number of children has remained stable since 1992. Male breadwinners had the highest average of 3.9 persons per household in 2017. Secondly, when it comes to the number of children, dual-earning couples and male breadwinners have similar averages of 0.8 and 0.7 children, respectively. As for extended family members, the trajectory differs among household types.

Single-working households show a reduction in the number of extended family members, while dual-earners and female breadwinners display stability, and male breadwinners show an increase. Female breadwinners have the highest proportion of households living with extended family members, followed by single-working and male breadwinner households. This information is significant since extended families can have an impact on disposable income and the distribution of labour, both paid and unpaid, within households. It is worth noting that dual-earning couples have the lowest proportion of households living with extended family members but have the highest average number of children.

Table 13: Socio-economic characteristics by types of households, 1992-2017

	1992	*2000*	*2011*	*2017*
Average number of people				
Single-working	2.8	2.8	2.7	2.4
Dual-earning	4.3	4.2	4.0	3.7
Male-breadwinner	4.5	4.4	4.2	3.9
Female-breadwinner	4.2	4.2	3.9	3.6
Average number of children under 15 years old				
Single-working	0.4	0.4	0.4	0.4
Dual-earning	1.2	1.2	0.8	0.8
Male-breadwinner	1.3	1.3	0.8	0.7
Female-breadwinner	0.7	0.9	0.5	0.5
% of households with extended families				
Single-working	52.7	54.2	51.1	47.8
Dual-earning	37.8	35.5	42.5	37.7
Male-breadwinner	32.2	34.3	44.9	44.5
Female-breadwinner	53.0	42.1	49.9	52.5
Average years of schooling				
All active workers	9.7	10.9	11.5	12.3
Single-working	9.1	10.9	11.5	12.2
Female	8.9	10.4	11.1	11.9
Male	8.7	10.6	11.3	12.1
Dual-earning (accumulated years)	21.6	23.3	23.9	25.3
Female	10.5	11.6	11.8	12.7
Male	10.8	11.8	11.9	12.6
Male-breadwinner (accumulated years)	17.1	19.0	20.2	21.5
Female	8.3	9.4	10.0	10.8
Male	8.9	9.9	10.5	11.2
Female-breadwinner (accumulated years)	17.1	19.2	21.4	22.6
Female	8.8	9.8	11.1	11.6
Male	8.7	9.8	10.7	11.5

% Educational homogamy	*1992*	*2000*	*2011*	*2017*
Dual-earning	72.0	63.9	61.7	61.4
Male-breadwinner	77.0	70.1	66.2	63.1
Female-breadwinner	77.1	69.0	62.5	61.5

Note: Data based on the head of households, in households where the head or the partner is employed, and the head of the household is aged between 18-65.

Another factor that influences household income is the educational attainment of family members. The data shows an increase in the average number of years of schooling from 1992 to 2017, which is a trend observed among all household heads. Single-working households display a similar educational distribution to that of all active workers, with males having a slightly higher average number of years of schooling compared to females (12.1 vs 11.9). For other types of households, the data shows the combined years of education for couples. Dual-earning couples have the highest average, followed by female breadwinners, both exhibiting similar educational levels for both males and females. The household type with the lowest average years of education is male breadwinners (21.5). Additionally, the highest average number of years of schooling is found among female and male workers in dual-earning and single-working households (25.3).

By examining the educational levels of couples, the data reveals a decrease in educational homogamy, particularly pronounced for female breadwinner households, which declined from 77.1% in 1992 to 61.5% in 2017. Another noteworthy trend is the increasing similarity in the percentage of educational homogamy between household types, which is much closer in 2017 compared to 1992. Since higher concentrations of educational homogamy have been associated with higher levels of inequality (Boertien & Permanyer, 2019; Eika et al., 2019; Torche, 2010), the reduction in the proportion of households where couples share the same educational level could be one of the contributing factors to the decline in household income inequality.

Finally, in terms of hours worked, Table 14 illustrates an overall reduction in the average number of working hours across all household types. Male breadwinner households have the highest number of hours worked by heads, followed by dual-earning couples, whereas single-working households had the lowest average of 41.2 hours per week in 2017. The table also presents the total number of hours worked in the household. In 2017, female breadwinner households had the highest average working hours (65.3) of those households where there is no working partner, while single-working households had the lowest (56.5). Overall, the most significant reduction in the total number of hours worked is observed in single-led households (-25.1%), followed by dual-earners (-14.5%). Considering that the reduction in working hours is a trend observed in OECD

countries and other nations (Huberman & Minns, 2007), Chile has shown a similar pattern, with single-led and dual-earning households seeing the highest reduction in hours worked.

Table 14: Average worked hours by type of households, 1992 and 2017

	1992		2017	
	Hours worked household head	*Total hours household*	*Hours worked household head*	*Total hours household*
Single-working	47.7	75.4	41.2	56.5
Dual-earning	50.5	115.4	44.9	98.7
Male breadwinner	51.6	72.6	46.7	63.2
Female breadwinner	46.4	73.6	42.4	65.3

Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households, in households where the head or the partner is employed and the head of the household is aged between 18-65.

To investigate the relationship between pay by gender further, the data for active workers shows a significant decline in the gender pay gap for median and mean wages. In 1992, female workers earned wages 30% lower than those of men. This gap went down, and in 2017, the average wages of female workers amounted to 76% of male average salaries and 80% of their median wages.

Figure 28: Median income from work for all active workers and by gender, 1992-2017
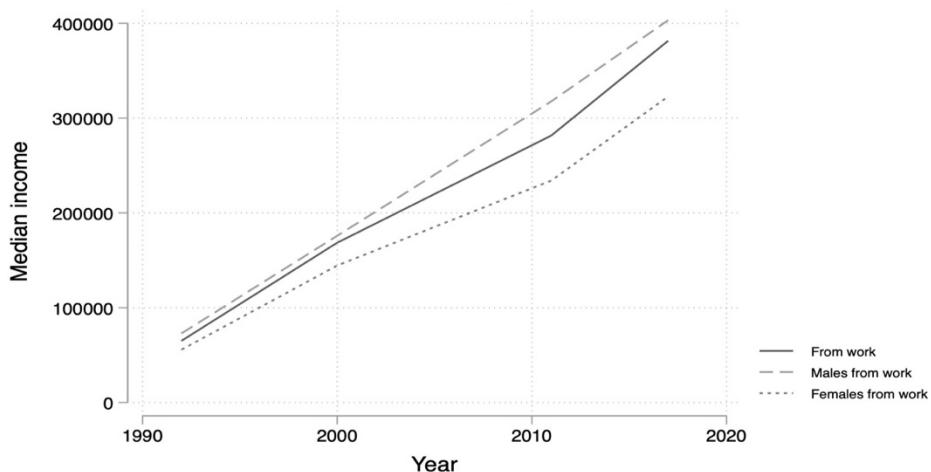
Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households, in households where the head or the partner is employed, and the head of the household is aged between 18-65. Income has been adjusted by inflation for each year.

Table 15: Mean and median Gender Pay Gap, 1992-2017

	1992	2000	2011	2017
Mean males	131,269	338,775	537,992	639,251
Mean females	92,067	221,114	390,064	486,589
Mean GPGP	-29.9%	-34.7%	-27.5%	-23.9%
Median males	72,921	175,915	317,715	403,295
Median females	55,789	144,509	234,156	322,896
Median GPG	-23.5%	-17.9%	-26.3%	-19.9%

Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households, in households where the head or the partner is employed, and the head of the household is aged between 18-65. Income has been adjusted by inflation for each year.

Having a reduction in the gender pay gap can also be one of the explanatory factors behind the reduction in the Gini coefficient since it overall reflects a decrease in the dispersion of wages between types of workers who have historically received different levels of wages due to processes of discrimination in cases where women have the same roles are men and are paid less just on the base of their sex. Secondly, due to gender segregation, women tend to dominate occupations where wages are lower overall (Blau & Kahn, 2007; Leicht, 2008; Magnusson, 2009). Since females are earning wages closer to that of male workers, and more women are working, the combination of workers within households in 2017 shows significant differences from that observed at the start of the examined period.

In addition to the reduction in the gender pay gap, by looking at the correlation of income between couples, *Table 16* presents a slight increase, which has remained moderate at around 50% since 1992. These results indicate that not much has changed in the composition of couples in terms of the relationship between their incomes. However, by looking at households where the head has higher education, we can observe a significant drop in the correlation from 48% to 39% in 2017. In contrast, for households with education lower than tertiary education, there was an increase in the years 2000 and 2011, to then drop back to the levels at the start of the period of 41%. The lower correlation of income for couples where the head has higher education can be linked to the previous result of lower educational homogamy. This could translate into more homogeneous households, where the pool of candidates for cohabiting or marriage is more diverse than before, with more people achieving higher levels of education.

Table 16: Correlation of income between head and partner

Correlation head and partner's income	1992	2000	2011	2017
All households with working couples	0.50	0.53	0.52	0.52
Households where head has higher education	0.48	0.44	0.36	0.39
Households where head has lower than higher education	0.41	0.44	0.47	0.41

Source: Calculations based on CASEN surveys, respective years.
Note: Correlation based on data from the head of household for households where both are employed. Income has been adjusted by inflation for each year. All correlations are significant with a p-value<0.05

On the other hand, the results for households with lower educational levels show stability over time, with a higher correlation between partners' income, which could be an indicator that it is less likely for them to move across different levels of education. This could potentially evidence a reproduction of structural inequality at the household level.

The results on median disposable income by type of households in *Figure 29* show the distance between dual-earning couples from all the other types of households throughout the whole examined period. In 2017, households with only one earner fell below the median income for all

workers. From these households, single-led ones show better results than male and female breadwinners, with the latter falling in the last position.

Figure 29: Median disposable income by type of household, 1992-2017
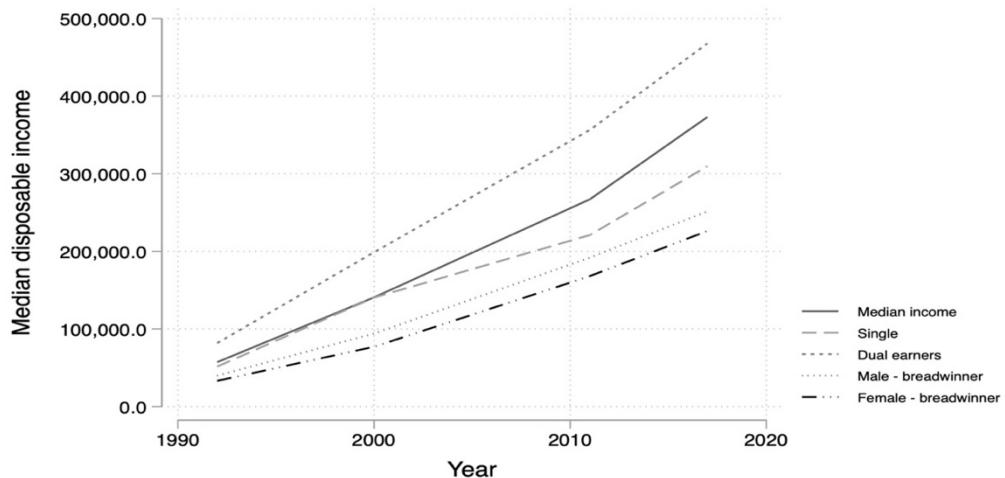
Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households, in households where the head or the partner is employed, and the head of the household is aged between 18-65. Income has been adjusted by inflation for each year.

In terms of the variance in the log of disposable income, *Figure 30* shows that in the year 2000, there was an increase in the variance of wages, followed by a consistent downward trend for most types of households except for female breadwinners, which in 2017 had a higher variance of log disposable income. The results indicate that male breadwinners show the lowest levels of variation, meaning they are the ones with lower income dispersion, followed by dual-earners. These results are interesting in the analysis of income inequality since they start illuminating why we see the downward trends of household income inequality when some of the socio-demographic and economic indicators seem to point in a different direction.

Figure 30: Variance of log disposable income for heads of household by type of households, 1992-2017
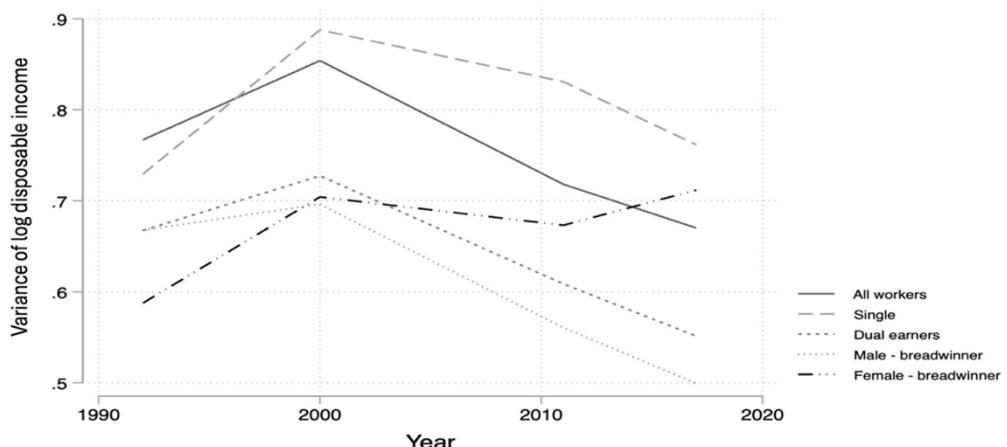
Source: Calculations based on CASEN surveys, respective years.
Note: Based on the head of households, in households where the head or the partner is employed and the head of the household is between 18-65 years old. Income has been adjusted by inflation for each year.

Figure 31 reveals the changes in the variance, taking the levels from 1992 as the reference point. The overall trajectory shows, similar to the previous figure, that the variance for female breadwinner households increased from 1992 to 2000 before decreasing up to 2011 and increasing again until 2017, with the exception of single-led households, which continued their downward trend after 2011.

Figure 31: Changes in the variance of log disposable income for heads of households by type of household, 1992-2017

With regards to the relevance of these results, they demonstrate that although the variation of income dispersion follows a fairly similar pattern, the proportion of change is different between types of households. Considering that there has been a decrease in male breadwinners, which are the ones with the lowest dispersion, one would expect that inequality overall might increase. Nevertheless, dual-earning couples have been replacing male breadwinners and showing lower levels of dispersion over time. This move might have been compensating for the potential negative effect of the decrease in male breadwinner households. At the same time, there has been an increase in single-led households, which are the ones with the highest levels of log income variance; nevertheless, their income inequality has also decreased over time.

To complement this information, *Table 17* presents the Gini coefficients by type of household. The results indicate that single-led families are the ones with the highest levels of income inequality (46.2), which has remained the same since 1992. On the other end, there has been a change from female breadwinners being more equal in 1997 (44.9) to dual-earning couples, which in 2017 showed the lowest Gini in household income (41.6).

Table 17: Gini by different types of households and income, 1992-2017

	1992	2000	2011	2017
Gini income by household	53.1	53.1	49.6	46.7
Single-working	**52.3**	51.9	50.2	**46.2**
Dual-earning	49.4	49.1	45.5	**41.6**
Male-breadwinner	50.9	50.9	45.9	43.4
Female breadwinner	**44.9**	48.7	45.3	45.6
Gini disposable income	51.4	52.2	48.0	44.7
Single-working	**53.1**	54.9	53.0	**48.8**
Dual-earning	48.4	48.5	46.2	43.2
Male-breadwinner	49.8	50.7	44.9	**42.2**
Female breadwinner	**35.8**	41.2	41.0	45.0

Source: Calculations based on CASEN surveys, respective years.
Note: Data based on the head of households, in households where the head or the partner is employed and the head of the household is aged between 18-65.

The lower half of *Table 17* displays a similar pattern in terms of the highest levels of disposable income inequality. However, different from the results by household income, male breadwinner households are the ones with the lowest levels of disposable income inequality (42.4). Overall, the trends indicate that the type of households that have experienced the highest increase since 1992, namely single-led households, are also the ones with the highest levels of income inequality.

The data presented indicates profound transformations in Chilean society since 1992. The most salient one has been the transition from a male breadwinner model of structuring households to a more diverse one, with a significant increase in single-led and dual-earning households. The increasing participation of women in the labour force, the level-up of educational attainment and the increase in real wages from work

4.6.1 *Working households and counterfactual scenarios*

According to the literature, the main explanatory factors of the distribution of income at the household level and in the workforce are educational level, gender and economic sector; this section presents a more focalised analysis including only households where the head is aged between 24 and 65 years old. The age cut-off is chosen to account for higher education as a variable, as it allows us to focus on individuals within an age range that typically grants them access to higher education. Finally, households with incomplete information on family members' education, economic sector of work, and income were excluded from the sample. The main difference with the analysis presented in the previous section is the reduction of the sample in order to have complete information on these households on relevant variables to run a counterfactual analysis based on household types, gender, education and economic sector.

Table 18 provides an overview of the distribution of various economic and sociodemographic characteristics of the sample, which helps to contextualise the analysis. Notably, there are differences between the composition of this sample and the previously presented. The drop in male breadwinner households is more acute, whereas the percentage of female breadwinners is much lower, reaching in 2017 only 1.8% of sampled households.

Table 18: Economic and sociodemographic characteristics from the sample, 1992-2017

% of working households	1992	2000	2011	2017
Single-working	16.5	19.6	31.1	37.3
Dual-earning	23.0	29.3	31.8	33.8
Male-breadwinner	60.4	50.6	35.9	27.1
Female-breadwinner	0.2	0.5	1.2	1.8
No children and no extended family	8.6	9.0	11.9	16.9
No children and extended family	35.5	35.5	45.9	45.2
Children and no extended family	42.6	43.2	32.8	30.5
Children and extended family	13.3	12.3	9.4	7.3
Educational homogamy	76.6	68.5	64.3	62.3
With tertiary education (<24 years old)	8.9	13.7	15.9	22.1
Males with tertiary education (<24 years old)	11.0	17.4	19.6	26.3
Females with tertiary education (<24 years old)	18.2	25.9	26.5	33.9
Agriculture	14.6	11.5	9.1	8.6
Industry	29.8	25.6	23.3	21.0
Services	55.7	62.9	67.7	70.5
Full-time workers	91.2	88.0	84.0	83.8

Source: Calculations based on CASEN surveys, respective years.
Note: Data from the head of households for households with active working heads aged 24-65, with available information for education, income, economic sector, household structure and work schedule.

When estimating the Gini coefficient of household income by type of household, *Figure 32* shows an increase for female breadwinners and a decline for all the other types of households. The ranking between single-led, dual-earners and male breadwinners has remained the same, all showing a downward trend, with dual-earners showing the highest proportional drop of 15.8% from 1992 (50.9) to 2017 (43.4). The results for disposable income from *Figure 33* show a less sharp drop and a similar difference to what was presented before for male breadwinners, having the most significant drop of 15.2% from 1992 to 2017.
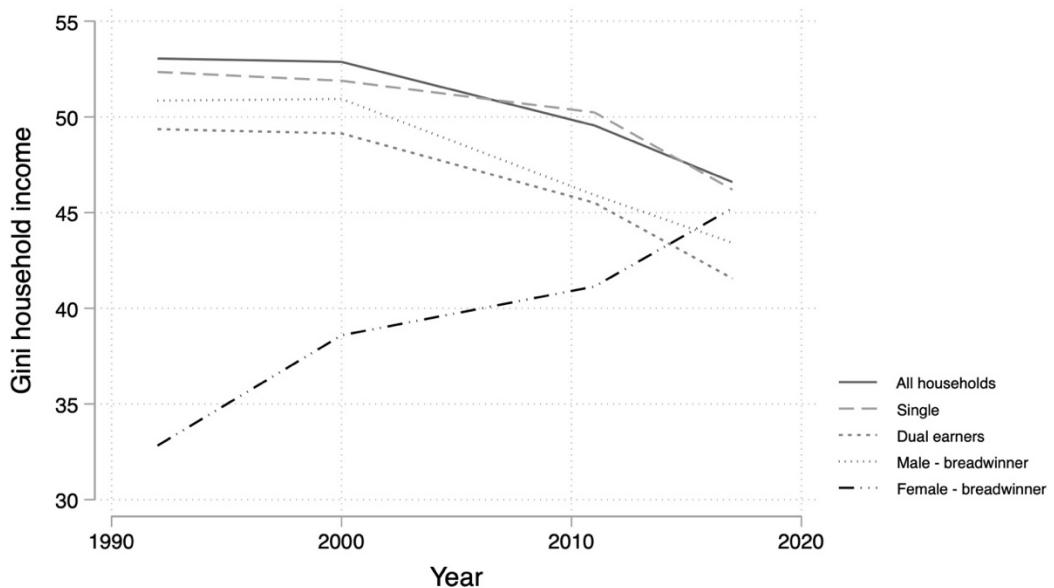
Figure 33: Gini from disposable income by type of household, 1992-2017
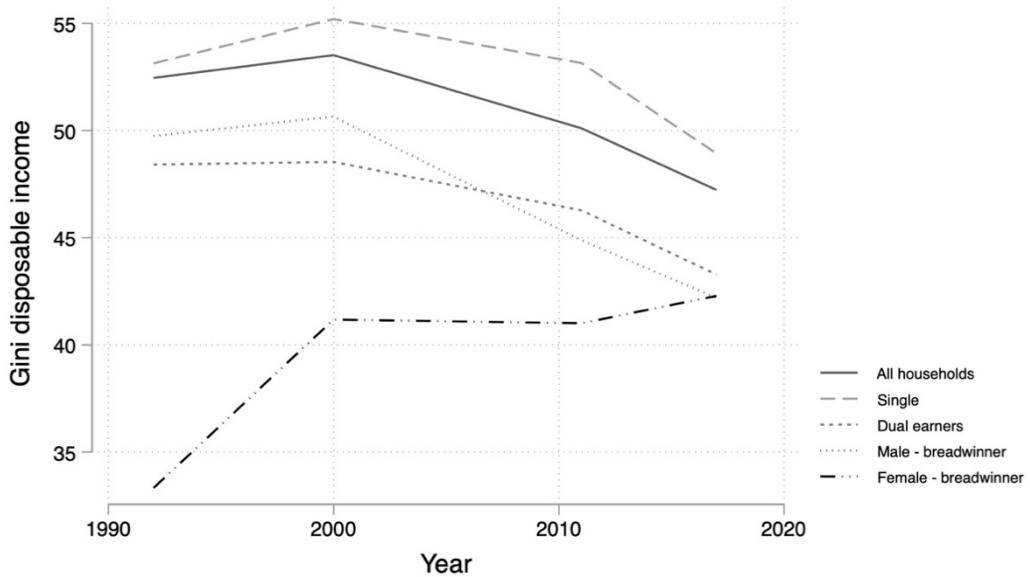
With clarity on the distribution of income between these four types of households and the trajectory over time, the following analysis aims to assess the impact of changes in various social dimensions on household income inequality by creating four counterfactual scenarios that maintain constant variables, which in previous research and the literature, are relevant to explain the distribution of wages. These four models compare the actual Gini coefficient for the years 1992 and 2017 with the predicted Gini under each counterfactual scenario.

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The analysis includes four explanatory variables based on established literature. The first variable is the type of household, with the four categories previously analysed: single, dual earners, male breadwinners, and female breadwinners. The second variable is education, specifically whether the head of household has completed tertiary education or not, which is recorded as a dummy variable. The third variable is gender, also a dummy variable, using female or male workers. The final variable is the economic sector, which includes agriculture, industry, and the service sector. To provide a clearer understanding of the distribution of heads of households across these groups, the following table presents the proportion of workers in each category for every year included in the analysis, along with the total number of workers using the regional weights.

Table 19: Distribution of heads of households in each category by year, 1992-2017

	1992	2000	2011	2017
Single working	16.4	19.5	31.0	37.1
Dual earning	23.2	29.3	31.9	33.9
Male-breadwinner	60.3	50.6	35.9	27.2
Female-breadwinner	0.1	0.5	1.2	1.8
N	2,280,857	2,527,253	2,994,636	3,413,751
Males without tertiary education	62.3	53.4	47.6	40.9
Females without tertiary education	24.5	26.2	30.0	29.4
Males with tertiary education	7.7	11.3	11.6	14.6
Females with tertiary education	5.5	9.1	10.8	15.1
N	3,360,277	3,943,099	4,952,290	5,697,070
Agriculture	14.2	11.4	9.0	8.5
Industry	29.8	25.7	23.3	21.2
Services	56.0	63.0	67.7	70.4
N	3,360,277	3,943,099	4,952,290	5,697,070

Source: Calculations based on CASEN surveys, respective years.
Note: The distribution is based on the total number of heads of households within each category.

For the following analysis, the variables indicating education and gender have been combined, creating a new variable with four categories, as shown in the previous table, to account for the explanatory power of these two variables combined.

Table 20 shows a 10% reduction in the actual Gini coefficient from 52.5 to 47.2 during this period. The subsequent rows in the table compare the real observed change to the predicted change if the variables had remained the same as in the comparative year.

Table 20: Reweighting method Gini coefficient of disposable income x 100

Gini coefficient x 100	1992	2017	1992-2017 change (%)	As a % of 1992-2017 change
Actual Gini	52.5	47.2	-10.0	100
Holding proportion of household structure constant				
At 1992 level	52.5	46.5	-11.3	113
At 2017 level	52.6	47.2	-10.2	102
Holding proportion of gender and education constant				
At 1992 level	52.5	43.5	-17.0	171
At 2017 level	55.5	47.2	-14.9	149
Holding proportion of economic sectors constant				
At 1992 level	52.5	46.8	-10.7	108
At 2017 level	52.5	47.2	-10.1	101
Holding proportion of household structures, gender, education, and economic sectors constant				
At 1992 level	52.5	43.4	-17.3	174
At 2017 level	55.4	47.2	-14.7	147

Source: Calculations based on CASEN surveys, respective years.
Note: The Gini is estimated using household disposable income information for each head of household included in the sample. Income has been adjusted by inflation for each year.

Using a similar model to the one used by Burtless (1999) to study the impact of family composition on income distribution in the U.S., the different counterfactuals present the results of what the hypothetical Gini coefficient would have been if specific variables had remained unchanged. The first counterfactual scenario holds constant the distribution of household structures, encompassing four types of households: single-working, dual-earning, male breadwinner, and female breadwinner. The second model maintains a constant distribution of gender and education, specifically focusing on the proportion of the population with tertiary education, a key determinant of income alongside gender. This combination results in four types of workers: females with tertiary education, females without tertiary education, males with tertiary education, and males without tertiary education.

The third model maintains a constant distribution of workers across three main economic sectors: agriculture, industry, and services. Lastly, the fourth model keeps all three aforementioned variables constant. Given that the analysis focuses on disposable income, the proportions are estimated based on the characteristics of the household head.

The most salient result from *Table 20* is the second counterfactual. If the proportions of gender distribution and educational attainment had remained unchanged since 1992, the estimated Gini coefficient would have been 3.7 points lower than the actual 2017 record. The combination of these two variables provides the highest difference between the change in actual Gini and the

counterfactual one (+71%), followed by household structure (+13%) and economic sectors (+8%). The combination of the three previous counterfactuals shows only a 3% higher reduction than the one observed holding gender and education constant.

This data reveals interesting insights into the relationship between household structures and income inequality. Interestingly, retaining the same structures observed in 1992 throughout 2017 would have resulted in a 13% reduction in inequality compared to the actual Gini coefficient recorded in 2017. Conversely, projecting the structures of 2017 onto 1992 would have led to higher levels of inequality across all examined counterfactual scenarios, except for economic sectors, which stay constant at 52.2. Plausible explanations for these findings lie in the presence of more diverse household structures and a decline in male breadwinner households, which tend to exhibit lower income inequality levels. If there are fewer households with less dispersed income, such as male breadwinners, maintaining their proportion over time could have potentially contributed to even lower levels of income inequality in the form of disposable income. Similarly, the growing number of workers in the service sector is expected to elevate income inequality; nevertheless, according to these estimations, maintaining the proportion of economic sectors constant as in 1992 would have contributed to a drop in the Gini coefficient of 8%.

These findings shed light on the interplay between various factors and income inequality, emphasising the significance of household structures, economic sectors, gender distribution, and educational attainment. These results are relevant to policymakers and researchers who are devising targeted strategies to address income disparities within different segments of the population and promote more equitable income distribution.

Table 21 provides a summary of the analysed variables, highlighting their net effects on income inequality. It is noteworthy that when all variables are combined, the difference in the Gini coefficient between modelling all three variables and considering only education and gender is negligible, with a mere 0.2 Gini points. This suggests that while household characteristics do play a role in understanding the trajectory of household income inequality, they are not the primary drivers of the observed reduction over the past 25 years.

Table 21: Counterfactual scenarios with reweighted sample

	1992	2017
Observed Gini (disposable income adjusted by inflation)	52.5	47.2
Changes in Gini between years		-5.3
Value of Gini if no household structures changes	52.6	46.5
Value of Gini if no education and gender changes	55.5	43.5
Value of Gini if no economic sectors changes	52.5	46.8
Value of Gini if no household structures, gender, education and economic sectors changes	55.4	43.4
Net effects of household structures	0.1	-0.7
Net effects of education and gender	3.0	-3.7
Net effects of economic sector	0.1	-0.4
Net effect of household structures, gender, education and economic sectors	2.9	-3.9

Source: Calculations based on CASEN surveys, respective years.
Note: The Gini is estimated using household disposable income information for each head of household included in the sample. Income has been adjusted by inflation for each year.

These findings underscore the importance of considering multiple factors when examining income inequality dynamics. While household structures, gender distribution, and educational attainment contribute to the overall picture, other factors not included in this analysis must also be taken into account to fully understand the complexities of income inequality trends.

To complement the analysis of reweighting the samples to create counterfactuals, this section also includes an analysis comparing quintile regressions to create counterfactuals based on the predicted log disposable income of households' heads. The intention of providing two different counterfactual estimations using the same data is to contrast these two results and compare their consistency. The reasoning behind the selection of these two different methods is to provide results that are sociologically significant. Since they propose hypothetical scenarios, and in the sociological analysis, we tend to rely on actual observations, the introduction of these new methodologies needs to be taken with certain reservations since, in real life, we will never be able to test whether these assumptions hold true and to what extent.

In order to complement the reweighting method, *Table 22* reveals a similar pattern to the previous analysis, highlighting the importance of gender and tertiary education in shaping income distribution. In this case, all changes would have occurred maintaining the structures from the alternative year, resulting in even greater reductions in income inequality than the ones found with the reweighing method (42.3% vs 43.5% for the counterfactuals holding the proportion of gender and education, respectively). One of the main differences between these two approaches is the use of log disposable incomes to generate the quintile regressions and to obtain the Gini from that

disposable income. In contrast, in the case of the reweighted scenarios, the wages are estimated based on real disposable income.

Although there is an overall consistency in the results for gender and education, holding the levels of 1992 constant, the main difference in this analysis lies in the lower levels of inequality predicted for 1992, keeping the levels of 2017 constant for household structures and the economic sector. In this scenario, income inequality would have been slightly lower in 1992 if the household structures from 1992 had been maintained (-15%), and a similar effect is predicted if economic sectors had remained constant (-19%).

Table 22: Counterfactual scenarios based on estimated quintile regression coefficients (using five quintiles)

Gini coefficient of disposable income	1992	2017	1992-2017 change (%)	As a % of 1992-2017 change
Actual Gini x 100	52.5	47.2	-10.0	100
Holding proportion of household structure constant				
At 1992 level	52.5	45.6	-13.1	131
At 2017 level	51.7	47.2	-8.6	86
Holding proportion of gender and education constant				
At 1992 level	52.5	42.3	-19.3	193
At 2017 level	54.1	47.2	-12.7	127
Holding proportion of economic sectors constant				
At 1992 level	52.5	45.2	-13.8	138
At 2017 level	51.5	47.2	-8.3	84
Holding proportion of household structures, gender, education, and economic sectors constant				
At 1992 level	52.5	43.1	-17.9	180
At 2017 level	55.0	47.2	-14.1	142

Source: Calculations based on CASEN surveys, respective years.
Note: The Gini is estimated using the estimated coefficients from the quintile regression based on the household's disposable income for each head of households included in the sample. Income has been adjusted by inflation for each year.

With these counterfactuals, the net effects of education and gender have, again, the largest impact. This means that if the levels of education and gender distribution in the labour market had remained the same as in 1992, the Gini coefficient in 2017 would have been 4.9 points lower. The results for household structures and the economic sector show a slight difference, and the ranking is inverted, with the economic sector having a higher impact than household structures, potentially having reduced the levels of household income inequality measured by disposable income.

Table 23: Counterfactuals for quintile regressions

	1992	*2017*
Observed Gini (disposable income adjusted by inflation)	52.5	47.2
Changes in Gini between years		-5.3
Value of Gini if no household structures changes	51.7	45.6
Value of Gini if no education and gender changes	54.1	42.3
Value of Gini if no economic sectors changes	51.5	45.2
Value of Gini if no household structures, gender, education and economic sectors changes	55.0	43.1
Net effects of household structures	-0.8	-1.6
Net effects of education and gender	1.4	-4.9
Net effects of economic sector	-1.0	-2.0
Net effect of household structures, gender, education and economic sectors	2.5	-4.1

Source: Calculations based on CASEN surveys, respective years.
Note: The Gini is estimated using the estimated coefficients from the quintile regression based on the household's disposable income for each head of households included in the sample. Income has been adjusted by inflation for each year.

Based on the results, it seems clear that changes in the distribution of gender and education have accentuated differences in disposable income among households. This is evident by the results indicating that the Gini coefficients would have been higher in 1992 with the distribution of 2017, and conversely, the same indicator would have been lower in 2017, holding constant the distribution of 1992. The conundrum persists as to how the adoption of trends which, on paper, aim to promote more egalitarian contexts, such as increasing participation of women in the labour market as a response to their need for economic independence within their households and the expansion of education to foster social mobility, are showing to exacerbate income inequality among households.

4.7 Discussion and conclusion

The changes experienced in Chile towards a more diverse array of household structures, with smaller families and a lower number of people sharing a home, as well as the increase in female heads, is a phenomenon that is not particular to Chile but to the Latin American region, in general (Arriagada, 2014; García & Rojas, 2002). The changing face of households has happened at a slower pace than what has been observed in advanced economies (OECD, 2011b); nevertheless, these transformations have relevant sociological implications in the study of income inequality.

The analysis provided in this chapter shows that there have been significant changes in the structure of households. Although the new arrangements could have potentially increased the levels of overall income inequality, these effects have been counteracted by the internal movements of types of households. Different to what has been found in other countries, in the case of Chile,

dual-earning couples have seen reduced inequality within these types of households. By replacing male breadwinner households, which have been shown to have one of the lowest levels of inequality, with dual-earning couples, the effects of this restructuring have been muted or toned down. The increasing number of single-led households, which are the ones with the highest levels of income inequality, could be the explanatory factor for the higher reduction in inequality when looking at the results of the counterfactual scenarios. These results are significant in understanding the phenomenon of income inequality and the dynamics within the labour market from a household perspective since they show us how a particular type of family formation can have significant effects on the levels of income inequality. If the shift from couple to single-led households continues, or if the stability of traditional households continues diminishing over time, we could see higher levels of dispersion in disposable income within families.

The transformation of household units requires adopting new lenses to study the dynamics of income in the labour market. As mentioned, many of the policies within the labour market have been designed to take the male breadwinner model as the canonical type of household. Acknowledging that there is a degree of agency in every worker to decide what type of work they are willing to perform, in tandem with objective conditions, needs and constrictions, which are the drivers of work, the data shows that preferences have been changing for female and male workers.

The structural reshuffling could indicate that the balance between economic opportunities and household responsibilities has shifted. The combination of more progressive views around gender roles and the extension of opportunities to enter the labour market has transformed the horizon of possibilities people have to choose from. In line with the reflections posed by Irma Arriagada (2009, 2014), the processes of economic modernisation have paved the way to challenge the options available for family formation and the traditional notions of gender roles.

The increasing number of females as heads of couple-led households shows that they are gaining more influential positions. The reordering of hierarchies and power distribution between female and male workers and partners could potentially change future patterns of consumption and deepen the transformation of family structures, marriage and fertility rates even more. Female workers have been moving away from single-led households, which could be related to the improvement in their working conditions, accessing better jobs and salaries as a consequence of their increasing educational attainment. Working women are in a better position to choose male partners, in contrast with previous generations where working males were the ones choosing, with women having little room for manoeuvre. Additionally, although the gender pay gap has dropped over time, it is still present. Therefore, the option of being with a male partner places working

females in a better and more stable economic position, helping compensate for the inequalities within the labour market between female and male workers, particularly in cases when there are children. From a purely economic perspective, being single is more costly than being in a couple, where everyday costs are shared. It, therefore, could be an incentive for women to choose to live in couple-led households.

The increase in female workers has contributed to improving their economic situation compared to previous generations. Nevertheless, the concentration of female workers within the service sector has increased over this period, showing the persistence of gender segregation by economic sectors. Although all workers are crowding the service sector in larger quantities, the concentration of female workers in a sector that has higher levels of income dispersion and offers less stable working conditions, compared to the industrial sector, stresses the need to question the progress women have made in entering the labour market with higher scrutiny, i.e. how much of traditional gender roles persist in the types of work women chose to do and how much has been transformed by their insertion in the labour market.

Males, on the other hand, have moved towards single and dual-earning households to the detriment of male breadwinner structures. Both trends seemed to have benefited males economically. The shift towards dual-earning households translates into a shared responsibility with their female working partners to provide economic means for households. Although there is no evidence examined in this chapter about the redistribution of unpaid work in light of the extra burden that some women have taken, previous research has shown that women tend to work more hours in total, including paid and unpaid work (Campbell & Chafetz, 2000), which was further exacerbated during the COVID-19 pandemic (OECD, 2021). In this situation, males have less responsibility over the material well-being of their households compared to the male breadwinner model. Moreover, their increasing proportion in single-led households means they have higher disposable income compared to the one from male breadwinner ones. The combination of more males heading single-led households can potentially exacerbate the levels of household income inequality, considering that male workers and single-led households have the highest levels of wage dispersion.

The intricate dynamics between social, economic, and cultural forces continue calling for a deeper understanding from social scientists to provide alternative or complementary views on what is driving economic inequality and what the motivations and beliefs behind people's choices are. What seems clear from the analysis in the case of Chile is that there are no clear patterns of polarisation. On the contrary, the increasing diversity has led to compensating movements, which

have cancelled out income inequality trends. If, for instance, dual-earning couples had seen more variance in their incomes, in tandem with a consolidation of single-led households, which have higher dispersion of wages, Chile would have potentially experienced a more tamed reduction of their household Gini.

It is noteworthy that household income inequality has decreased over time, regardless of the structural changes that are associated with the increasing levels of income inequality in the literature. The findings keep the door open to continue investigating the effects of improving individual incomes at the bottom of the distribution, as well as the effects of downward trends for wage premia, compressing the overall distribution of income. The results show that the drop in the Gini coefficient would have happened with or without the changes in household structure, education, gender distribution of workers, and industry. The levels of income inequality would have been even lower for households. Nevertheless, the relevance of the findings lies in showing that the drop would have been more substantial had the structures of 1992 would have remained the same in 2017, falling from 52.5 in 1992 to 46.5 in 2017 instead of 47.2, representing a reduction of 11.3%[20]. Although income inequality levels in Chile remain significantly higher than the OECD average, it is informative to see how a country that could have experienced an increase in household income inequality has managed to reduce it.

The relevance of the findings lies in the ways in which we analyse and study income inequality. So far, the studies have been dominated by researchers examining advanced economies focusing on the drivers of economic inequality (A. Atkinson, 1999; Morris & Western, 1999; Piketty, 2014; Western & Bloome, 2009), whereas the studies focusing on Latin America, have drawn their attention to the decrease in wage premia and the political reforms which have contributed to decreasing levels of inequality (Bourguignon et al., 2005; Gasparini & Lustig, 2011; López-Calva & Lustig, 2010; Rodríguez-Castelán et al., 2022). The contribution of this research is the focus on income from work and the consequent exclusion of variables related to the redistribution of income via taxes or direct monetary transfers. Drawing attention to the distribution of income from work within households, aimed at shedding light on the reconfiguration of family structures, driven by changes in the economic conditions of the labour market and the liberal cultural transformations on the notions of family formation.

Instead of isolating variables to determine their individual impact, this research takes a more holistic approach, recognising the interconnectedness of various factors. The sociological

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[20] This is the result for the reweighting method. The results using quintile regression showed a drop of 13.1%

relevance lies in comprehending how individuals and households have embraced and responded to these transformations in light of the minimum market reforms to the design of policies based on traditional models of family and household structures. The data shows that dual-earning couples tend to have lower levels of income inequality compared to single-led households. Reflecting on the family dynamics and the implications of not having sufficient childcare support provided by the state leads families to take the economic responsibility of this care if having a family becomes a burden which is primarily absorbed privately by families instead of having support from the state, as it happens in Scandinavian countries (Crompton, 1999), where they have moved towards a less traditional gender relation model, with couples been dual-earners and dual careers, facilitated by transforming the structure of the labour market, where is not the State nor the market who takes responsibility for the care families required, but them.

The cultural transformation towards a more liberal way of doing family has shown to be beneficial for male workers. However, the picture is not as clear for female workers. The move from single-led to dual-earning households for female workers could be interpreted as a move towards a safer and more stable economic situation, considering the persisting differences in working conditions between female and male workers. Moreover, the distribution of unpaid work within households does not seem to have occurred at the same pace as the increasing participation of females in the labour market. In line with what has been proposed by scholars such as Rosemary Crompton (1999), the transformation of gender relations takes a longer time. Therefore, it is important to continue studying patterns of family formations and their impact on income inequality to examine how beneficial these changes are with the current structures and what needs to change in order to achieve the ultimate goal of fairer and more equal societies.

Likewise, this research also highlights the importance of observing phenomena such as wage premia from a regional perspective to better understand the dynamics of income inequality in different contexts. For example, the reduction of the wage premia has shown an opposite trend to what has been observed in developed economies, along with the astronomical wage increases in areas such as technology, communication and finance. The compression of wages in Latin can be seen as the result of a higher supply of qualified workers, reducing wages at the top, but also to the limits economies experience under peripheral capitalism (Rodríguez Weber, 2018). Along these lines, an open economy with a service-based productive structure, such as the Chilean, presents productivity levels that do not match those of advanced economies. Therefore, theories such as SBTC play a less central role. Chile has not experienced a transition from industrial to post-industrial societies or become a knowledge economy. Its trajectory shows attempts to become

industrialised, replaced by the increasing dominance of the service sector, and therefore be closer to a service economy. The levels of job instability and vulnerability created under a service-based economy represent a challenge to tackle income inequality, particularly in the context of a country such as Chile, with low levels of labour market regulation and the individualisation of economic risks.

In conclusion, the transformation of family structures from traditional male breadwinner models to more diverse forms is an ongoing process influenced by social, economic, and cultural forces. The analysis of income inequality in Chile highlights the complex interplay between these factors and the risks of going back to the levels of income inequality from the 1990s if wages at the bottom fail to keep growing at the speed shown in the last 20 years. Similarly, the same risk could crystalise if wages at the top start distancing from the median due to the increasing number of workers with postgraduate studies and the development of economic sectors such as finance and technology. Finally, if dual-earning households start becoming more economically segregated, and single-led households continue growing without a transformation of gender relations in the labour market and within households, income inequality at the household level could potentially diverge from the downward trend exhibited over the past decades.

Wage Inequality Within Professional Occupations:

The Emergence of New Clusters and The Persistence of Privilege

5.1 Introduction

While education is widely championed as a primary driver of social mobility by politicians and economists, the journey toward upward mobility continues to face significant obstacles. Despite substantial efforts to upskill the workforce (Brown, 2013; Bukodi & Goldthorpe, 2018; Laurison & Friedman, 2016; Savage & Egerton, 1997), these challenges persist. The expansion of higher education in many countries has not erased the disparities in social mobility. Rather, research indicates that individuals with similar educational levels still experience rewards tied to personal attributes and their social class of origin. This is particularly acute for those in professional and managerial occupations (Friedman & Laurison, 2018).

On the demand side, as firms are presented with a larger supply of highly skilled workers, they need to devise new forms to differentiate between workers and select the best candidates for the roles offered. Human capital, as a measure of years of education and work experience, tends to lose its previous efficacy in predicting wages as other factors start or continue to play a significant role in workers' earnings. This emerging phenomenon has been studied by examining the differences between and within various occupational groups, and the proportion of wages that cannot be predicted by years of work experience and education has been conceptualised. The term used, predominantly by economists, to conceptualise experience is 'residual inequality' (Katz & Autor, 1999; Lemieux, 2003)

Residual inequality refers to the average difference in wages between occupational groups compared to the difference in wages within occupations. The expectation is that between-occupation inequality would explain the lion's share of income dispersion for workers, thus supporting the assumptions of human capital theory. If, on the other hand, within-occupation inequality is increasing, it implies that there is a higher dispersion of wages among workers within the same occupation than the differences between workers from different occupations. Although economists have addressed this issue (Kim & Sakamoto, 2008), the explanations for this rebalancing in the importance of within versus between-occupation wage inequality have been compositional changes and not necessarily new forms of discrimination or occupational closure as proposed by Weeden and Grusky (2005). The study of residual inequality in the context of Latin America has not been as prominent as in developed countries, and therefore, this research offers new insights into the dynamics of income inequality in the region by looking into the specificities of the most prestigious and higher-paid jobs.

In Chile, since the early 2000s, there has been a decline in income inequality, coinciding with an upscaling of the labour market promoted by an expansion of the higher education system. These

two concurrent phenomena could suggest that, in the case of Chile, unlike other countries, increasing levels of education have the expected effect of fostering a less dispersed distribution of incomes, as indicated by the trajectory of the Gini coefficient. Nevertheless, the levels of income inequality remain high, significantly higher than the average for OECD countries, and thus warrant further inquiries into what has happened with the incomes of highly skilled workers, particularly those in professional occupations. This occupational group exhibits the highest rates of wage dispersion compared to other groups, and one of the explanations for these wage differences could be attributed to forms of occupational closure within the professional sector, as well as entrenched forms of discrimination.

If there are new barriers to accessing higher wages despite possessing the appropriate levels of qualifications traditionally required for higher earnings, this could indicate the emergence of new forms of discrimination under the concept of 'residual inequality'. Moreover, it could also potentially perpetuate older forms of discrimination based on people's socio-economic backgrounds, as research has shown to be a persistent feature of the region linked to a colonial legacy (Coatsworth, 1994; W. Robinson, 1999). To assess the impact of increasing levels of higher education and the transformation of the occupational structure, particularly that of professionals, this chapter examines the drivers of wage inequality among workers in professional occupations to estimate how much of the wage differences are due to personal characteristics, which could indicate forms of discrimination.

To examine these variables, I employ latent class analysis to categorise professionals through an inductive approach. The objective of creating such groupings is to evaluate the extent to which micro-occupations among professional workers continue to contribute to our understanding of wage inequality. This involves assessing whether these disparities in income originate from contextual aspects of the job market or from the individual traits of the workers themselves.

The analysis focuses mainly on professional occupations since they exhibit the highest variation in wage levels within the group compared to other occupational groups. The dispersion in wages is expected, as over the last decades, there has been increased heterogeneity among workers with similar but not entirely equivalent human capital. The expanded access to higher education and the proliferation of new private higher education providers can be considered factors of wage dispersion among professionals since not only has the heterogeneity of students' socioeconomic backgrounds increased, but also that of higher education institutions (Brunner, n.d., 2002; Quaresma & Villalobos, 2018).

The sociological relevance of wage differences among professional workers stems from the expansion of access to educational credentials, which were previously exclusive to elite groups, and the perpetuation of discriminatory practices in the labour market. Thus, with a more diverse socioeconomic background among workers with the same professional credentials, "unobservable skills" and personal attributes seem to be gaining higher value in the market as they become scarce resources possessed only by a few. In a context where society values meritocracy and shares the view that people at the top deserve their position because they have earned it or have the ability to be there, it becomes more challenging to dispute these economic gains and disparities among highly educated workers as a result of discriminatory practices (Young, 1958). The promise of higher education and investment in human capital as the main drivers for social mobility requires further inquiry, as exclusive access to higher education no longer guarantees good or desirable jobs in a highly segmented education market. The appearance of fluid and flexible social structures in contemporary societies can be misleading if labour markets are vastly commodified and significant advances in terms of access to higher education have not led to more equal societies as expected (Esping-Andersen, 1990).

The phenomenon of the 'progress paradox' or 'paradox of progress' has captured the attention of scholars, particularly in Latin America and East Asia, due to its implications on wages and the labour market. This term encapsulates the counterintuitive effect that the proliferation of higher education in middle-income countries has on income equality. The 'progress paradox' posits that a more egalitarian distribution of education leads to greater income dispersion, attributed to the convexity and variability of educational returns (Battistón et al., 2014; Bourguignon et al., 2005). This results in significantly higher wages for each additional year of schooling, especially at the tertiary level. However, the situation in Latin America, and Chile in particular, contradicts this, as a more educated workforce has coincided with a reduction in inequality, thus complicating the 'progress paradox' narrative and suggesting the need for its refinement in such regions.

The wage premium for highly skilled workers may be linked to shifts in the labour force composition and a decrease in wages due to an increased supply of workers. Yet, this could also indicate that the benefits of educational returns are accruing to only a select group of workers.

To fully address the complexity of income dynamics within professional occupations, this chapter examines intra-group inequality and their impact on the overall wage distribution, considering various factors, such as gender, educational institutions, parental education levels, postgraduate qualifications, working conditions, geographical regions, and productive sectors.

5.2 Literature review

5.2.1 *Knowledge and service: global economic transformations and its impact in Latin America*

Much of the debate surrounding income inequality has focused on the economic transformation observed during the second half of the 20th century, transitioning from industrial to post-industrial societies. The continuous advancements in technology and science have occurred at a much more rapid pace compared to previous decades and centuries, profoundly altering the way we live. This phenomenon has been described and conceptualised using various terms, including post-industrial societies, knowledge economy, and the service economy (Bell, 1973; Brown et al., 2004; Castells, 1976; Powell & Snellman, 2004).

One of the most significant thinkers about these changes was Daniel Bell (1973), who developed the concept of post-industrial societies. The central argument within this conceptualisation of the new ways of organising the economy and society is the prioritisation of theoretical knowledge over empiricism. Productivity gains are closely tied to the generation, communication, and exchange of information and knowledge.

Similarly, the term "knowledge economy" refers to the shift from goods-producing economies to production in technological and knowledge-based sectors (Powell & Snellman, 2004). The fundamental key to economic growth in this context is the production of knowledge and information through technological development. Both arguments underscore the shift from manufacturing-based economies to knowledge-producing ones.

At the core of this production logic lies the modern idea of humankind dominating nature, predicting future outcomes to change and control them as much as possible. This positionality has been internalised as the modus operandi in several spheres of life, particularly in the production of knowledge, science and technological development. It implies positioning a certain type of logic and reason above any other form of acting in the world to be efficient, effective and always in control of distractors, such as emotions (Horkheimer & Adorno, 2022).

In addition to the rise of knowledge as the driver for human evolution and post-industrial societies, the service sector has also seen substantial growth. In tandem with the reduction of the manufacturing sector, services have expanded significantly. This transformation is of paramount importance since the service sector, also known as the third sector, encompasses a wide variety of job types and offers a broader scope of analysis. Manuel Castells (1976) described this phenomenon as complex to analyse, primarily due to the diverse array of jobs grouped within this economic sector. Building upon Bell's ideas around post-industrial societies, Castells highlights the

significant expansion of the service sector in the US during the late 1960s and early 1970s, particularly in areas related to health, education and social services. These areas were led by professionals providing "human service" with a strong focus on people and consumer values. In this context, the value of the sector stems from the generation of information and the relational character of services, where human interactions play a central role.

Considering the drivers of income inequality within these economic transformations, the impact of the knowledge economy differs from that of the service sector. In the former, the demand for highly educated workers, coupled with their scarcity, leads to increased wages for those possessing specific credentials and skills, thereby exacerbating income inequality. This scenario is evident in certain regions, such as the US or the UK, where they had an expansion of the knowledge economy, and at the same time, low-skill service had also increased significantly, generating processes of wage polarisation while in others (Autor & Dorn, 2013; Goos & Manning, 2007). In contrast, Latin America's expansion of the service sector is much more pronounced compared to the development of a knowledge economy. Consequently, the dispersion of wages at the top has not affected a significant number of workers.

One of the singularities of the service sector is the wide variety of types of jobs which follow into this category. On the one hand, it encompasses workers with medium skill levels, working in wholesale and retail, accommodation and food services, transportation, and also includes workers providing services in areas of technology and finance, public administration, where they access much better pay and have better working conditions. Therefore, the expansion of this sector counteracts the effects of rising wages at the top, as it creates more job opportunities in middle-income positions. Although the expansion of middle-income jobs can be seen as a positive effect, this sector offers much more unstable and heterogeneous types of jobs than those available, for instance, in manufacturing sectors. This has been one of the trade-offs within the labour market, where the cost of getting higher wages has been compensated by workers' labour stability and secure working conditions. In the context of a liberal economy with low regulations of wages, other than setting a minimum wage, it is expected that companies and firms will transfer some of the costs of labour to workers by reducing non-monetary rewards.

In addition to the changes in economic sectors, the occupational composition of workers is also affected within the context of post-industrial societies. According to Manuel Castells, the role of professional occupations will become more and more predominant:

"The new economy would increase the importance of occupations with a high information and knowledge content in their activity. Managerial, professional, and technical occupations would

grow faster than any other occupational position and would constitute the core of the new social structure." (Castells, 2010, p. 219)

Based on these observations and predictions about the future of the labour market, the present chapter analyses the changes in the composition of the workforce, with particular attention to the diversification of professional occupations. Considering the economic sector, they show more prevalence and whether the type of job or the type of worker is marking the most significant difference when collectively examining workers' wages.

Have countries in Latin America transitioned to knowledge economies?

As previously mentioned, the main conceptualisations of the economic changes experienced over the last century have originated from advanced economies from the Global North, predominantly from the US and the UK, as well as a selected group of European countries[21]. Whilst these conceptualisations are relevant for understanding the general context of these transformations, it is important to acknowledge that the effects and speed of change have been experienced differently in Latin America. According to Bértola and Ocampo (2013), the trajectory of the region's economy over the past two centuries has revealed insufficient diversification of its productive structures. Latin America's production remains primarily based on natural resources; however, unlike countries such as Canada, Australia, or even the US, it has not been able to generate significant revenues from its export structure since there is no infrastructure in place to either improve the productivity of the sector or transform those primary imports into manufactured or more valuable goods. The region has been depicted as having missed opportunities in the past to change its production base, which could have propelled it to a more advantageous position in the global market.

When analysing the production structure of Latin America, Rodríguez Weber (2018) describes the region's economic performance as "peripheral capitalism". As the name suggests, Latin American economies are not at the centre of global markets but rather remain on the edges as a consequence of the economic power every country has. Apart from being a secondary actor in the game of global trade, another main feature of peripheral capitalism is the structural heterogeneity of the production systems. This means that various productive sectors have different levels of productivity, which in turn hinders the flow of technology between sectors because not every

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[21] The concept of Global North refers to countries economically developed, and politically influential located primarily, but not exclusively, in the Northern Hemisphere. These countries are characterised by high levels of industrialisation, technological advancement, and economic prosperity. On the opposite side are countries located in the "Global South" referring to those which are less economically developed and face various socio-economic challenges.

sector is prepared to introduce changes that could boost productivity due to a lack of resources and investment.

Another critical feature of peripheral capitalism is the dominance of primary goods as the main products for export. This situation renders economies heavily reliant on primary goods to be more susceptible and potentially vulnerable to fluctuations in commodity prices. Since these price fluctuations are not exclusively determined by the producing countries, such economies can experience severe crises when global market prices decline.

The third distinctive element of peripheral capitalism involves the presence of power asymmetries. Within this context, labour markets present high levels of stratification, with income levels and access to formal work highly correlated to people's ethnicity and social class.

The narratives surrounding the economic trajectory of the region seemed to concur on the inability of the productive structure to undergo a more drastic transformation despite the changes observed throughout the 20th Century around the world. The failed attempts at industrialisation in the mid-1950s and 1960s have been attributed to resistance from the elite opposing this form of economic progress, particularly those associated with the production of primary goods, as they viewed it as detrimental to their specific interests (Amenábar & Castillo, 2017; Montecinos, 1993; Rodríguez Weber, 2016). Furthermore, the substantial level of governmental investment required to drive these changes left the states burdened with high levels of debt without achieving the expected results.

In contrast, the growth of the service sector tells us a different story. The retraction of the agricultural and manufacturing sectors against the expansion of the service sector indicates a transformation of the productive structures that appears to have been less costly for the state and better received by the national economic elites.

Even though Latin American countries continue to play a secondary role in the world economy and are still striving to catch up with advanced economies, the economic growth experienced over the last three decades has resulted in the significant expansion of middle-class groups. This phenomenon has drawn the attention of several scholars in the region who have attempted to capture the diversity within this group and the emergence of new forms of closure between lower, middle and upper middle classes (V. Espinoza et al., 2013; V. Espinoza & Barozet, 2008b; Mac-Clure, 2012; Méndez & Gayo, 2018; Pérez Ahumada, 2018).

5.2.2 *The changing face of middle-class Chileans*

Chile has witnessed a significant expansion of its service sector, a trend similar to that observed in other Latin American countries (Ferreira & Da Silva, 2015; Gayo et al., 2016; Pérez & Cifuentes, 2020). Embedded within a global economy propelled by the advancement of knowledge, particularly focused on technology, the nation underwent a transition from its traditional reliance on the primary and secondary economic sectors to becoming predominantly service-oriented. Consequently, it becomes imperative to examine the implications of this transformation, considering that Chile still plays a relevant role as a provider of primary goods in the global economic landscape. While technological development remains a pivotal factor for economic growth, the provision of services in various sectors is equally vital for supporting societal and systemic functions. This service sector expansion has emerged as a significant driver of Chile's economic growth, complementing the introduction of imported technology in primary goods production (Pérez & Cifuentes, 2020).

When comparing the types of jobs and working conditions in service-based economies with those in industrial or agricultural ones, a notable distinguishing feature of service economies is the reduction of manual labour, historically associated with working-class groups. Consequently, scholars argue that the strengthening of the service sector has contributed to upward social mobility by generating better job opportunities and increased prospects for workers. Hence, post-industrial societies have ushered in the emergence of middle-class societies.

In the case of Chile, there is a generalised perception that middle-classes have expanded significantly over the past three decades. This has been part of the remaking of the internal and external look of the country, which is perceived as constantly being "en vías del desarrollo" (on the path to development (Castillo et al., 2013). Part of this metamorphosis was to transition from a country with an extended working class to one where the majority of its citizens consider themselves as middle-class individuals. This has been interpreted as a dissonance between the objective and subjective status of the category. In the country, it became an aspiration of many workers, whose positionality in the social structure was and is, until today, validated primarily for how much they have, with high levels of personal debt.

The debate on the expansion of the middle class has centred on the diverse identities comprising this extended social class. The strong working-class identity that characterised the country in the mid-1960s and early 1970s was disrupted by a series of actions implemented by the civic-military dictatorship, which ruled the nation for 17 years from 1973. The erosion of the social fabric and the promotion of individualism over collectivism were enforced through various means.

Persecution of union leaders, the transformation of labour laws to prohibit union membership and any form of working association, coupled with the glorification of individual effort and competitiveness amidst an atmosphere of fear and prosecution, contributed to associating working-class membership as something to be overcome (V. Espinoza et al., 2013).

Aligned with the disillusionment of working-class membership, the country fostered a desire for upward social mobility, with the hope that the economic prosperity witnessed since the early 1990s would translate into improved living conditions for all. The consolidation and expansion of the service sector appeared to create opportunities for accessing middle-class positions, encompassing various non-manual labour roles. Gayo, Méndez, and Barozet (2016) investigated some of the implications of this transition, emphasising that in the case of Chile, the nation transitioned from predominantly impoverished working classes to service middle-classes. The growth of the middle classes spurred the necessity to reinforce cultural and symbolic boundaries within this more diverse and intricate social group. The findings of this research reveal distinct consumption patterns among middle-class workers, as well as variations in income and financial resources. Likewise, low-paying jobs persist in this group, characterised by lower levels of education and limited cultural participation.

The apparent accessibility of middle-class positions within the social structure motivated individuals to strive for higher levels of education to secure improved living conditions. Nevertheless, the events Chile experienced during 2019 with the social uprising exposed the precariousness and vulnerability of this "new middle-class," as they faced less secure working conditions compared to those traditionally associated with manual labour in manufacturing.

While the expansion of the middle-classes is often perceived as a positive outcome of economic growth and sustained progress, López-Calva and Ortiz-Juárez (2014) raised questions about this notion by highlighting the disparities in working conditions within the middle-class. The authors argued that, in terms of job security, middle-class workers remain vulnerable and insufficiently protected against fluctuations in the labour market, leaving them in conditions still resembling those experienced by working-class groups.

In Chile, during the 1980s and 1990s, new emerging groups thrived in industries related to wholesale commerce, finance, and agriculture geared towards international markets. Additionally, the service sector experienced significant growth, particularly in areas such as health, education, and social provision (V. Espinoza et al., 2013). As previously mentioned, the social structure became more heterogeneous due to the diversification of the productive system in these fields (V. Espinoza & Barozet, 2008a; Méndez, 2008)

The fluidity experienced between working and middle-class strata is sometimes depicted as a consequence of economic and social development. However, scholars have found that social mobility, in practical terms, seems to be limited to a certain echelon on the social ladder as the gap between the top and bottom continues to widen (V. Espinoza & Núñez, 2014a; Torche, 2005; Torche & Wormald, 2004). According to Méndez (2008), this leads to conflicting class identities within the middle classes, which are reproducing and creating new forms of boundaries between sub-groups of the middle class, particularly from those at the top. The categorisation of the middle class nowadays encompasses a wide range of types of jobs, as well as cultural preferences and practices (V. Espinoza et al., 2013; Gayo et al., 2016; Méndez, 2008), where the groups within this big classification continue to create and recreate distinctive attributes.

The Chilean case exemplifies a dynamic transition in its social structure, marked by significant expansion within the middle classes. However, concurrently, a growing disparity between the top and bottom tiers of income distribution has emerged. The proximity between the middle and working classes, along with the challenges the middle class faces in achieving upward mobility, highlights the persistent barriers that separate these social strata. Consequently, this situation calls for a careful examination of the role of education in facilitating social mobility, particularly in regard to accessing higher-paying job positions.

A recent study by Pérez and Cifuentes (2020) raises questions about the direct link that some scholars have established between the expansion of the service sector and the subsequent growth of the middle class. The conventional perspective, which solely draws connections based on the shift from "blue-collar" employees in manufacturing or manual activities to "white-collar" workers in the service sector, overlooks crucial issues related to precarity, vulnerability, and intensified work. These features have been prominent in the service sector under neoliberal policies within the context of a global economy. The main argument against this perspective suggests that the "upward moving" workers have not achieved a more privileged status in terms of production relationships. Employing a Marxist approach that highlights the significance of productive relationships between those who possess productive assets and those who do not (Wright, 1984), the authors stated that "service and manufacture workers should be conceived as part of the contemporary working class" (Pérez & Cifuentes, 2020, p. 445). Similar results can be found in Álvarez and Fuentes' (2004) study, where they found that the process of tertiarisation of the economy was not driven by higher demand for high-tech services but rather the expansion of financial, social and commercial services.

The results of this research indicate that workers' perceptions of the level of control they have in their workplaces do not significantly differ between those working in the manufacturing or service sectors. The authors emphasise that it is misleading to argue that the expansion of the service sector signifies an expansion of the middle classes as traditionally understood. These findings hold relevance as they raise inquiries about our understanding and definitions of the working and middle class.

5.2.3 *Returns to education and occupational structure: the puzzling trajectory of wage premia*

The increase in higher education generated a higher supply of professional workers, which, in the case of Chile, have been heavily populating the service sector. This phenomenon has transformed the occupational and productive structure of the country and has led to an expansion of the professional sector. Although this could be seen as an advancement for the country, it can also create new symbolic and practical boundaries between social groups, particularly those at the top, to defend and maintain their position of privilege. This was documented by Torche's study, where she examines social mobility in Chile, concluding that although there is more movement between social classes up to the 2000s, elite groups continue to be a much more inaccessible strata than the rest of the social structure (Torche, 2005).

The impact of more educated workers on the occupational structure is the professionalisation of the working force, which has been fuelled by increased demand for highly skilled workers but also by discourses of meritocracy and equality of opportunities. These discourses became more prevalent since the early 1990s and presented education, particularly higher education, as the motor for upward social mobility. The increasing investment in social policies and the transformation of the productive structure have led the country to make significant strides in reducing its poverty levels since the early 1990s. Since the early 2000s, Chile has been recognised in the international community, particularly in the region, as a country which has made noteworthy achievements in its journey of continuous growth and progress. Part of this transformation can be attributed to the generation of higher-paying jobs in the service sector compared to manual labour, in tandem with a continuous increase of the minimum wage and an increasing number of skilled professional workers due to the expansion of the higher education sector.

Despite these positive changes, it is crucial to acknowledge that the country still grapples with high levels of income inequality. Although there has been a reduction in the Gini coefficient since the early 2000s, the levels of income inequality continue to be higher. The reduction of the dispersion of wages has been associated with a decline in wage premia and improvements in wages, particularly at the lower end of the income distribution. These improvements have been driven by

raises in the minimum wage and the creation of better-paid job opportunities for medium-skilled workers.

When attempting to depict how the transformation of the economy has led to heightened levels of income inequality in advanced or developed economies, one of the most prominent explanations is SBTC. Aligned with the tenets of the knowledge economy, the SBTC argument posits that certain occupations in the labour market, associated with new economic developments, hold significantly higher value in the economy. As a result, these occupations end up distorting the distribution of income, generating larger gaps among workers. One of the reasons for these outlier wages is the mismatch between supply and demand in the areas of information and computer technologies (Acemoglu, 2002).

Since these industries are moving at a more rapid pace than any other industry, it takes time for the workforce to meet this demand, and consequently, workers in these areas are seen as a scarce and highly valuable resource. Notwithstanding its widespread use in the literature on income inequality, the SBTC theory does not offer a robust explanation for the variations in income observed between genders and races, nor does it fully account for the differing paces of technological development across countries(Card & DiNardo, 2002). As a theory, it has many restrictions which need to be considered when including it as a contributing factor to wage inequality.

The evidence for Chile shows an upscaling of the working force, with the ratio of college graduates vs high school graduates moving from 0.14 in the 1960s to 0.31 in the 2000s. These changes have been facilitated by the increasing number of private higher education institutions and the access to credit for students to pay tuition fees (Gallego, 2012). According to the author's estimations, the demand for skilled workers has increased in most sectors and has not been exclusive to those related to the areas of technology and information, as the SBTC theory poses.

In turn, this supports the idea that, since the country had multiple economic areas which required an upscaling of the labour force, individuals have been acquiring higher education degrees in a variety of subjects. Although careers in finance and technology are appealing to school graduates, given their returns to education and increased their representation in the labour force, they still represent a low number of graduates and workers overall. Therefore, the chances of these occupations having a significant effect on general levels of income inequality in Chile are lower compared to other developed economies.

Additionally, a recent study by Acosta et al. (2019) concludes that once countries achieve a certain level of upskilled workforce, the levels of income inequality and returns to education are much more linked to shifts in the demand for high-skilled workers rather than the supply of labour. Their argument lies in the shifting trends of skill premium wages since the early 1990s, where wages for high-skilled workers increased significantly, followed by a drastic fall in returns to education in the 2000s, to later, in the 2010s, continue declining but at a slower pace. Given that the supply of highly skilled workers has followed a continuous pattern, but the returns to education have changed, some of the explanations for these trends might lie on the demand side. Similar findings from Murakami and Nomura (2020) show that returns to higher education have decreased since the 2000s.

In the case of Latin America and Chile, the research rather than focused on occupations and the demand for high-skilled workers in the areas of information and computer technologies, the analysis of wages has examined the general upgrading of skills and the effects over wage premium, i.e. the differences in wages between skilled and unskilled workers[22]. The analysis produced by Gallego (2006) shows that, in Chile, there was a rise in skill premium from the 1960s until the early 2000s from 140% to 250%, respectively. However, this trend has reversed, not only in the country but also in Latin America, where during the 2000s onwards, the region experienced a significant reduction in wage premia compared to previous records (Fernández & Messina, 2018). This downward turn has generated a process of wage compression in countries such as Chile and Argentina. Based on these results, the authors identified that the evolution of schooling and experience premiums are key determinants of the decline in inequality.

Figure 34: Evolution of education and experience premium, Chile 1990-2012
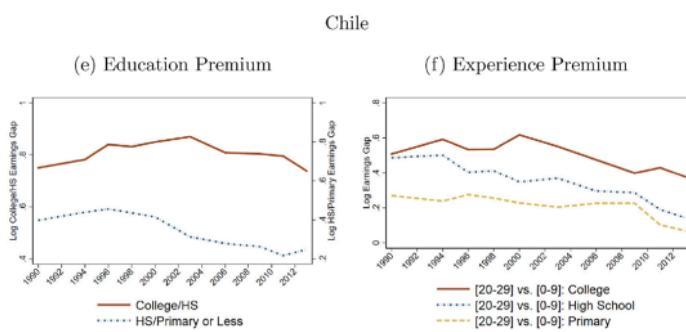
Source: Fernández and Messina (2018)

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[22] The concept of unskilled workers is used to identify workers with lower levels of education and formal training. It is nevertheless a category which should be revised since all jobs require specific skills to be deployed. The main difference stems from the level of qualifications or education to perform those jobs.

The results found by Fernández and Messina put into question the pertinence of the paradox progress when applied to the Chilean context (Bourguignon et al., 2005). If wages for highly educated workers follow a convex shape, then how, in the case of Chile, does the upscaling of the labour force lead to a decrease in wage premia over time? The hypothesis presented in this chapter to answer this question is that the convex shape only applies to certain types of jobs, as well as only certain types of workers. This could be due to multiple reasons, for instance, the quality of the institution where workers get their degrees, productivity levels of the economic sector, the social status of the occupation, and finally, social class, gender and personal attributes. The analysis presented in the next section covers the extension of some of these factors, focusing on the occupations that have done better in their average wages, along with the composition of the workforce for each group.

These transformations in education and economic productive sectors have relevant implications in the shape of the occupational structure and, consequently, on the social structure. The professionalisation of the workforce was expected to create more income inequality. Likewise, the expansion of the service sector and productive areas such as finance and technology were also projected to heighten earning dispersion among workers. However, this is not the case if we take the Gini coefficient as the main indicator. Overall, it seems that the country has achieved an upscale working force and narrowed the gap between workers' incomes, which could signal a prosperous and more egalitarian society. However, based on previous evidence, there are structural forms of inequality that have persisted over time and, therefore, require further examination.

In the context of the massification of higher education, described by several scholars in Chile (Bernasconi, 2015; Bernasconi & Rojas, 2003; Brunner, n.d.), there have been advances in social mobility, but these institutions have also played a role in reproducing social inequalities, creating a divide between elite and non-elite higher education institutions (Quaresma & Villalobos, 2018). The higher education system, despite its expansion, continues to be a field of dispute between social classes. It has been highlighted that the increasing participation of students from lower socioeconomic backgrounds requires institutions to provide adequate education by including measures to compensate for these deficits and differences (Brunner, n.d.). The axiom of equality of opportunities needs to be complemented or at least contrasted against equality of outcomes to fully comprehend its effects in promoting more egalitarian societies.

The study of equality of opportunities has been linked to concepts of meritocracy and social mobility and is strongly attached to providing more access opportunities. In the arena of higher education, Phillip Brown (2003) presents the idea of the "opportunity trap", where contemporary

societies share the belief that we enjoy more personal freedom, as well as better opportunities for better-paid jobs. This is also linked to ideas around the fair and efficient allocation of rewards based on individual achievements. Brown (2003), among other scholars, challenges the idea that there is a fair and efficient allocation of rewards based on individuals' achievements. The author states that the current system promotes "enduring social inequalities in the competition for a livelihood and an intensification of 'positional' conflict." (Brown, 2003, p. 142).

In this context, the field of education persists to be a space of competition in the social structure, not so much around access to higher education, but rather as a space where every individual positions themselves in opposition to another. The author examines this phenomenon through the lenses of positional conflict theory, where elites develop and re-invent strategies to differentiate themselves from the "newcomers". This analytical framework allows us to examine how the concept of equality of opportunities has facilitated the entry of many workers to positions from which they were excluded a few decades ago based on their socioeconomic background. Conversely, the practices in higher education institutions continue facilitating the reproduction of socioeconomic inequalities by persistently restricting access to elite positions within the social structure.

Using a similar critical framework to examine the benefits of promoting equality of opportunities, a study conducted by Orellana (2011) showed that the higher educational system in Chile has progressively adapted to the shape of structural inequality in the country. Patterns of inequality observed more generally, get reproduced in the higher education sector, affecting the composition of the occupational structure. As a result, universities are producing two different types of skilled workers: those who could be categorised as new technocratic workers and those who hold on to elite types of jobs. A more recent study conducted by Quaresma and Villalobos (2018) reflects on the role played by higher education institutions in the social reproduction of elites. Their revision of the Brazilian and Chilean education system shows that elite groups are constantly resetting the rules of the game to enter more privileged positions by, for instance, limiting access to prestigious universities and specific high-status careers such as civil engineering, medicine and law. The combination of these findings indicates that the Chilean higher education system is promoting a two-tier system of professionals, where polarisation between high-skilled workers can potentially become a thorny issue for social stability and the status quo.

5.3 Methodology

This chapter delves into the evolving landscape of various professional occupations, focusing on roles typically characterised by non-manual labour and requiring advanced educational qualifications. The analysis contrasts these positions with those of the working class, encompassing a diverse array of job types. Central to this investigation is the exploration of wage dynamics among worker groups historically linked to the middle class. By scrutinising wage disparities, we aim to evaluate the enduring obstacles that impede upward social mobility, notwithstanding the possession of significant educational credentials. This study seeks to present a more intricate portrayal of the professional worker, focusing on specific subsets of the workforce. This approach is inspired by Weeden and Grusky's (2005) pioneering micro-class analysis, providing a lens through which to examine the subtle gradations within professional echelons.

5.3.1 *Research questions*

This chapter provides an in-depth analysis of professional occupations in Chile. By examining wage dynamics among workers whose earnings are expected to correlate with their educational attainment, the analysis of inequalities within this group can illuminate the limitations of human capital theory in predicting workers' wages. Furthermore, it highlights the importance of considering additional socio-economic factors that influence wages whilst suggesting alternative methods for classifying this occupational group based on shared characteristics and distinguishing features. The research questions guiding the analysis are:

- How does residual inequality manifest within professional occupations in Chile, and what factors contribute most significantly to wage disparities within these groups?
- What roles do gender, parental education, and economic sector play in shaping income trajectories and opportunities among Chilean professionals?
- How effective is the existing occupational classification in capturing wage disparities, and could an alternative classification improve our understanding of income inequality within professional groups?

5.3.2 *Data and variables*

Survey

This analysis utilises the CASEN survey and analysis waves from several years. The initial descriptive analysis includes the year 1992 to contextualise the narrative within the return of democratic governments. Subsequent inferential focuses on the year 2017 as it provides data on parents' education, which serves as a proxy for social class. Moreover, this year also provides

information on the type of higher education attended, pertinent to the classification of workers within professional occupations.

The data presented in the analysis are treated using the regional weights provided by the CASEN survey. As previously mentioned, this national survey is one of the most reliable sources of data, covering a range of topics, including household characteristics, wages, working conditions, education, health, and living conditions. The survey is extensively used for planning social policies and as a source for national reports to international organisations.

Variables and sample

The main variables used in the analysis include monthly wages from the main occupation adjusted to yearly inflation, occupational groups (including two different levels: one-digit and three-digit categories from ISCO-08), age, gender, relationship to the head of the household, civil status, hours worked, tenure, years of schooling, parents' educational level, and type of higher education institution (HEI).

The aim of analysing occupations at the three-digit level, specifically for professional occupations, arises from the need to provide a more detailed examination of income dynamics within this group, as it exhibits the greatest intra-group dispersion compared to other occupational categories. By determining whether these workers can be grouped differently based on their working conditions and socioeconomic characteristics, the goal is to identify alternative ways of understanding the dynamics of income inequality among workers with similar levels of education, who nevertheless experience significant disparities in how their labour is valued.

Figure 35 and *Figure 36* present the distribution of wages for employed full-time workers aged between 24 and 70 years, with Managerial occupations having the largest dispersion, followed by Professionals.

Figure 35: Boxplot of real wage from the main occupation in 1992
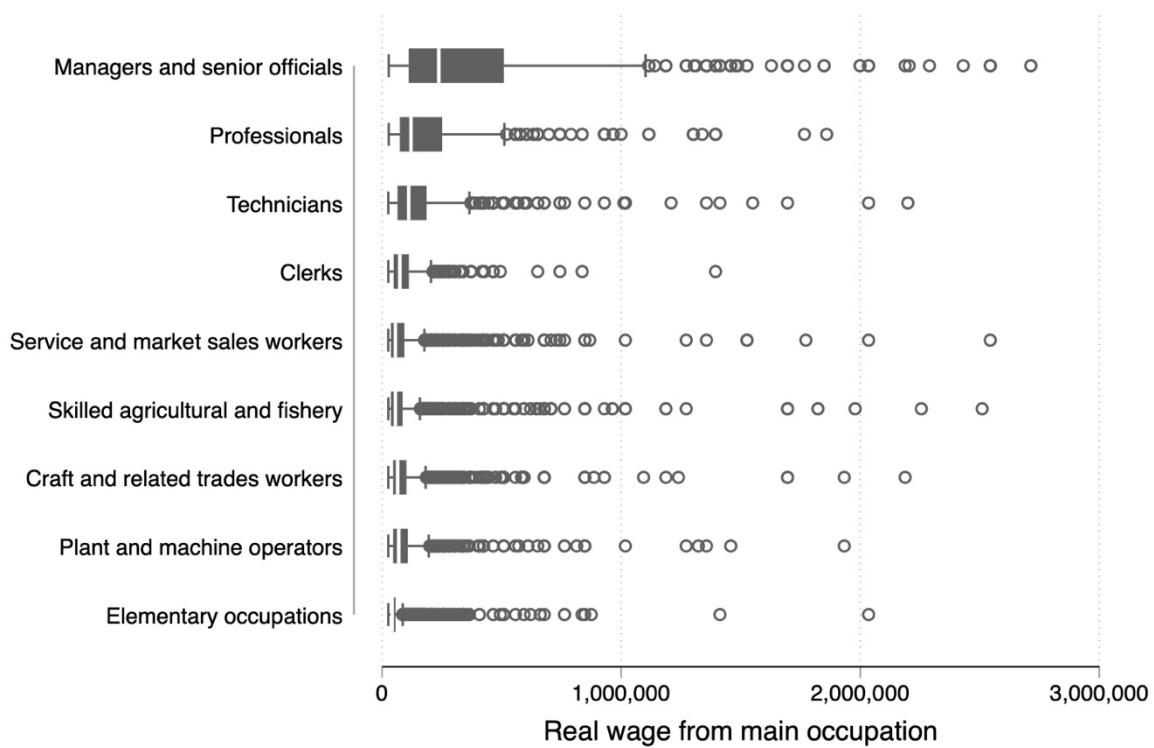
Source: Calculations based on CASEN survey.

Note: Data includes all active workers, age 18-70, working full time, and with information on wages.

Figure 36: Boxplot of real wage from the main occupation in 2017
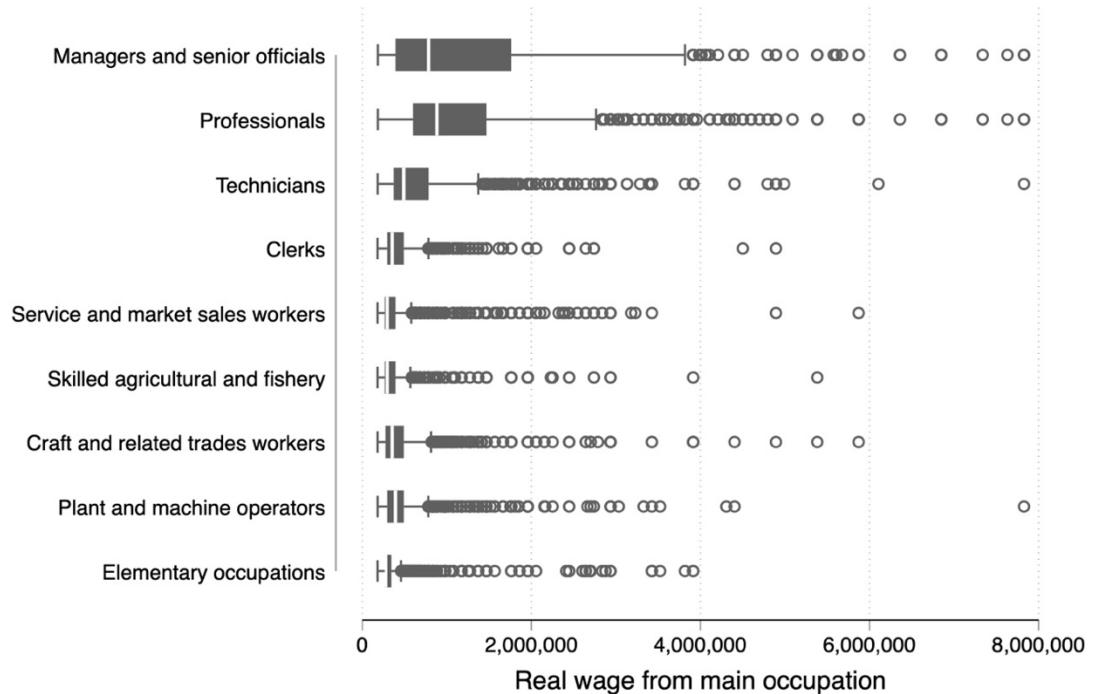
Source: Calculations based on CASEN survey.

Note: Data includes all active workers, age 18-70, working full time and with information on wages.

Although Managerial occupations could also be of interest to include in the analysis of workers earning high wages, given the distribution of the categories at level three, there is not enough variation within the category to add to the analysis. *Table 24* shows that the vast majority of cases are concentrated in the General Managers category, which tends to dominate over other groups. Since the objective of the latent class analysis is to classify workers based on a more detailed level within major occupational groups, including managers, would not achieve this goal, as the purpose is to reduce complexity and better understand the heterogeneity within the group. Managerial occupations, however, appear to be more homogeneous and would, therefore, require a different type of analysis.

Table 24: Distribution of employed workers within the group of three-digit Managerial occupations

Occupational category level 3 for Managerial occupations	1992	2000	2011	2017
Legislators	0.3	0.1	0.1	0.4
Senior government officials	0.7	1.4	0.6	1.9
Traditional chiefs and heads of villages	0.2	0.1	0.4	0.0
Senior officials of special-interest organizations	0.1	0.3	0.2	0.3
Directors and chief executives	1.1	0.4	0.3	0.8
Production and operations department managers	4.3	6.5	3.8	8.1
Other department managers	7.9	3.9	1.2	9.3
General managers	85.5	87.4	93.5	79.2
Total employed Managerial occupations	220,893	261,448	230,812	255,596
Total employed workers	3,935,214	4,066,462	5,171,594	5,780,009
% of workers in managerial occupations	5.6	6.4	4.5	4.4

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all active workers, age 18-70, working full time and with information on wages

It is noteworthy that parents' educational level is available only from the year 2006 onwards, and the type of HEI from 2013 onwards. Given the availability of this data, some analyses run from 1992 to 2017, while other analyses only consider data from 2011 to 2017 to account for changes in the distribution of wages after the increase and subsequent decline in wage inequality over the previous two decades.

Unlike previous analyses, this chapter includes workers aged between 18 and 70 years, considering that individuals remain in the labour market for longer due to the precarious pension situation in Chile. In 1992, the proportion of full-time workers aged between 66 and 70 was 1.1%, whereas, by 2017, this figure had doubled to 2.2%, indicating not only an ageing workforce, as reflected by the increasing average age of workers but also potentially greater precariousness due to the lack of state support for pensioners and the low value of private pensions. However, the data presented

for professional occupations uses the same age range as previous analyses – 24 to 65 years – to account for the time required for workers to complete their higher education, which in Chile typically takes five years on average.

The purpose of utilising these variables is to study changes in the occupational structure, particularly those that occurred within the professional occupations group. In previous chapters, I have analysed changes in the overall occupational structure, and the focus of this chapter is on professional occupations. It examines groups of workers who share relatively similar levels of education (higher education) but exhibit high levels of wage dispersion.

The variable 'wage' has been adjusted to real wages using the inflation rate for each year, and the lowest wage is based on the minimum value a worker would have earned working 30 hours, considering the minimum wage for each year. This excludes earnings below the minimum wage from the analysis, as the aim of the chapter is to study workers who conform to the official regulations of the labour market. Additionally, wages above the 99th percentile have been excluded to harmonise the distribution of wages. Although these measures exclude cases at the top and bottom ends of the wage distribution, the rationale for this action is to provide results that are significant for the majority of workers.

In terms of sampling, the data for the descriptive analysis includes all workers with information on wages, their occupational category, working between 30 and 80 hours, aged 18-70, and registered as economically active in the survey. For professional occupations, the sample only includes workers aged between 24 and 65 years old to account for the years it takes them to obtain a professional degree. For more details on the categories for each variable, please refer to the Appendices.

5.3.3 *Analytical approach*

The analysis focuses on examining changes in wages among various groups of workers at different points in time to assess the trajectory of wage inequality within professional occupations. The study aims to identify those groups that have contributed to reducing wage inequality by gradually decreasing their wage premia over time, in contrast to those who have maintained their position with relatively stable wage differentials. Furthermore, the study aims to explore how these variations can be linked to individual characteristics.

To study wage differentials within professional occupations, the chapter introduces a series of multilevel regressions to track the variation of wage distribution over time and assess the levels of wage differences both between and within professional occupations. The novelty of this approach

lies in focusing the attention on professional occupations since most of the research previously conducted has focused on the overall structure of occupations, neglecting the specific analysis of specific groups.

This research is particularly relevant as professional occupations exhibit the highest level of wage dispersion within the group when compared to other occupations, except for managerial occupations. Therefore, understanding the dynamics of wage changes within this specific group can shed light on the factors influencing wage inequality within the professional sector.

Previous results presented in this research have evidenced that the variation of wages within non-professional occupations is not as significant as between occupations, signalling that they are much more homogenous groups. Since professional occupations have shown a different path from the rest of occupations, and they are increasing in representation, a focused analysis is considered the best approach to continue examining the dynamics of income inequality.

In order to examine these differences, the chapter presents a multilevel regression with a random intercept, given that the number of groups at level two is relatively close to 10 (De Leeuw & Meijer, 2008). The two levels of analysis are individual workers in professional occupations, nested into smaller groups of professional occupations using the 3-digit level categorisation from ISCO-08, which represents the level 2 variable. The random intercept model to estimate between and within-income inequality for these groups can be represented as:

$$Y_{ij} = \beta_0 + \mu_j + \varepsilon_{ij}$$

Where Y_{ij} represents the wage of individual i in occupation j, β_0 is overall mean treated as a fixed parameter, μ_j is the random intercept for professional occupations groups, which can be interpreted as the proportion of between-occupation income inequality, whereas ε_{ij} represents the residual error term at the individual level i in occupational group j. This term is associated with the proportion of within-occupation income inequality.

This method estimates the total variance of wages and divides it into two components: between- and within-group variance. The estimation of the first component is based on the sum of the mean wage deviation of each occupational group from the overall mean. The variance of wages within professional occupations is based on the dispersion of wages from the group mean.

This method examines whether these micro-classes effectively distinguish professional occupations and provide valuable information about the heterogeneity within this occupational

group. In this case, no covariates are included in the model since the aim of the analysis is to solely examine the distribution of occupations and their wages.

In addition to the multilevel analysis, the chapter also includes an exploratory latent class analysis (LCA) to group professional workers based on their age, their household income quintile, hours worked, economic sector, type of contract, size of the workplace, and the type of higher education institution attended. The aim of this exploratory analysis is to test the composition of the current professional occupational groups against a new classification based on the characteristics of the workers. The aim is to classify individuals based on their working conditions, to later assess differences, and whether these differences respond to individual characteristics or are more closely linked to market features (Hagenaars & McCutcheon, 2002).

In order to conduct this analysis, all variables were transformed into dichotomous variables, using logit regressions to estimate the odds of each category within those variables to fit into each class based on their characteristics, creating the categories in an inductive way.

The latent class model is expressed as:

$$\pi_{jkt}{}^{ABX} = \pi_t{}^{X} \, \pi_{jt}{}^{A|X} \, \pi_{kt}{}^{B|X}$$

Where $\pi_{jkt}{}^{ABX}$ denotes the joint probability that an observation is in class k of A, class j of B, and class t of X. The first term $\pi_t{}^{X}$ represents the probability of an observation being in class t of X. Finally, $\pi_{jt}{}^{A|X}$ denotes the conditional probability of an observation being in class j of A, given that it is in class t of X, and the same applies for $\pi_{kt}{}^{B|X}$.

The following expression demonstrates the conditional independence of A and B in the model:

$$\pi_{jkt}{}^{ABX} / \pi_t{}^{X} = \pi_{jt}{}^{A|X} \, \pi_{kt}{}^{B|X} = \pi_{jkt}{}^{AB|X}$$

Latent class analysis is an exploratory technique which allows the use of categorical variables to estimate the conditional probability of an individual belonging to a specific category within an emergent variable or item. The exercise allows to inductively create new categories given the characteristics of that individual in all the variables included in the item. As the present research questions aim to assess whether the current classification of workers accurately captures their similarities and differences, the latent class analysis sheds light on the emergent stratification within the professional workforce, which is not necessarily captured by other methods of clustering.

The objective of this analysis is twofold. Firstly, it seeks to contribute to the existing body of knowledge in economic sociology by revealing the underlying social structures that drive labour

market segmentation among professional workers. Secondly, it aims to inform policy by identifying distinct clusters that may be encountering larger barriers in their upward social mobility.

Some of the assumptions of this type of analysis include:

- Local independence of observed variables: This means that the observed variables do not correlate with each other.

- Unidimensional categories, where the different classes identified by the analysis reflect primarily one single construct or dimension.

- Homogeneity within classes, where each latent class is internally homogeneous.

These measurements are estimated and considered when presenting the results of the latent class analysis applied to professional occupations.

5.4 Findings and analysis

5.4.1 *Overview of the changes in the occupational landscape*

The descriptive analysis provides an overview of the changes in occupations, economic sectors, and wage levels from 1992 to 2017. Since there is more previous research conducted with data from 1992 to 2000 (Contreras, 1999; Kennedy & Murray, 2012; Mizala & Romaguera, 2003; Palma Aguirre, 2007), the focus of this chapter is centred on the period from 2000 to 2017, and in particular, for the LCA analysis, I used the dataset from 2017.

Table 25 presents the fluctuations in wage dispersion from 1992 to 2017. The data show a 35% contraction in the gap between the highest and lowest earners (P90/P10) while concurrently witnessing a 13% reduction in wage disparities between median earners and those at the lower end (P50/P10). These results underscore a consistent closeness between workers in lower and middle wage tiers, as reported in previous research (Gallego, 2012; Torche & Wormald, 2004) (Gallego, 2012; Torche & Wormald, 2004), indicating that a person in the 50th percentile of the wage distribution has a wage equal to 1.6 times that of the 10th percentile, in 2017. Similar to other countries, the ratio between the 99th and the 90th percentile is almost twice as large as the ratio between the 50th and the 10th percentile, indicating a large skewness of wages to the right side of the distribution. Within this context, it becomes relevant to understand the dynamics of wage inequality in the upper part of the wage distribution, those earning over the median wage, where most professional occupations fall.

Table 25: Measures of wage dispersion by year using different p-ratios for real wages from the main occupation from 1992 to 2017

	1992	2000	2006	2009	2011	2013	2015	2017
P90/P10	6.2	6.5	5.4	5.0	4.6	4.5	4.3	4.0
P90/P50	3.4	3.3	3.3	3.0	3.3	3.0	2.9	2.5
P50/P10	1.8	2.0	1.7	1.6	1.4	1.5	1.5	1.6
P99/P90	4.1	4.2	3.2	3.7	3.4	3.2	3.0	3.0

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all full-time employed workers, aged 18-70, and with information on wages.

For a more detailed analysis, *Figure 37* and *Figure 38* show the distribution of mean wages for all workers by occupation and economic sector in the years 2000 and 2017. The first aspect to highlight is the similarity in wage levels across occupational groups, ranging from clerks to plant and machine operators. In both years, professionals and technicians earned the highest mean wages in the industrial sector, with professionals enjoying significantly higher levels, while the lowest average wages for professionals were in the service sector. Given that the service sector has been expanding, alongside a contraction in agriculture and industry, a reduction in wages at the top of professional occupations is anticipated, contributing to the decline in overall wage inequality in the country.

Figure 37: Real mean wage from the main occupation by occupation and economic sector for 1992
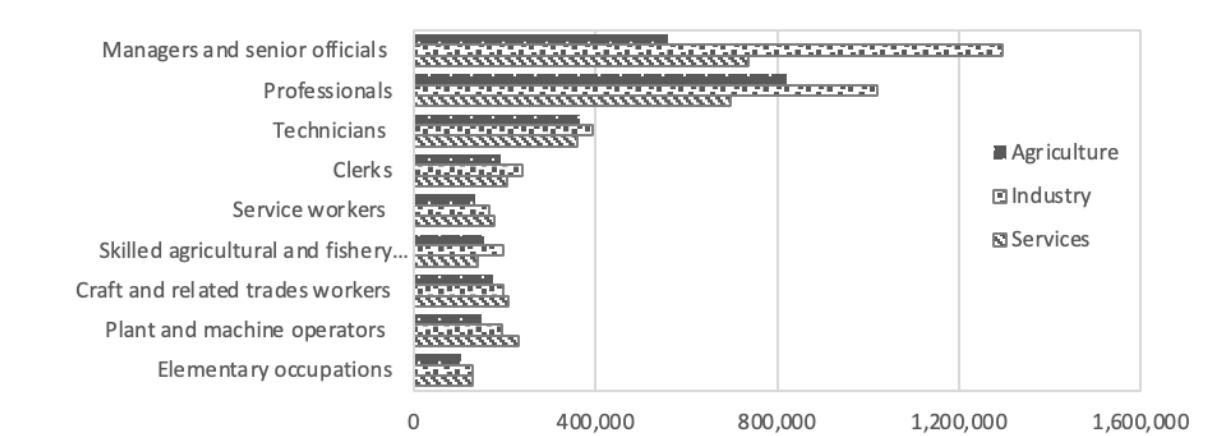
Source: Calculations based on CASEN survey.
Note: Data includes all full-time employed workers, aged 18-70, and with information on wages.

Figure 38: Real mean wage from the main occupation by occupation and economic sector in 2017
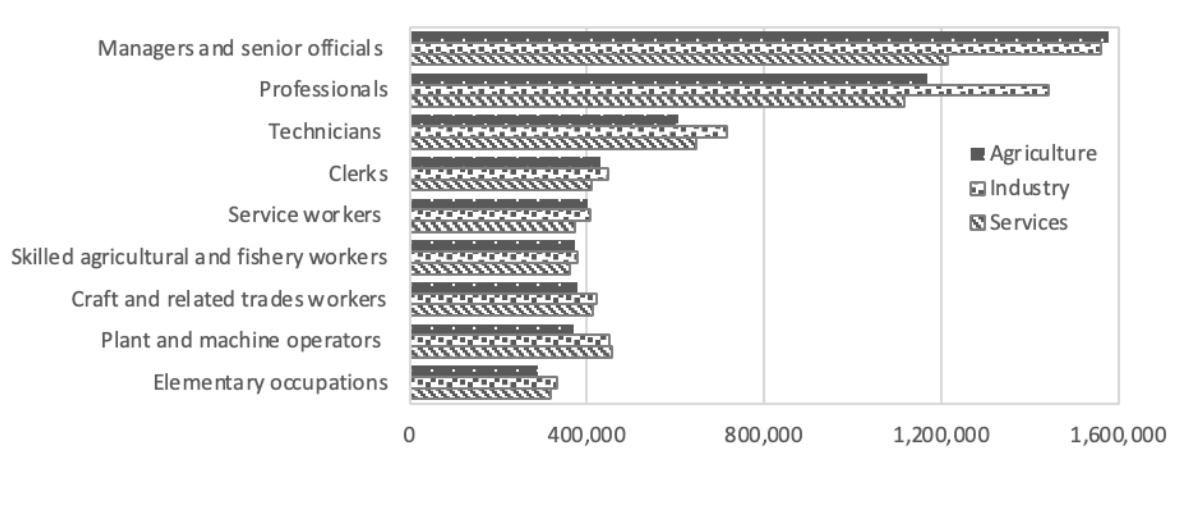
By comparing the distribution of the variance of log wages for different occupational groups, those with the higher dispersion are managers and professionals, followed by technicians in third place. The rest of the occupational groups follow a similar pattern with overall lower levels of wage dispersion, with elementary occupations as the group with the lowest variation. In terms of trajectories, all groups show a decline in the variance of wages, in line with the decline of wage inequality observed since the early 1990s, with a much closer distance between non-professional occupations than that observed at the beginning of the period.

Figure 39 Variation of log wages by occupational groups for selected sample, 1992-2017
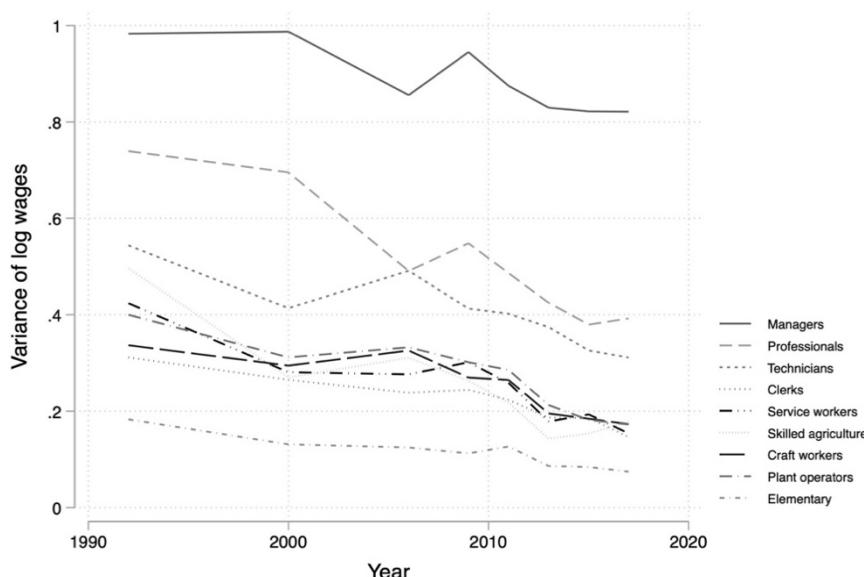
Since education has been identified as one of the main predictors of wages, along with economic sectors, observing the distribution of years of schooling by industry and occupational groups provides more insight into the sources of wage inequality. The results indicate that professional occupations have the highest average years of schooling (17.1 in 2017), followed by technicians and managers. The reason managers experience a high dispersion of wages may be explained by the heterogeneity of their roles, which range from managing a large company to overseeing a small business. This heterogeneity is one of the reasons for excluding this group of workers from the subsequent analysis, as the aim is to compare individuals who share similar levels of education, have access to similar types of jobs, and yet receive significantly different salaries.

Table 26: Mean years of schooling by occupations, year and economic sector

	2000			2017		
	Agriculture	*Industry*	*Services*	*Agriculture*	*Industry*	*Services*
Managers and senior officials	9.9	14.0	12.3	14.0	14.9	14.1
Professionals	16.9	16.8	16.6	16.8	16.9	17.1
Technicians	13.1	14.0	13.9	13.7	14.8	14.8
Clerks	11.5	12.4	12.7	12.3	12.4	13.0
Service workers	8.3	11.7	10.9	10.6	12.0	12.1
Skilled agricultural and fishery workers	7.4	9.1	7.2	8.9	10.1	9.0
Craft and related trades workers	9.6	9.8	10.8	10.3	10.7	11.6
Plant and machine operators	8.1	10.2	10.3	9.7	11.1	11.3
Elementary occupations	6.8	8.7	8.9	8.6	9.9	10.5

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all full-time employed workers, aged 18-70, and with information on wages.

In terms of wage premia, i.e., the differences in mean salaries between workers with and without higher education by economic sector, *Figure 40* shows a reduction in wage premia for all workers from 2.7 in 1992 to 2.2 in 2017, with the most drastic reduction in the agriculture sector from 4.0 in 1992 to 2.4, representing a significant drop of 40%. In line with previous research, which has pointed to the reduction of wage premia as one of the main factors explaining the drop in wage inequality, Chile has shown a significant decrease since 1992. However, the sector that has remained stable over this period is the service sector, which comprises the largest economic sector in the Chilean labour market. It is, therefore, relevant to examine which professional occupations within the service sector have experienced the highest and lowest drops in wage premia.

Figure 40: Wage premia for all workers and by economic sector, using wages from the main occupation (1992-2017)
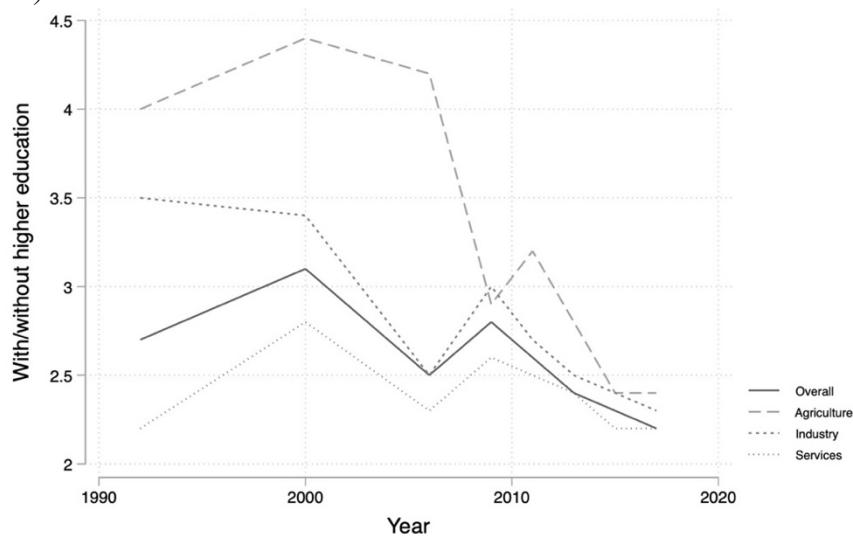
Note: Data includes all full-time employed workers, aged 18-70, and with information on wages.

By centring the following analysis on professional occupations, the aim is to understand the dynamics of inequality within a group of workers who, despite having similar years of education, experience varying levels of wage disparity.

5.4.2 *Professional occupations*

In 2017, the highest proportion of professional workers was business professionals, accounting for almost one-fifth of the total group (18.7%), an increase of four percentage points since 2000. The second-largest groups were architects and engineers (16.6%) and primary teachers (14.9%), both of which have decreased in proportion since 2000, as shown in Table 27. Social science and Computing professionals have also increased their representation over this period.

Table 27: Distribution of professional occupations (3-digit level) from largest to smallest, years 2000 and 2017.

	2000	2017	Diff	% change
Business professionals	**14.7**	**18.7**	**4.0**	**27.2%**
Architects and engineers	20.3	16.6	-3.8	-18.2%
Primary and pre-primary teachers	21.6	14.9	-6.7	-31.0%
Social science professionals	**3.7**	**7.6**	**3.9**	**105.4%**
Secondary education teachers	8.1	6.9	-1.2	-14.8%
Computing professionals	**2.9**	**6.1**	**3.2**	**110.3%**
Health professionals	6.7	5.9	-0.8	-11.9%
Nursing professionals	3.5	4.6	1.1	31.4%
Legal professionals	3.8	3.9	0.1	2.6%
Higher education teachers	4.1	3.9	-0.2	-4.9%
Writers and creative artists	2.2	3.1	0.9	40.9%
Other teachers	3.6	2.8	-0.8	-22.2%
Special education teachers	0.9	1.9	1.0	111.1%
Life science professionals	2.2	1.6	-0.6	-27.3%
Physicists and chemists	0.4	0.8	0.4	100.0%
Archivists and librarians	0.6	0.3	-0.3	-50.0%
Religious professionals	0.3	0.3	-0.1	0.0%
Mathematical and statisticians	0.4	0.2	-0.2	-50.0%

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

With regard to the distribution of professional occupations by economic sector, the majority are concentrated in non-market services, although this sector has seen a decrease since 1992, followed by an increase in workers in market services. The rest of the economic sectors appear to play a very marginal role in professional occupations, showing a consistent trajectory over the years towards a reduction in their overall representation.

Figure 41: Distribution of professional occupations by economic sector (6 categories), 1992-017
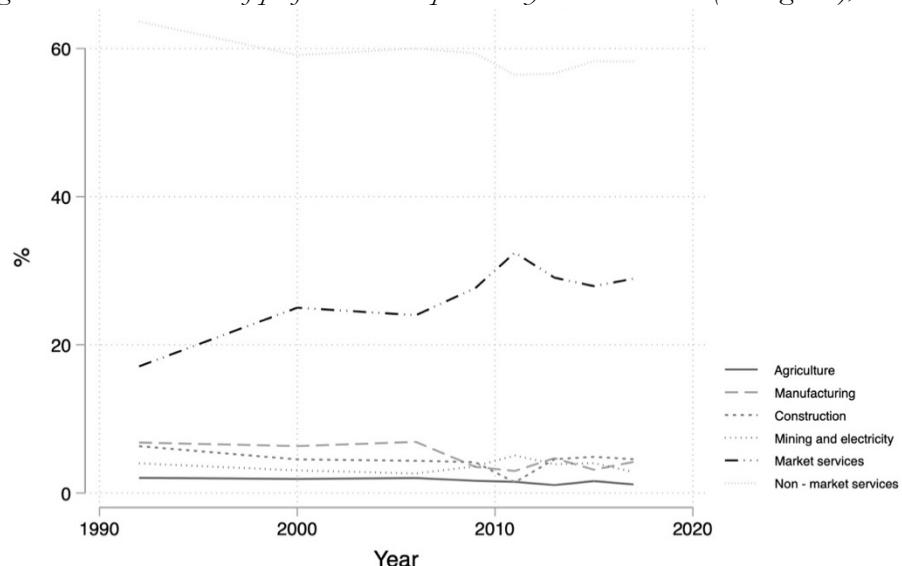
Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, and with information on wages.

When observing the distribution of wage premia for different occupations, the bottom half of the table shows those occupations where there are lower returns to higher education compared to the average wage of workers without higher education. The occupations that rank higher have maintained their position over time, with health professionals' wage premia oscillating between 4.2 and 5.6, followed by legal professionals who started at 5.8 in 1992 and lost 19% of their wage premia by 2017 (the same percentage as the decrease in wage premia for the entire workforce). Similarly, architects and engineers have also experienced a drop of 29% in their wage premia between 1992 and 2017. Conversely, physicists and chemists, along with higher education teachers, showed an increase in their wage premia of 32% and 35%, respectively. The largest increases in wage premia were experienced by special education teachers (138%) - the group that had the lowest wage premia of all workers in 1992 - and nursing professionals (72%). On the other hand, life science professionals experienced the largest drop in wage premia from 4.8 in 1992 to 3.2 in 2017.

Table 28: Wage premia for professional occupations

	1992	*2000*	*2006*	*2009*	*2011*	*2013*	*2015*	*2017*	*% change*
Health professionals	**4.2**	**5.6**	**4.6**	**4.9**	**5.2**	**4.5**	**4.2**	**4.8**	14%
Legal professionals	**5.8**	**7.2**	**6.3**	**5.1**	**5.8**	**5.1**	**3.9**	**4.7**	-19%
Architects and engineers	5.5	7.1	4.4	5.0	4.7	4.4	3.8	3.9	-29%
Physicists and chemists	2.8	3.4	5.6	3.3	4.9	4.1	3.8	3.7	**32%**
Higher education teachers	2.6	4.3	3.1	4.4	3.1	4.0	3.1	3.5	**35%**
Mathematical and statisticians	3.8	2.3	3.6	2.3	2.2	2.9	4.1	3.4	-11%
Life science professionals	**4.8**	**4.1**	**3.2**	**3.2**	**3.5**	**3.4**	**3.2**	**3.2**	-33%
Computing professionals	2.6	3.4	3.6	4.9	3.3	4.1	3.2	3.2	23%
Business professionals	3.3	4.5	3.2	4.6	3.2	3.1	3.1	3.1	-6%
Nursing professionals	1.8	2.6	2.1	2.3	3.0	3.2	2.9	3.1	**72%**
Social science professionals	3.5	3.9	3.1	3.2	3.6	2.9	2.5	2.7	-23%
Writers and creative artists	2.8	3.3	2.8	2.9	2.9	2.7	2.8	2.6	-7%
Other teaching professionals	1.4	2.1	3.5	2.3	1.8	2.4	2.3	2.2	57%
Secondary education teachers	1.3	1.8	2.0	2.2	2.2	2.1	2.1	2.1	62%
Religious professionals	1.3	0.8	1.5	2.0	2.3	1.8	1.1	2.0	54%
Primary and pre-primary teachers	1.1	1.5	1.8	1.7	1.9	1.8	1.8	1.9	73%
Special education teachers	**0.8**	**1.5**	**1.9**	**2.1**	**2.0**	**2.1**	**1.8**	**1.9**	138%
Archivists and librarians	1.2	1.8	1.5	1.6	2.8	2.0	1.8	1.8	50%
Overall	**2.7**	**3.1**	**2.5**	**2.8**	**2.6**	**2.4**	**2.3**	**2.2**	-19%

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

Based on these results, the two largest professional occupations, business professionals and architects/engineers, show a decline in their wage premia, whereas primary teachers have seen an increase. In line with theories of Skill-Based Technological Change (SBTC), one would expect engineers, in particular, to show an increase in their wage premia due to increasing demand. However, in the case of Chile, the proportion of this group of workers has declined. Computing

professionals, on the other hand, have increased both their proportion and their wage premia as one of the occupational groups that have benefited from the changes experienced over the last few years, similar to nursing professionals.

Table 29: Distribution and wage premia for professional occupations, years 2000 and 2017.

	Proportion of the group		Wage premia	
	2017	*% change 2000-2017*	2017	*% change 2000-2017*
Business professionals	18.7	27%	3.1	-6%
Architects and engineers	16.6	-18%	3.9	-29%
Primary and pre-primary teachers	14.9	-31%	1.9	73%
Social science professionals	7.6	105%	2.7	-23%
Secondary education teachers	6.9	-15%	2.1	62%
Computing professionals	6.1	110%	3.2	23%
Health professionals	5.9	-12%	4.8	14%
Nursing professionals	4.6	31%	3.1	72%
Higher education teachers	3.9	-5%	3.5	35%
Legal professionals	3.9	3%	4.7	-19%
Writers and creative artists	3.1	41%	2.6	-7%
Other teachers	2.8	-22%	2.2	57%
Special education teachers	1.9	111%	1.9	138%
Life science professionals	1.6	-27%	3.2	-33%
Physicists and chemists	0.8	100%	3.7	32%
Archivists and librarians	0.3	-50%	1.8	50%
Religious professionals	0.3	0%	2.0	54%
Mathematical and statisticians	0.2	-50%	3.4	-11%

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

Reflecting on representation numbers and levels of wage premia, the subsequent analysis presents a selection of nine occupational groups to provide a more detailed description of the differences found among a group of workers who are expected to be in similar working conditions, above the average worker.

Table 30: Professional occupations representation and levels of wage premia in 2017

Occupation	Representation	Wage premia
Architects and engineers	High	High
Legal professionals	Medium	High
Health professionals	Medium	High
Business professionals	High	Medium
Higher education teachers	Medium	Medium
Writers and creative artists	Medium	Low
Physicists and chemists	Low	Medium
Mathematical and statisticians professionals	Low	Medium

Source: Calculations based on CASEN survey.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

In terms of variation of log wages, there is once again a concentration of wages around 0.4 and 0.6 variance levels, whereas in the year 2000, wages were much more spread out between 0.3 and 0.8. The results show that legal professionals have persistently had the highest levels of variance, along with physicists and chemists, writers and creative artists, and higher education teaching professionals. Mathematical and statistician professionals, on the other hand, have the lowest levels. Despite the concentration of variances to similar levels between professional occupations in 2017, there is no clear trajectory for all of them to follow a similar pattern over the observed period.

Regarding the variation of log wages, *Figure 42* once again illustrates a concentration of wages around the 0.4 and 0.6 variance levels, whereas, in the year 2000, wages were much more dispersed, ranging between 0.3 and 0.8. The findings indicate that legal professionals have consistently exhibited the highest levels of variance, along with physicists and chemists, writers and creative artists, and higher education teaching professionals. Conversely, mathematical and statistical professionals have the lowest levels. Despite the convergence of variances to similar levels among professional occupations in 2017, there is no discernible pattern of all occupations following a uniform trajectory throughout the observed period.

Figure 42: Variance of log wages for professional occupation, 2000-2017
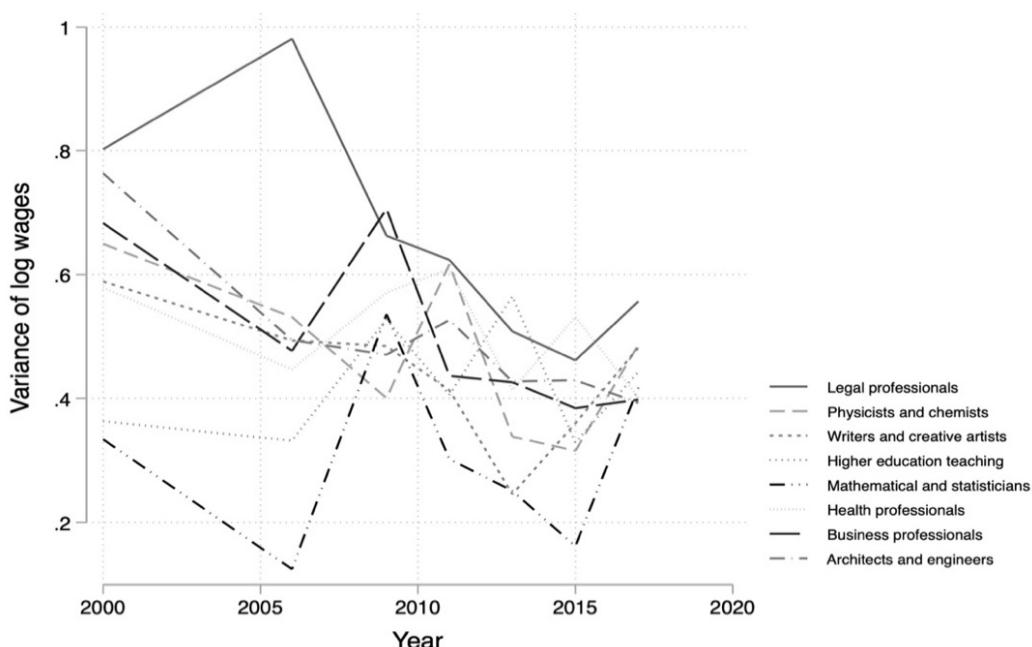
Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

To measure the variance of wages for professional occupations, *Table 31* shows the results of a series of multilevel regressions with random intercepts for all years, using income from work for all professional occupations to measure the variance of wages for professional occupations.

Table 31: Between and within wage inequality for professional occupations

Professional occupations - level 3	1992	2000	2006	2009	2011	2013	2015	2017
cons	11.93	12.85	13.14	13.28	13.43	13.49	13.58	13.71
var(_cons)	0.268	0.212	0.124	0.101	0.102	0.093	0.097	0.074
var(_residual)	0.418	0.363	0.350	0.372	0.362	0.312	0.310	0.319
VPC	**39.1 %**	**36.9 %**	**26.2 %**	**21.3 %**	**21.9 %**	**23.1 %**	**23.9 %**	**18.9 %**

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

Additionally, *Table 32* presents the variation in the dispersion of wages for each professional group, based on the ranking they occupied in the year 2000 compared to their position in 2017.

Table 32: Ranking of professional occupations based on wage dispersion

Ranking based on residuals (wage dispersion)	2000	2011	2017	Difference
Religious professionals	1	3	1	No change
Special education teachers	4	6	2	+ within dispersion
Primary and pre-primary teachers	6	5	3	+ within dispersion
Secondary education teachers	7	7	4	+ within dispersion
Other teaching professionals	2	2	5	- within dispersion
Archivists and librarians	3	1	6	- within dispersion
Social science professionals	11	10	7	+ within dispersion
Writers and creative artists	9	8	8	+ within dispersion
Nursing professionals	8	12	9	- within dispersion
Business professionals	10	9	10	No change
Life science professionals	15	14	11	+ within dispersion
Computing professionals	13	13	12	+ within dispersion
Higher education teachers	14	11	13	+ within dispersion
Architects and engineers	17	16	14	+ within dispersion
Physicists and chemists	12	15	15	- within dispersion
Mathematical and statisticians	5	4	16	- within dispersion
Legal professionals	18	18	17	+ within dispersion
Health professionals	16	17	18	- within dispersion

Source: Calculations based on CASEN surveys, respective years.
Note: Data includes all employed professional workers, age 24-65, with information on wages.

The occupations that show increasing dispersion are teachers (from pre-primary to secondary education), social scientists, writers and creative artists, life science professionals, computing professionals, higher education teachers, architects, engineers, and legal professionals. Conversely, nursing and health professionals have seen a decrease in the dispersion of their wages, along with physicists and chemists, mathematicians and statisticians, and archivists and librarians. Based on these results, the next step is to construct alternative groupings for individuals within professional

occupations to test the robustness of other personal attributes that could be influencing people's income during a period of higher education expansion.

5.4.3 *Latent Class Analysis: Alternative groupings for professional occupations*

This next section presents an exploratory analysis which introduces three new classes of professionals based on variables such as their gender, household income quintile, number of hours worked, the economic sector they work in, the type of contract they have, the size of their workplace, whether they have received training in the workplace, and the type of higher education institution from which they obtained their degree. All these variables signal aspects of their working conditions and personal attributes, which allow for sufficient differentiation to create new classes or categories that have emerged over recent years.

For this particular analysis, the variables included have been transformed into dichotomous ones to render the final classification more interpretable, given the multifaceted nature of these variables. Unlike many latent class analyses that group variables with the same categories of answers, the present analysis employs variables with a variety of responses, and therefore, the strategy to facilitate their interpretation is to divide them into two categories. The year chosen for the analysis is the most recent of the ones previously presented, 2017.

Table 33: Distribution of dichotomic variables included in LCA

	N	%
Household income quintile		
Q1-Q4	2,082	32.5
Q5	4,329	67.5
Gender		
Female	3,614	56.4
Male	2,797	43.6
Type of higher education		
Non-traditional	2,073	32.3
Traditional	4,338	67.7
Hours worked		
Part-time	1,039	16.2
Full-time	5,372	83.8
Economic sector		
Non-market services	4,336	67.6
Market and others	2,075	32.4
Type of contract		
Fixed-term	1,470	22.9
Permanent	4,941	77.1
Size of workplace		
Micro/small	2,143	33.4
Medium/large	4,268	66.6
Received training in the workplace?		
No	3,854	60.1
Yes	2,557	39.9

Table 34 shows the results of four different models where convergence was achieved[23], which are used to assess the best number of classes using the previous variables.

Table 34: Summary statistics for four different LAC

Model	N	ll (Model)	df	AIC	BIC
2 classes	6,411	-30576.64	17	61187.28	61302.3
3 classes	6,411	-30426.53	26	60905.06	61081.0
4 classes	6,411	-30364.38	35	60798.75	61035.6
5 classes	6,411	-30340.34	40	60760.67	61031.3

The results indicate similarities between the models with three and four classes. For the purpose of interpretability, I chose to work with three classes. To summarise the mean of the conditional probabilities for each answer on each class, *Figure 43* provides a visualisation of these distributions to get a better picture of what each class is representing in relation to the variables selected for the model.

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[23] To achieve convergence in the 5 classes model, the estimation limited the number of iterations to 50.

Figure 43: Distribution of classes for each variable included in the model
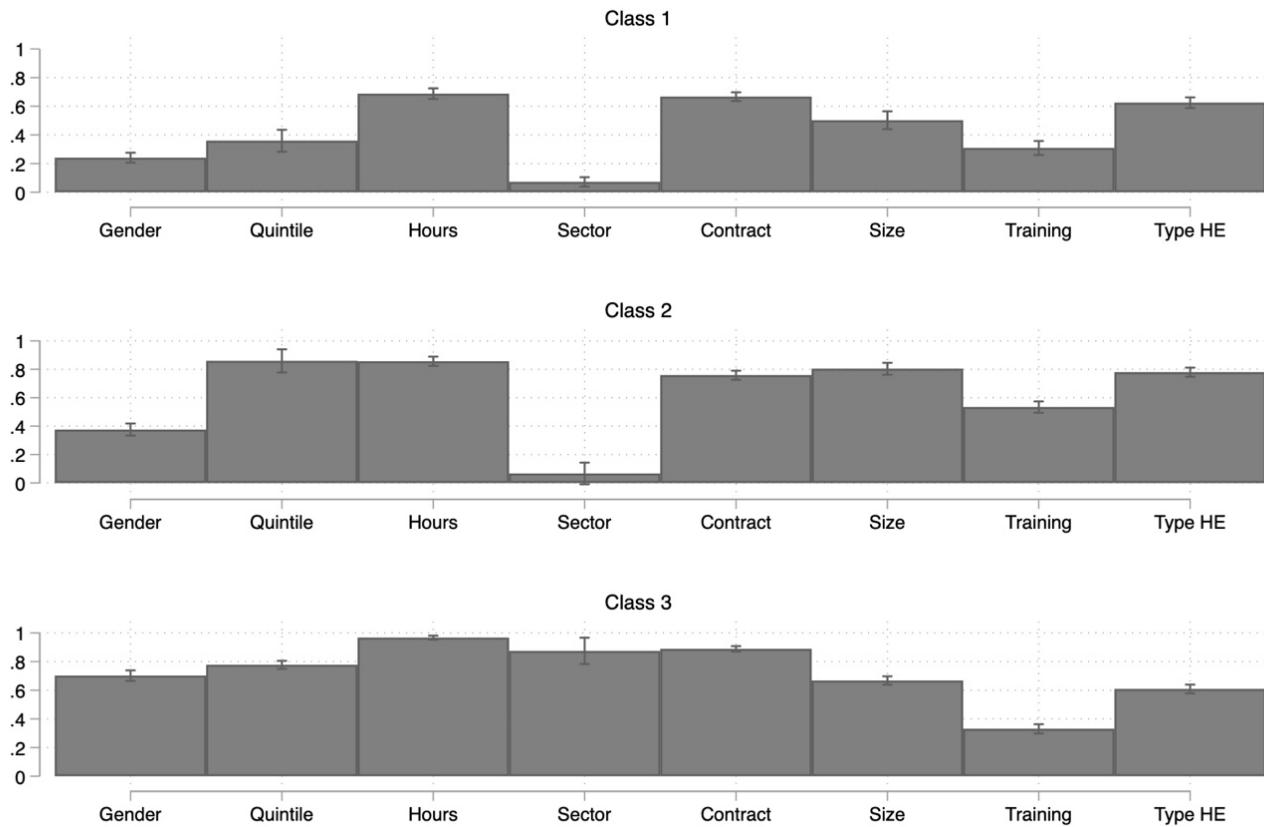
Additionally, *Table 35* estimates the expected means for each class, in other words, the distribution of classes within the whole population, based on the estimations of the model. The distribution of margins is relatively well-balanced, since each class represents nearly a third of the sample.

Table 35: Probabilities of class membership

	Margin	Delta-method Std. Err.	[95% Interval]	Confidence
Class 1	0.3158253	0.0430902	0.2379637	0.4056032
Class 2	0.3684084	0.0410151	0.2922393	0.4517584
Class 3	0.3157662	0.0276685	0.2641922	0.3723139

Based on these results, the data show that Class 1 comprises professional workers with lower incomes, many of whom are located in quintiles 1 to 4. They have the highest proportion of female workers and the largest share of workers who attended non-traditional HEIs. Regarding their working conditions, a low proportion work part-time, and the vast majority work in non-market services. Additionally, over a third are employed on fixed-term contracts, and over half are part of a micro or small firm. Finally, just over a quarter of workers have received training in their workplace. Given the characteristics of this group, and based on the literature, this is the most vulnerable group of professional workers based on their income and working conditions. Not surprisingly, gender and the type of HEI appear as relevant markers to differentiate between workers. This is the group with the least secure working conditions and lower levels of economic capital (based on their household autonomous income).

The results for Class 2 show the highest proportion of workers in Q5, marking a significant difference from the other two groups. They have the best household economic situation of all three classes. More than half of its members are female workers, and the vast majority attended traditional HEIs (80.65%). Additionally, a lower proportion work part-time, and almost all workers in this category are employed in non-market services (99.8%). Finally, less than a quarter have fixed-term contracts or work in a small or micro firm. Over half of these workers report having received training in their workplace. Given the distribution of variables, this group of professionals could be categorised as the traditional professional class, with jobs relatively stable and a secure household income, considering that almost 95% of these workers belong to Q5.

The third class has a higher proportion of workers in Q1 to Q4, although this proportion is much less prominent than that of Class 1 (22.7% vs 82.5%, respectively). This is also the group with the

lowest proportion of women and a relatively high number of workers attending non-traditional HEIs. As for working conditions, very few members work part-time, and almost no workers are in non-market services (only 1.1%). They have the lowest percentage of workers on fixed-term contracts, and a third work in micro or small firms. The proportion of workers who have received training in the workplace amounts to 44%, sitting in the middle when compared to Classes 1 and 2. This group of professionals could be interpreted as the "newcomers"; they have less economic capital, based on their household income, than Class 2 but better than Class 1. The most striking characteristic of this group is their almost non-existent presence in non-market services. Therefore, these are the workers who have gained access to better jobs in terms of income and working conditions without necessarily needing other forms of capital to move upward on the social scale.

Table 36: Distribution of variables included in the LCA

Variables included in the model	Overall %	Class 1	Class 2	Class 3
Q1-Q4	32.5	82.5	5.5	22.7
Female	56.4	75.7	61.5	32.7
Non-traditional HEI	32.3	42.1	20.4	39.0
Part-time worker	16.2	35.7	12.8	3.4
Non-market services	67.6	96.0	99.8	1.1
Fixed-term contract	22.9	36.1	22.4	11.9
Micro/small firm	33.4	53.8	19.5	33.3
No training in the workplace	60.1	73.2	46.5	66.0

Although the analysis does not present the trajectory of workers or specific features about their social class other than their income quintile, the results indicate a clear distinction between professional workers based on the social value of their work, as well as the productivity levels associated with their contribution to the economy. Based on the descriptors previously presented, the names for these new classes are Class 1 "Vulnerable professionals", Class 2 "Middle-class professionals", and Class 3 "Elite professionals". In line with previous research, there appears to be a fracture within professionals in relation to their working conditions and socio-demographic composition. These results show that rather than experiencing polarisation, the similarities and differences between these groups are largely based on gender, economic capital (represented by their autonomous household income quintile), and the economic sector in which they work. To gain a better understanding of the distribution of income within and between these three classes, classes *Figure 44* illustrates the distribution of real income from the main occupation for each class.

Figure 44: Distribution of real income from the main occupation by class groups
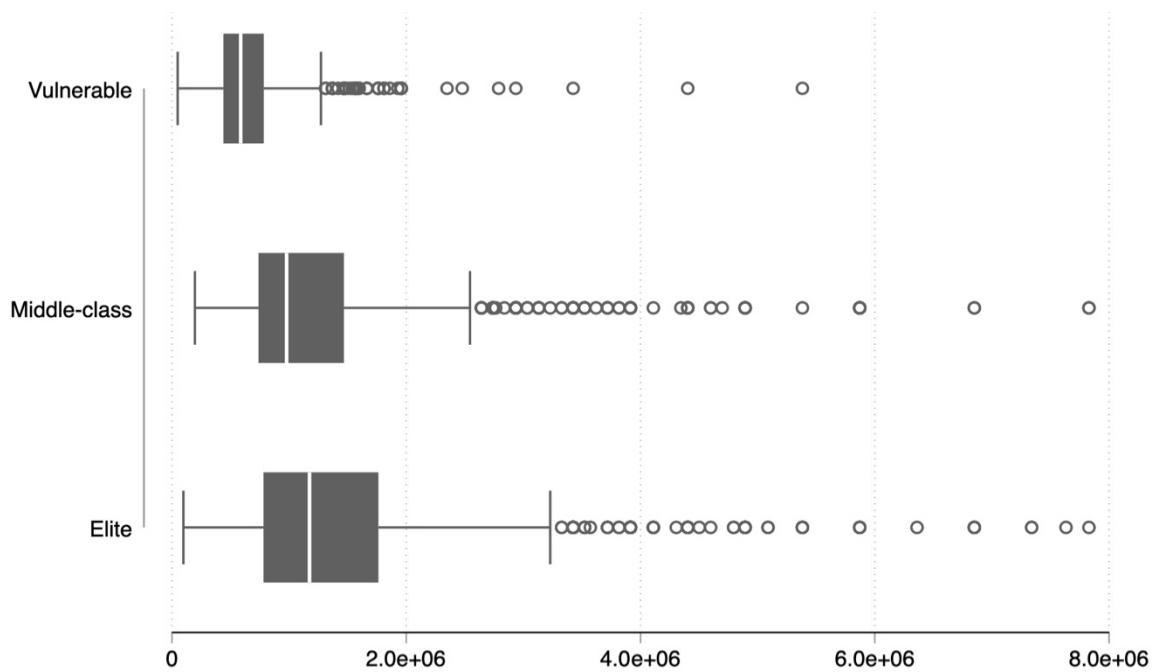
As expected, the class categorised as vulnerable comprises professional workers with the lowest levels of income and a very narrow dispersion of wages. Although traditional middle-class professionals seem to have wages that are more similar to those of elite professionals, the wage level for the latter is higher, hence the name of the category. Elite professionals have a wage distribution that is skewed to the right, indicating two main features: they have the highest salaries on average, and they also exhibit the greatest within-group variation. One plausible explanation is their participation in more diverse economic sectors or industries, some of which might exhibit differences in productivity levels and, therefore, are connected to ideas of peripheral capitalism (Rodríguez Weber, 2018).

To further explore the distribution of these classes across other relevant socio-demographic variables, *Table 37* shows that vulnerable professionals tend to be younger, their parents have lower levels of education compared to the other groups, they have a large proportion of workers who are single, and they are either the head of the household or their children, with a significant representation in Q3 (21.8%). Middle-class professionals, on the other hand, are the oldest group of workers, with a higher proportion of fathers with tertiary education than vulnerable professionals, and they are mainly heads of households or their partners. Finally, elite professionals have a high proportion of representation in young and middle-aged groups, being located between vulnerable and traditional. They are the group with the highest proportion of parents with higher education, showing that the transmission and reproduction of privilege continue to play a

significant role in people's living conditions. This group also has a high number of workers who are heads of households and work primarily in market services but also have representation in mining and electricity, manufacturing, and agriculture, which also explains the larger variance in wages when compared to other professional workers.

Table 37: Percentage distribution of variables by class

	Vulnerable	*Middle-class*	*Elite*	*Total*
Age				
24-35	**50.0**	36.3	46.4	43.3
35/44	21.6	24.4	**28.4**	24.9
45/54	17.1	**19.8**	16.6	18.0
55/65	11.3	**19.5**	8.6	13.8
Mother's education: Tertiary	21.4	28.6	**32.5**	28.4
Father's education: Tertiary	25.4	35.7	**41.3**	35.5
Single	**40.0**	27.8	31.5	32.4
From an aboriginal ethnicity	7.6	6.3	4.9	6.2
Relationship to the head of household				
Head	38.5	**50.4**	**55.5**	48.7
Partner	24.6	**31.1**	20.6	26.0
Daughter or son	**30.6**	15.0	18.2	20.4
Economic activity				
Agriculture	0.1	0.0	5.2	1.6
Manufacturing	0.3	0.0	**10.3**	3.3
Construction	0.3	0.0	**11.2**	3.6
Mining and electricity	0.1	0.0	**10.7**	3.4
Market services	3.3	0.2	**61.5**	20.4
Non-market services	**96.0**	99.8	1.1	67.6
Autonomous national income quintile				
Q1	2.0	0.1	0.6	0.8
Q2	5.7	0.3	1.4	2.2
Q3	**21.8**	1.1	5.0	8.1
Q4	**53.0**	4.0	**15.7**	21.4
Q5	17.6	**94.5**	**77.3**	67.5

The final analysis presented in this chapter is a multiple linear regression to assess whether this classification of professionals is more efficient than the 2-digit occupational classification to predict wages when including years of education and age in the analysis, following the principles of the Mincer equation to assess the effects of human capital on wages.

The results presented in *Table 38* show that the new variable to categorise professionals is a better proxy to estimate workers' wages compared to the 2-digit classification from ISCO-08.

Table 38: Multiple linear regression for ln of wages, 2017

	Model 1	Model 2	Model 3	Model 4
Constant	11.1266	11.0549	11.4848	11.0400
	(0.1000)	(0.0977)	(0.0922)	(0.0883)
Years of schooling	0.1510	0.1465	0.1371	0.1250
	(0.0058)	(0.0057)	(0.0053)	(0.0052)
Age categories				
35/44		0.2410	0.2324	0.2035
		(0.0181)	(0.0167)	(0.0162)
45/54		0.2621	0.3099	0.2413
		(0.0201)	(0.0186)	(0.0181)
55/65		0.2984	0.3839	0.2760
		(0.0222)	(0.0207)	(0.0201)
Occupational category 2-digit				
Life science and health professionals			-0.0932	
			(0.0245)	
Teaching professionals			-0.5524	
			(0.0187)	
Other professionals			-0.2082	
			(0.0194)	
Class membership				
Middle-class				0.4968
				(0.0162)
Elite				0.6315
				(0.0168)
R-squared	0.0961	0.1411	0.2674	0.3107
Adjusted R-squared	0.0959	0.1406	0.2666	0.3101
No. Observations	6377			

Standard errors are presented in brackets. All coefficients are significant at the 99% level.

The adjusted R-squared is higher for Model 4, indicating that almost a third of the variance in wages can be explained by these three categories. This is greater than the predictability estimated by the model with the 2-digit occupational categories. The aim of this final analysis was to combine the results from the inductive classification of workers to assess how much those characteristics inform their wage levels. This new classification amalgamates a series of variables which can be analysed individually; however, by condensing all this information into one indicator that clearly groups workers, it is possible to glean more information about new group formations among professional workers.

Finally, in keeping with the analysis of micro-classes, *Table 39* shows that less traditional professions such as business, computing, and life sciences are part of the elite group, which could indicate new forms of upward social mobility based on education. Since this part of the analysis only presents results for 2017, further analysis is necessary to fully understand the implications of these occupational professions being part of the elite.

Table 39: Distribution of 3-digit occupation by classes

Occupations 3-digit/ Class	Vulnerable	Middle-class	Elite
Primary and pre-school teachers	**41.78**	20.92	0.45
Secondary education teachers	**12.76**	**11.52**	0.2
Social science professionals	**12.03**	10.75	4.6
Special education teachers	**5.57**	2.27	0
Other teaching professions	**4.46**	3.62	0.3
Nursing and midwifery	3.9	**9.83**	0.45
Health professionals	2.84	**9.33**	1.98
Higher education teachers	3.12	**8.25**	0.15
Writers and creative artists	1.5	**2.81**	**2.13**
Archivists and librarians	0.28	**0.46**	0.05
Architects and engineers	2.67	5.66	**35.38**
Business professionals	6.24	7.71	**33.15**
Computing professionals	0.78	1.27	**10.19**
Legal professionals	0.95	3.66	**5.34**
Life science professionals	0.72	1.12	**3.66**
Physicists and chemists	0.22	0.42	**1.63**
Mathematicians and statisticians	0.06	0.23	**0.3**

A final comment on the latest results is the significant variances in the returns to education for professionals in the education sector. All teaching professionals fall into the Vulnerable class, even though the discourses about meritocracy are deeply rooted in the need to improve education at all levels of the lifecycle. Despite all these advances, the social value of education seems to remain at the lowest levels when compared to other professional workers. The occupational composition of middle-class professionals shows the group of occupations which traditionally have high social status. Nevertheless, this does not necessarily translate into better returns on their work. Finally, the composition of elite occupations encompasses professionals who have high social status and have traditionally done better than others, such as legal professionals, architects and engineers and strengthens the position of occupations such as computing, physicists, chemists, mathematicians and statisticians, which may be linked to the transformation of the economy and its transition to post-industrial societies, where their work presents returns much higher than the rest of professional occupations.

An interesting finding is the variety of occupations within the elite category, opening venues for further research into the similarities and differences within this group as a potential driver for income inequality, but also to examine their role in promoting upward social mobility using data from other years.

5.5 Discussion and conclusions

The objective of this chapter was to scrutinise wage trends within professional occupations, aiming to gauge the extent to which their internal structures have evolved in the post-industrial era. By monitoring the dynamics of this occupational cohort, we can evaluate their contributions to two distinctive facets associated with advanced societies.

On the one hand, their expansion symbolises upward social mobility, historically intertwined with improved working conditions and higher returns due to investments in education. On the other hand, professional occupations have been implicated as catalysts for income disparities within neoliberal economies. Thus, the positive impact they have on social mobility may be counterbalanced by their disproportionate earnings compared to other workers.

In the case of Chile, findings from one of the latest waves of the CASEN survey (2017) underscore significant disparities among professional workers. Consequently, a more nuanced micro-level analysis within this category becomes imperative. By categorising workers based on their work conditions and socioeconomic characteristics, we identified three emergent sub-classes within this group that do not neatly align with the conventional 2-digit occupational classification, shedding light on nuanced wage variations and other variables across professional occupations.

This emergent three-tier barrier between professional occupations can be interpreted as a form of social reproduction of inequalities, not only in terms of economic returns but also in different working conditions, where gender continues to play a significant role despite advances of females entering the labour market.

The group of vulnerable professionals comprises workers who gain access to higher education but do not significantly alter income variance. Since they predominantly work in non-market services, as well as middle-class professionals, there is a sharp divide compared to elite occupations. This new classification of professional workers also shows that within this group, there is not a clear polarisation of members but rather a reproduction of the classical division between upper, middle and lower tiers.

The novelty of these findings lies in the amalgamation of various variables identified in the literature as wage predictors, simplifying information for future analyses. This has the potential to enhance policies aimed at promoting equal opportunities by targeting specific professional careers that do not yield the same educational returns as their counterparts. In this context, adjusting the social value and status of these professions, particularly in fields like teaching, could serve as an alternative to compensate for their significant economic contributions to society.

Conversely, elite professional occupations are susceptible to what is known as the "progress paradox," where returns on education follow a convex trajectory, distancing them from all other workers. Even when accounting for market factors like economic sectors, gender divisions, and variations in working conditions, the educational attainment of parents and autonomous household income quintile reinforce the notion of a highly segmented labour market for professionals. Factors traditionally associated with social class continue to exert a significant influence on workers' wages. Despite individuals' efforts and investments to enhance their economic well-being and job security, they may only access certain job types prevalent in the non-market sector due to weak labour market institutions.

These findings partially elucidate the stagnation of income inequality over the past two decades despite increasing workforce education levels. As long as education and middle-class professionals continue to experience lower returns on their education, the overall Gini coefficient may not necessarily rise despite the upscaling of the labour force. It is the professional occupations within the elite class that potentially exert a more substantial influence on wage disparities among workers. If governments aspire to combat income inequality, one approach is to bolster investments in education within vulnerable and middle-class occupations, which have been overlooked in policies targeting the most economically disadvantaged workers.

In the realm of income inequality research, variables such as education and human capital have played pivotal roles in elucidating why wage trajectories have changed so significantly over the past few decades. While Latin America's income inequality conundrum has leaned more towards fluctuation than a drastic increase, the outcomes of this research contribute to a deeper understanding of wage dynamics in contemporary labour markets. The identification of barriers within certain professional classes, contingent on the demographics of their members, aligns with sociological theories depicting Chile's social structure as unequal yet fluid. Despite potential advancements in new elite occupations, especially in finance and IT, as posited by the SBTC theory, obstacles hindering access to better wages and working conditions persist despite educational promotion.

As for future research, these results could be used as a step to continue investigating the dynamics within elite occupations in light of their distribution between different economic sectors, as well as the higher levels of income variation among their workers. This could contribute to recent studies that have focused on elite universities but also elite occupations in Chile and other contexts (Kaufmann et al., 2013; Laurison & Friedman, 2016; Quaresma & Villalobos, 2018).

Similarly, the study of middle classes in Chile has a long history, and these results can inform the selection of cases to explore narratives about class identity, dislocation, and the social meaning of this category, in line with the work done by prominent Chilean scholars such as Maria Luisa Méndez, Modesto Gallo, Emanuelle Barozet, and Vicente Espinoza (Castillo et al., 2013; V. Espinoza et al., 2013; Gayo et al., 2016; Méndez, 2008; Méndez & Gayo, 2018).

Finally, the group of the most vulnerable professionals includes those in teaching occupations, underscoring the social and productive value of these professions, along with social scientists, who fall between vulnerable and middle-class professionals. The sociological implication of this category lies in the incongruence between the market value and the social contribution of these jobs. If the aim of the country is to continue developing and upscaling its workforce, teachers are essential in achieving this goal. Consequently, extending this research into the motivations of individuals to work in these areas, as well as their perceptions around the previously stated incongruence, could also be a potential area for further research.

In summary, while professional occupations remain a conduit for upward social mobility, the path to attain it varies considerably depending on the specific professional occupation. Consequently, their overall impact on wage variances becomes more intricate when considering disparities among these workers. It appears that, once again, elite occupations pose a higher risk of exacerbating income inequality to even greater levels than reported until 2017. If governments aspire to address income inequality, one strategy is to fortify educational investments in vulnerable and middle-class occupations, which have been overshadowed by policies aimed at the most economically vulnerable workers.

Chapter 6

Conclusions and implications

6.1 Introduction

This thesis presented an extensive revision of the trajectory of incomes in the Chilean labour market from the early 1990s to one of the latest wages of the CASEN survey in 2017[24], adding new elements to current debates about income inequality in the region but also at a more general level. The results show the complexity of the dynamics of income inequality in the current context of global markets, liberalised economies, and economic sectors transitioning to be even more service-based than in previous decades.

Some of the literature that has been addressed in this research has been produced by economists who have led the academic debate pointing at issues such as the returns to education (Acosta et al., 2019; Autor, 2014; Battistón et al., 2014; Manacorda et al., 2010), the role of technology and information (Card & DiNardo, 2002; Machin, 2001), and processes of polarisation of the labour market driven by the generation of jobs which are exceptionally well paid and offer secure working conditions, in contrast to what has been described by Goos and Manning as lousy jobs (2007) along with the work of Autor and Dorn (2013), in the first case for the UK and the second one looking at the US labour market. The

Similarly, the work of sociologists in providing analysis which considers structural forms of inequality and the impact of education on social mobility and class structure, as well as the importance of the socio-demographic transformation of countries, as well as the contested relevance of occupations shaping income inequality are some of the main topics which this thesis aimed to engage with (DiPrete, 2005; Laurison & Friedman, 2016; Morris & Western, 1999; Mouw & Kalleberg, 2010; Weeden, 2003; Western & Bloome, 2009; Williams, 2013; Xie et al., 2016).

One of the persistent motivations for this thesis was the following question: If occupations are central in shaping inequality, why have the transformations experienced over the past three decades not significantly impacted the overall levels of income inequality?

The main motivation for this research was to provide a deeper understanding of the dynamics of wages affecting Chilean workers since the return to democracy in the early 1990s. It is in part related to my own experience as a worker and social researcher and the questions that emerged when the general numbers of economic success did not match the social context around me.

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[24] The latest wave was recently released covering the year 2022, and it was highly impacted by the Covid-19 pandemic.

The Chilean case contributes to the literature by allowing us to explore changes in the composition of the workforce, which have aligned with some of the trends observed in developed countries. Nevertheless, unlike these countries, the levels of income inequality have shown a downward trend, indicating that perhaps the Chilean labour market was becoming more egalitarian.

The test of these assumptions showed that despite these advances, the Chilean labour market continues to present barriers to workers, even when they reach the required education to access better positions. Depending on their family of origin or their gender, the chances of them getting higher wages or more secure working conditions are much more limited than for those who come from more privileged groups.

The following sections present a reflection on the main findings of this thesis.

6.2 Main findings and sociological contributions

Is closing the gap between occupations making the Chilean labour market less unequal?

This thesis pays particular attention to the role of occupations in shaping income inequality. Therefore, this category is at the centre of many of the analyses provided in this thesis. The results indicate that despite some recent controversies around the effectiveness of occupational categories as proxies for social class and wage predictors, they continue to be a strong marker between workers.

The results from the first empirical chapter showed how the variance of wages between and within occupations continues to be dominated by differences between groups rather than within groups. Nevertheless, a closer look at the composition of occupational groups shows that in the case of Chile, the use of the ISCO-08 classification can obscure some other types of groupings, which could simplify the categorisation of workers. For instance, in the case of lower-skilled occupations such as service, skilled agricultural, craft and elementary occupations workers, the path of their average income, as well as the variance within each group, show a strikingly similar trend. Therefore, one could argue that the measurements taken to improve the working conditions of those at the bottom of the income distribution have positively impacted their wages.

Although the main differences in income continue to be dominated by variances between occupational groups rather than within, the results also show three main identifiable trends of income trajectories. The one for low-skilled, lower-qualified workers, with a relatively significant increase in their wages compared to the mean, partially explained by the substantial raises of the minimum wage. A second trend is led by clerks and technical workers, who have also experienced an improvement in their relative wages compared to previous years. Nevertheless, they continue

to be much closer to lower-skilled occupations than to professional ones, which are the ones that continue to maintain a significant distance from all other occupational groups in their average wages and also persist in having a significantly higher variance of wages compared to the other occupational groups. Managers and legislators play different roles and, given their proportion in the workforce, they are not the centre of analysis in this research.

The reshaping of the social structure in light of the several transformations of the labour market over the last quarter of the century seems to have had a good impact on indexes of income inequality, such as the Gini coefficient. This indicator has been highlighted by several governments as an important step towards a more egalitarian and fair society. Nevertheless, by having a closer look at the other measurements of income inequality, such as the p90/p10 ratio or the differences between quintiles, the results show that there has been a compression between the bottom and the middle of the income distribution. The top continues to pull away. Nevertheless, thanks to the improvements at the bottom of the distribution, this movement seems to generate an elusive portrait of a country that tells the story of a more egalitarian society.

However, the data seems to show that the sky is the limit for more privileged workers in terms of their income, whereas, in the case of the majority of workers, the upward trend of wages continues to face structural barriers. Complementary to the work done by Florencia Torche (2005) in defining the Chilean social structure as unequal but fluid, the level of fluidity becomes stickier and stickier for certain types of workers who aim to reach better positions.

These results are relevant for at least two streams of research. One that focuses on the effects of elite workers and the strategies of privileged socio-economic groups to maintain their positions and exclude newcomers by introducing new forms of social closure (Amenábar & Castillo, 2017; Ball, 2015; Brunner, 2012; Jiménez, n.d.; Korsnes et al., 2017; Quaresma & Villalobos, 2018; Torche, 2010). Additionally, another stream of research following these results could be the examination of the differences between emergent middle and more traditional working classes when the borders that used to separate them become more obscure (López-Calva et al., 2014; Lopez-Calva et al., 2016; Méndez, 2008).

Are all professional occupations indistinguishably doing better?

The results on professional occupations show that not all professional occupations are created equal. The significant differences in their wage dispersion, socio-demographic composition and working conditions evidence a divide that is not always clear to analyse when looking exclusively at occupational categories such as the ISCO-08, which pays central attention to workers' education

and skills to perform the required tasks. Given the significant variation of wages among workers in professional occupations, one of the questions of this thesis was how much the heterogeneity of professional occupations has changed over time in order to assess the impact of that transformation on their wages.

The results showed that there had been a significant increase in female workers and an expansion of the service sector as the leading supplier of jobs requiring professional qualifications. With regard to the structure of professional occupations, Chile has experienced a significant influx of business, social science and computing professionals. In line with theories of post-industrial societies, the match of these occupations with the rise in demand, particularly for business and computing occupations, seems to be in sync with changes in the national labour market. Nevertheless, the figures also show a decline in the proportion of engineers and architects. This occupational group has also been associated with the economic transformation driven by post-industrial economies.

The massification of the higher education provision has been framed in discourses of meritocracy and equality of opportunities. Nonetheless, this research shows notorious differences within professional occupations, which require further analysis. The question raised by Kim Weeden (2003) of "Why do some occupations pay more than others?" becomes even more necessary when, as in the case of Chile, those wage differentials appear more acutely among workers who should be sharing relatively similar levels of wages. The analysis of professional occupations' income offers new insights into forms of social closure within a group which is deemed to be significantly more privileged than the rest of the workers (with the exception of managers and senior officials).

The results of this research provide three classes of professional workers, which are not new but rather evidence of a mechanism of reproduction of structural inequality within this group. Elite professionals have managed to use resources such as their parents' education, having attended an elite higher education institution, to preserve their position within the social structure.

As mentioned before, on top of the reproduction of social class and the potential generation of new forms of social exclusion within elite professionals is the gender divide, which continues to play a significant role in the differences in income between females and males in favour of the latter. Having female professionals concentrated in the vulnerable class and showing the lowest representation in the elite group, the analysis reaffirms the idea that entrenched forms of discrimination based on proxies to social class and personal attributes such as gender continue to divide classes of workers and impact their wages differently, despite their efforts and levels of qualifications.

The sociological relevance of these findings lies in continuing to think critically about the role of education in contemporary societies. As the results show, in the case of Chile, education cannot solely be considered a vehicle for upward social mobility, given that the evidence shows that it can also be a mechanism for the reproduction of social and economic inequality. If neoliberalism continues to dominate the political and economic arena, with limited control of markets and weak labour market regulation, we can expect the differences in wages among workers at the top and everybody else to continue growing over time.

This research also contests more recent theories about the progress paradox, where the convex shape of returns to years of education has been signalled as one of the drivers of increasing income inequality (Bourguignon et al., 2005), advanced mainly by economists. As this research shows, not any extra year of schooling will generate a significant increase in the returns to education, but rather very specific types of jobs. If this is the case, the analysis of their social contribution to society, in line with their productivity, could be an area for further development, with the aim of generating a shift in the way we reward the work of different individuals from a more holistic perspective.

It seems more and more evident that income inequality does operate in mysterious ways but instead continues to find new forms to reproduce social divisions, although it allows enough space to permeate some layers of the upper bands of the social structure. The constant promise of more opportunities appears to be failing to convince, particularly for workers located near the median income, that this model of development can fairly offer sufficient economic well-being and security. Hence, it should not have surprised our politicians the wave of social protests initiated in 2019, where groups who traditionally excluded themselves from these types of actions, particularly middle-class workers, went to the streets to claim more security and better living conditions.

The results are in dialogue with authors such as Weeden and Grusky, and their conceptualisation of occupational closure, Friedman and Laurison and their findings on class ceiling in the context of the UK labour market, and finally with local scholars who have focused their studies on the complexities of the middle-class in Chile and the emergent forms of differentiation, such as María Luisa Méndez, Emmanuelle Barozet, Modesto Gallo, Vicente Espinoza and many others.

Household income inequality: The social and cultural transformation of Chilean families

Although the literature on income inequality has vastly focused on individuals, following a classical economic approach to understanding the dynamics of inequality, this research presents households as a relevant variable since they represent an important unit of consumption but can intensify the reproduction of social inequalities.

The literature on household income inequality has been widely dominated by the search for the most critical factor driving variances in wages. On the one hand, changes in the structure of the labour market have been identified as a relevant factor to consider. In contrast, changes in the composition of households have been the other focus of analysis. This research contributes to the literature by providing an alternative approach where the search for factors conceives that the complexity of the issue requires the co-existence of multiple factors operating at the same time. Although this might not be the more strategic approach when planning to intervene in the labour market, it does account for the complexity of the issue and, therefore, demands further examination.

The analysis of the trajectory of households in the Chilean labour market shows a decline in the dominance of male breadwinner households, which have been replaced progressively by dual-earning couples who show to have been earning similar incomes. Given that the male breadwinner is the type of household with the lower levels of variance, their reduction could have triggered an increase in the levels of income inequality. However, given that the inequality within dual-earning couples has been decreasing over time, rather than generating a peak in the dispersion of wages, these types of households have instead contributed to a more stable trajectory of overall household income inequality. The relevance of these results lies in the significant cultural transformation generated by the increasing participation of females in the labour market, and although the number of marriages has decreased over time, it appears that workers are still opting for dual-earning households over individual-led ones.

Notwithstanding this fact, individual-led households have also experienced an increase, driven specifically by male workers, a trend that could threaten the downward trend of income inequality. Despite the advances made by women entering the labour market, they continue to be in worse positions when compared to men, even when they choose to be heads of households and have full-time jobs.

The relevance of these transformations speaks directly to the way the labour market is structured and the working conditions offered to workers. At the moment, the regulations and protections in the workplace are designed for more traditional household formations, i.e. male breadwinners. However, given the massive transformation of the structure of households, if this or future governments fail to introduce changes in the regulation of the labour market, income inequality could return to the high levels exhibited at the end of the past Century.

6.3 Discussions and implications

This thesis has shown that structural sources of income inequality, which are not dependent on workers' efforts or levels of qualification, persist despite the many attempts to provide more opportunities for people to move upward on the social ladder. The analysis provided evidence that sustains the claims that the efforts to promote more egalitarian societies have only partially achieved their goals.

The sociological contributions to the study of income inequality lie in the conceptualisations that need to be produced to name emergent phenomena. In the case of Chile, the contraction of the labour force has produced an improvement in the working conditions of workers at the bottom. However, it appears to be that those in the middle have taken some of the weight of these changes by not seeing significant improvements in their incomes or working conditions. It is evident that across the labour market, high-income earners continue to massively benefit from the transformation of the labour market and its liberalisation.

In the case of professional occupations, the same dynamic gets reproduced internally between vulnerable, middle-class and elite workers, showing that even those who have done everything to experience upward social mobility face barriers that contemporary and more progressive societies have been unable to remove.

Furthermore, the role of education in the context of a neoliberal economy becomes a means to an end that can be interpreted at the micro but also macro levels. For individuals, education is a vehicle to access goods and well-being through economic means. As the provision of social rights is limited, and the process of commodification of work continues to be present, individuals are almost exclusively responsible for their well-being. Therefore, all those who can opt to continue their studies will choose to do so since it is the most secure form of investment. However, if many more individuals choose to follow this path, only some of them will experience the full benefits of these investments since, as the evidence shows, it continues to be particularly beneficial only to some and not all workers. This form of "elite closure" has also been observed by Florencia Torche in her seminal work "Unequal but fluid: social mobility in Chile in Comparative perspective" (2005).

Given these results and the barriers experienced at an individual and household level, inequalities seemed to endure the transformation of the supply, the demand, the economic sectors and so on. Despite progressive discourses that promise more opportunities to all individuals, the narrow path to privileged positions continues to be accessible only to a few.

6.4 Further research

One limitation of the current research lies in its inability to provide an in-depth analysis of gender-related factors contributing to income inequality. This limitation encompasses not only the disparities between male and female workers but also within the female demographic. This issue warrants further investigation, as it continues to perpetuate discrimination within the labour market. While existing research suggests that female participation in the labour force has a positive impact on reducing wage disparities among workers and households, the overarching trends presented in this study tend to obscure the nuanced dynamics within these demographic groups. Therefore, it is imperative to delve deeper into these sociological nuances.

Similarly, due to the focus of the analysis in this thesis, workers in the informal sector were omitted from the sample. Further research could complement the results presented herein by comparing the dynamics in contexts with even lower market regulation, thereby testing the validity of human capital theories and examining how notions of prestige and meritocracy assume alternative meanings and associations. Moreover, scrutinising the entire workforce could yield more comprehensive insights into the dynamics of income inequality, accounting for additional factors to address the complexity and variety that can be captured through national datasets such as the CASEN survey, which was not explored in this thesis.

Another promising avenue for future research involves a qualitative exploration of elite workers and their perspectives on privilege, meritocracy, and their stance on achieving equality. Understanding whether this cohort of workers can rationalise or challenge their position within the social hierarchy can offer valuable insights, especially in the context of increasingly polarised societies.

Furthermore, examining workers in occupations with lower educational qualifications should be prioritised in future research. This focus would enable the measurement of the effects of neoliberal reforms on the working conditions of less protected workers. This, in turn, would provide an opportunity to investigate the associations between risk and the value of job security in contemporary labour markets.

While a significant portion of existing research has concentrated on the labour supply side, employers represent an equally intriguing area for further exploration. In a more diverse workforce, distinguishing between candidates during the recruitment process becomes a more challenging and costly endeavour for employers. Investigating the transformations in recruitment procedures and

their effects on wages, alongside an examination of the role of public institutions in regulating these processes, adds another dimension of significance to our study.

The persistent centrality of work in people's livelihoods requires that we continue examining its dynamics to provide answers to questions related to the economic and social value of the activity to which most people dedicate a significant portion of their lives.

Bibliography

Acemoglu, D. (2002). Technical change, inequality, and the labor market. *Journal of Economic Literature*, *XL*(March), 7–72.

Acemoglu, D., & Autor, D. (2012). What Does Human Capital Do? A Review of Goldin and Katz's The Race between Education and Technology. *NBER Working Paper Series*, 17820.

Acemoglu, D., & Robinson, J. A. (2002). The political economy of the Kuznets curve. *Review of Development Economics*, *6*(2), 183–203.

Acosta, P., Cruces, G., Galiani, S., & Gasparini, L. (2019). Educational upgrading and returns to skills in Latin America: evidence from a supply–demand framework. *Latin American Economic Review*, *28*(1), 1–20.

Agostini, C., & Brown, P. (2007). Inequality at low levels of aggregation in Chile. *Review of Development Economics*, *14*(2), 213–226.

Álvarez, R., & Fuentes, R. (2004). *Patronez de especialización y crecimiento sectorial en Chile* (288). http://www.bcentral.cl/esp/estpub/estudios/dtbc.Existelaposibilidaddesolicitarunacopiaimpresahttp://www.bcentral.cl/eng/stdpub/studies/workingpaper.

Amenábar, J., & Castillo, J. C. (2017). *Investigando a la élite económica: Lecciones y desafíos a partir del caso de Chile. 27*(January 2018), 5–37.

Ariza, J., & Montes-Rojas, G. (2019). Decomposition methods for analyzing inequality changes in Latin America 2002–2014. *Empirical Economics*, *57*(6), 2043–2078.

Arriagada, I. (2009). La diversidad y desigualdad de las familias latinoamericanas. *Revista Latinoamericana de Estudios de La Familia*, *1*, 9–21. https://revistasojs.ucaldas.edu.co/index.php/revlatinofamilia/article/view/5562/5028

Arriagada, I. (2014). Changes and inequalities in Latin American families. *The Wiley Blackwell Companion to the Sociology of Families*, *2014*, 83–105.

Atkinson, A. (1999). The distribution of Income in the UK and OECD countries in the twentieth century. *Oxford Review of Economic Policy*, *15*(4), 56–75.

Atkinson, A. B. (2015). *Inequality: What Can Be Done?*. Harvard University Press.

Atkinson, A., Piketty, T., & Saez, E. (2011). Top Incomes in the Long Run of History. *Journal of Economic Literature*, *49*(1), 3–71.

Atkinson, A., & Salverda, W. (2005). Top Incomes in the Netherlands and the United Kingdom over the 20th Century. *Journal of the European Economic Association*, *3*(4), 883–913.

Autor, D. (2014). Skills, education, and the rise of earnings inequality among the "other 99 percent." *Science*, *344*(6186), 843–851. https://dspace.mit.edu/handle/1721.1/96768

Autor, D., & Dorn, D. (2013). The Growth of Low Skill Service Jobs and the Polarization of the U . S . Labor Market. *American Economic Review*, *103*(5), 1553–1597.

Autor, D., & Handel, M. (2013). Putting Tasks to the Test: Human Capital, Job Tasks, and Wages. *Journal of Labor Economics*, *31*(S1), S59–S96.

Autor, D., Katz, L., & Kearney, M. (2006). The Polarization of the U.S. Labor Market. *American Economic Review*, *96*(2), 189–194.

Autor, D., Katz, L., & Krueger, A. (1998). Computing Inequality: Have Computers Changed the Labor Market? In *Source: The Quarterly Journal of Economics* (Vol. 113, Issue 4).

Bacolod, M., & Blum, B. (2010). Two Sides of the Same Coin: U.S. "residual" inequality and the gender gap. *Journal of Human Resources*, *45*(1), 197–242.

Ball, S. (2015). Elites, education and identity. An emerging research agenda. In A. van Zanten, S. Ball, & B. Darchy-Koechlin (Eds.), *Elites, privilege and excellence: The national and global redefinition of educational advantage* (pp. 233–240). Routledge.

Barozet, E. (2007). *La variable ocupación en los estudios de estratificación social.* http://www.academia.edu/3517717/La_variable_ocupación_en_los_estudios_de_estratificación_social

Battistón, D., García-Domench, C., & Gasparini, L. (2014). Could an Increase in Education Raise Income Inequality. *Latin American Journal of Economics-Formerly*, *51*(1), 1–39.

Bauman, Z. (2012). *Liquid modernity* (I. ebrary, Ed.). Cambridge.

Becker, G. (1993). *Human capital: a theoretical and empirical analysis, with special reference to education.* (3rd ed.). London : University of Chicago Press.

Becker, G., Michael, R., Mincer, J., Muellbauer, J., Rosen, S., & Weiss, Y. (1985). Human Capital, Effort, and the Sexual Division of Labor. In *Source: Journal of Labor Economics* (Vol. 3, Issue 1).

Behm, J. E., Edmonds, D. A., Harmon, J. P., & Ives, A. R. (2013). Multilevel statistical models and the analysis of experimental data. *Ecology*, *94*(7), 1479–1486.

Bell, D. (1973). *The coming of post-industrial society: A venture in social forecasting.* New York : Basic Books.

Bernasconi, A. (2015). Private Higher Education in Chile: The New Exceptionalism. *International Higher Education*, *32*.

Bernasconi, A., & Rojas, F. (2003). *Informe sobre la Educación Superior en Chile: 1980-2003*.

Bértola, L., & Ocampo, J. A. (2013). The Economic Development of Latin America since Independence. In *The Economic Development of Latin America since Independence*. Oxford University Press.

Blanco, L., & Lillard, S. (2013). Inequality in Latin America: Changes and New Perspectives. *Latin American Politics and Society*, *55*(2), 169–177.

Blau, F., & Kahn, L. (1997). Swimming Upstream: Trends in the Gender Wage Differential in the 1980s. *Journal of Labor Economics*, *15*(1), 1–42.

Blau, F., & Kahn, L. (2007). The Gender Pay Gap. *The Economists' Voice*, *4*(4).

Blau, F., & Kahn, L. (2013). Female labor supply: Why is the United States falling behind? *American Economic Review*.

Blau, F., & Kahn, L. (2017). The Gender Wage Gap: Extent, Trends, and Explanations. *Journal of Economic Literature*, *55*(3), 78–865.

Blossfeld, H.-P. *et al.* (2004) *Careers of couples in contemporary societies: from male breadwinner to dual earner families*. Oxford: Oxford University Press.

Bobbitt-Zeher, D. (2007). The Gender Income Gap and the Role of Education, Sociology of Education, *80*(1), 1–22.

Boertien, D., & Permanyer, I. (2019). Educational Assortative Mating as a Determinant of Changing Household Income Inequality: A 21-Country Study. *European Sociological Review*, *35*(4), 522–537.

Borzutzky, S. (2005). From Chicago to Santiago: Neoliberalism and social security privatization in Chile. *Governance*, *18*(4), 655–674.

Bound, J., & Johnson, G. (1992). *Changes in the Structure of Wages in the 1980's: An Evaluation of Alternative Explanations* (Vol. 82, Issue 3).

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–258).

Bourguignon, F., Ferreira, F. H. G., & Lustig, N. (2005). The microeconomics of income distribution dynamics in East Asia and Latin America. In *Income distribution dynamics in East Asia and Latin America.* Washington, DC : World Bank .

Brender, V. (2010). Economic Transformations in Chile: The Formation of the Chicago Boys. *The American Economist*, *55*(1), 111–122.

Brown, P. (2003). The Opportunity Trap: education and employment in a global economy. *European Educational Research Journal*, *2*(1), 141–179.

Brown, P. (2013). Education, opportunity and the prospects for social mobility. *British Journal of Sociology of Education*, *34*(5–6), 678–700.

Brown, P., Hesketh, A., & Williams, S. (2004). The Mismanagement of Talent: Employability and Jobs in the Knowledge Economy. In *The Mismanagement of Talent: Employability and Jobs in the Knowledge Economy.* Oxford University Press.

Brunner, J. J. (n.d.). *El contexto actual de la educación superior en América Latina.*

Brunner, J. J. (2002). *Nuevas demandas y sus consecuencias para la educación superior en América Latina.*

Brunner, J. J. (2012). La lucha por la educación de las elites: campo y canales formativos. *Revista UDP*, 119–143.

Bukodi, E., & Goldthorpe, J. H. (2018). Social Mobility and Education in Britain: Research, Politics and Policy. In *Social Mobility and Education in Britain: Research, Politics and Policy.* Cambridge University Press.

Burtless, G. (1999). Effects of growing wage disparities and changing family composition on the U.S. income distribution. *European Economic Review*, *43*(4–6), 853–865.

Campbell, K. E., & Chafetz, J. S. (2000). Handbook of the Sociology of Gender. *Contemporary Sociology*, *29*(6), 822.

Card, D., & DiNardo, J. E. (2002). Skill-Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles. *Journal of Labor Economics*, *20*(4), 733–783.

Castells, M. (1976). The Service Economy and Post-industrial Society: A Sociological Critique. *International Journal of Health Services*, *6*(4), 595–607.

Castells, M. (2010). *The rise of the network society* (Second Edition). Wiley-Blackwell.

Castex, G., & Sepúlveda, F. (2014). Caracterización del mercado laboral en Chile y su evolución en los últimos 25 años. In *Documentos de trabajo* (Issue 728).

Castillo, J. C. (2012). Is inequality becoming just? Changes in public opinion about economic distribution in Chile. *Bulletin of Latin American Research*, *31*(1), 1–18.

Castillo, J. C., Miranda, D., & Cabib, I. M. (2013). Todos somos clase media: Sobre el estatus social subjetivo en Chile. *Latin American Research Review*, *48*(1).

Castillo Valenzuela, J. C. (2012). La legitimidad de las desigualdades salariales. Una aproximación multidimensional. *Revista Internacional de Sociología*, *70*(3), 533–560.

Causa, O., & Hermansen, M. (2019). *Income distribution through taxes and transfers across OECD countries.* www.oecd.org/eco/workingpapers.

CEPAL. (2018). The Inefficiency of Inequality. In *SSRN Electronic Journal.*

Chevan, A., & Stokes, R. (2000). Growth in family income inequality, 1970-1990: Industrial restructuring and demographic change. *Demography*, *37*(3), 365–380.

Ciaschi, M., Galeano, L., & Gasparini, L. (2021). Economic structure and wage inequality: Evidence for Latin America. *Trimestre Económico*, *88*(349), 77–106.

CIPER. (2013). *CENSO 2012: Comisión de expertos ratifico errores y recomendó rehacerlo el 2015.* https://www.ciperchile.cl/2013/08/07/censo-2012-comision-de-expertos-ratifico-errores-y-recomendo-rehacerlo-el-2015/

Clark, T. D. (2017). Rethinking Chile's 'Chicago Boys': neoliberal technocrats or revolutionary vanguard? *Third World Quarterly*, *38*(6), 1350–1365.

Coatsworth, J. H. (1994). Inequality, institutions and economic growth in Latin America. *Paragraph*, *17*(3), 227–235.

Cohen, P. N., Huffman, M. L., & Knauer, S. (2009). Stalled progress? Gender segregation and wage inequality among managers, 1980-2000. *Work and Occupations*, *36*(4), 318–342.

Collins, J. (1995). *Chile's free market miracle : a second look* (J. Lear, W. F. Bello, & S. Rosenfeld, Eds.). Oakland, Calif : Food First.

Contreras, D. (1999). Distribución del ingreso en Chile. Nueve hechos y algunos mitos. *Perspectivas*, *2*, 311–332.

Contreras, D. (2007). Poverty, inequality, and welfare in a rapid-growth economy: The Chilean experience. *International Food Policy Research Institute*, *BB14 Special Edition*.

Contreras, D., & Gallegos, S. (2011). Wage inequality in Latin America: a decade of changes. *Cepal Review*, *103*.

Contreras, D., Larrañaga, O., Litchfield, J., & Valdés, A. (2001). Poverty and income distribution in Chile 1987-1998: New evidence. *Cuadernos de Economía*, *38*(114), 191–208.

Cotter, D., Hermsen, J., & Vanneman, R. (1999). *Systems of gender, race, and class inequality: Multilevel analyses. 78*(2), 433–460.

Cowell, F. A. (2007). *Income Distribution and Inequality.*

Cowell, F. A., & Flachaire, E. (2017). Income distribution and inequality measurement: The problem of extreme values. *Journal of Econometrics*, *141*(2), 1044–1072.

Crompton, R. (2010). Class and employment. *Work, Employment and Society*, *24*(1), 9–26.

Crompton, Rosemary. (1999). *Restructuring gender relations and employment: the decline of the male breadwinner.* 241.

De Gregorio, J., & Taboada, M. (2023). *Median Labor Income in Chile Revised: Insights from Distributional National Accounts.*

De Hauw, Y., Grow, A., & Van Bavel, J. (2017). The Reversed Gender Gap in Education and Assortative Mating in Europe. *European Journal of Population*, *33*(4), 445–474.

De Leeuw, J., & Meijer, E. (2008). Handbook of multilevel analysis. *Handbook of Multilevel Analysis*,

Dinardo, J., Fortin, N. M., & Lemieux, T. (1996). *Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach. 64*(5), 1001–1044.

DiPrete, T. A. (2005). Labor Markets, Inequality, and Change. *Work and Occupations*, *32*(2), 119–139.

Eeckhaut, M. C. W., & Stanfors, M. A. (2019). Educational assortative mating, gender equality, and income differentiation across Europe: A simulation study. *Acta Sociologica (United Kingdom).*

Eika, L., Mogstad, M., & Zafar, B. (2019). Educational assortative mating and household income inequality. *Journal of Political Economy*, *127*(6), 2795–2835.

Engerman, S., & Sokoloff, K. (1994). Factor Endowments: Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States. In *National Bureau of Economic Research.*

England, P., Allison, P., & Wu, Y. (2007). Does bad pay cause occupations to feminize, Does feminization reduce pay, and How can we tell with longitudinal data? *Social Science Research*, *36*(3), 1237–1256.

Escobar, P., & Le Bert, C. (2003). The new labor market: The effects of the neoliberal experiment in Chile. *Latin American Perspectives*, *30*(5), 70–78.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism.* Cambridge, England : Polity Press.

Espinoza, Ó., Portales, D., & Eduardo González, L. (2013). Accreditation in higher education in Chile: results and consequences. *Quality Assurance in Education*, *21*(1).

Espinoza, V., & Barozet, E. (2008a). *¿De qué hablamos cuando decimos "clase media"?* 1–19. http://www2.facso.uchile.cl/sociologia/1060225/docs/clase_media_ex.pdf

Espinoza, V., & Barozet, E. (2008b). ¿De qué hablamos cuando decimos "clase media"? Perspectivas sobre el caso chileno. *Expansiva. UDP.* http://www.facso.uchile.

Espinoza, V., Barozet, E., & Méndez, M. (2013). Estratificación y movilidad social bajo un modelo neoliberal: El caso de Chile. *Laboratorio: Revista de Estudios Sobre Cambio Estructural y Desigualdad Social*, *0*(25), 169–191.

Espinoza, V., & Núñez, J. (2014a). Movilidad ocupacional en Chile 2001-2009. ¿Desigualdad de ingresos con igualdad de oportunidades? *Revista Internacional de Sociología*, *72*(1), 57–82.

Espinoza, V., & Núñez, J. (2014b). Movilidad ocupacional en Chile 2001-2009: ¿desigualdad de ingresos con igualdad de oportunidades? *Revista Internacional de Sociología*, *72*(1), 57–82.

Fernández, M., & Messina, J. (2018). Skill premium, labor supply, and changes in the structure of wages in Latin America. *Journal of Development Economics*, *135*, 555–573.

Fernández-Macías, E. (2012). Job Polarization in Europe? Changes in the Employment Structure and Job Quality, 1995-2007. *Work and Occupations*, *39*(2), 157.

Fernández-Macías, E., & Arranz-Muñoz, J. M. (2019). Occupations and the recent trends in wage inequality in Europe. *European Journal of Industrial Relations*.

Ferreira, P. C., & Da Silva, L. F. (2015). Structural transformation and productivity in Latin America. *B.E. Journal of Macroeconomics*, *15*(2), 603–630.

Fitzenberger, B., & Wunderlich, G. (2002). Gender Wage Differences in West Germany: A Cohort Analysis. *German Economic Review*, *3*(4), 379–414.

Flores, I., Sanhueza, C., Atria, J., & Mayer, R. (2019). Top Incomes in Chile: A Historical Perspective on Income Inequality, 1964–2017. *Review of Income and Wealth*.

Friedman, S., & Laurison, D. (2018). *The class ceiling: Why it pays to be privileged.* Policy Press.

Fuentes, O., & Gilchrist, S. (2005). Trade orientation and labor market evolution: Evidence from Chilean plant-level data. In *Labour Market Institutions* (pp. 411–435).

Furstenberg, F. F. (2014). Fifty Years of Family Change: From Consensus to Complexity. *Annals of the American Academy of Political and Social Science*, *654*(1), 12–30.

Gallego, F. (2006). *Skill premium in Chile: Studying the Skill Bias Technical Change hypothesis in the South*. http://www.bcentral.cl/esp/estpub/estudios/dtbc.Existelaposibilidaddesolicitarunacopiai mpresahttp://www.bcentral.cl/eng/stdpub/studies/workingpaper.

Gallego, F. (2012). Skill Premium in Chile: Studying Skill Upgrading in the South. *World Development*, *40*(3), 594–609.

Ganti, T. (2014). Neoliberalism. *Annual Review of Anthropology*, *43*(1), 89–104.

Garcés, M. (2019a). Social Uprising in Neoliberal Chile. *Journal of Latin American Cultural Studies*, *28*(3), 483–491.

Garcés, M. (2019b). Social Uprising in Neoliberal Chile. *Journal of Latin American Cultural Studies*, *28*(3), 483–491.

García, B., & Rojas, O. (2002). Los hogares latinoamericanos durante la segunda mitad del siglo XX: una perspectiva sociodemográfica. *Estudios Demográficos y Urbanos*, *17*(2), 261–288.

Gasparini, L., & Lustig, N. (2011). *The rise and fall of income inequality in Latin America.*

Gayo, M., Méndez, M. L., & Teitelboim, B. (2016). Tertiarization in Chile: Cultural inequality and occupational structure. *CEPAL Review*, *119*, 175–194.

Gindling, T. H., & Robbins, D. (2001). Patterns and sources of changing wage inequality in Chile and Costa Rica during structural adjustment. *World Development*, *29*(4), 725–745.

Goldthorpe, J. H. (2007). *On sociology. Volume 2, Illustration and retrospect* (2nd ed.). Stanford, Calif. : Stanford University Press.

Goos, M., & Manning, A. (2007). Lousy and Lovely Jobs: The Rising Polarization of Work in Britain. *The Review of Economics and Statistics*, *89*(1), 118–133.

Gottschalk, P., & Danziger, S. (2005). Inequality of wage rates, earnings and family income in the United States, 1975-2002. *Review of Income and Wealth*, *51*(2), 231–254.

Granovetter, M. (1985). Economic action and social structure.pdf. *American Journal of Sociology*, *91*(3), 481–510.

Grusky, D. B., & Sørensen, J. B. (1998). Can Class Analysis Be Salvaged? *Source: American Journal of Sociology*, *103*(5), 1187–1234.

Guzmán-Concha, C. (2017). Undoing the Neoliberal Higher Education System? Student Protests and the Bachelet Reforms in Chile. *World Economic Review*, *8*, 32–43.

Hagenaars, J., & McCutcheon, A. (Eds.). (2002). *Applied Latent Class Analysis*. Cambridge University Press.

Hall, P. A., & Soskice, D. W. (2013). *Varieties of capitalism : the institutional foundations of comparative advantage*. Oxford England : Oxford University Press.

Harkness, S., Machin, S., & Waldfogel, J. (1997). Evaluating the Pin Money Hypothesis: The Relationship between Women's Labour Market Activity, Family Income and Poverty in Britain. *Journal of Population Economics*, *10*(2), 137–158.

Horkheimer, M., & Adorno, T. W. (2022). *Dialectic of Enlightment* (E. Jephcott & G. Schmid Noeri, Eds.). Stanford University Press.

Hourton, A. (2012). Income Inequality in Chile: 1990-2006. *Research Project Center Discussion Paper Series. Kyoto University*.

Hox, J. J. ., Moerbeek, Mirjam., & Schoot, R. van de. (2018). *Multilevel analysis : techniques and applications*. 347.

Huberman, M., & Minns, C. (2007). The times they are not changin': Days and hours of work in Old and New Worlds, 1870–2000. *Explorations in Economic History*, *44*(4), 538–567.

ILO. (2012). *International Standard Classification of Occupations*.

ILO. (2024). *Moving towards equality: The role of care work in the Latin American labour market*. https://www.ilo.org/resource/news/moving-towards-equality-role-care-work-latin-american-labour-market.

International Monetary Fund. (n.d.). *The IMF and Income Inequality*. Retrieved December 20, 2020, from https://www.imf.org/en/Topics/Inequality

Jenkins, S. P., & Philippe Van Kerm. (2011). The Measurement of Economic Inequality. In *he Oxford Handbook of Economic Inequality*. Oxford University Press.

Jiménez, J. P. (n.d.). *Desigualdad, concentración y elites económicas en América latina: el rol de la política fiscal. 2015*, 1–37.

Katz, L., & Autor, D. (1999). Chapter 26 Changes in the wage structure and earnings inequality. In *Handbook of Labor Economics: Vol. 3 PART* (Issue 1). Elsevier Masson SAS.

Kaufmann, K., Messner, M., & Solis, A. (2013). Returns to Elite Higher Education in the Marriage Market: Evidence from Chile. *SSRN Electronic Journal.*

Kennedy, C. M., & Murray, W. E. (2012). Growing apart? The persistence of inequality in Chile, 1964-2010. *Urbani Izziv, 23*(SUPPL. 2).

Kenworthy, L. (2007). Inequality and Sociology. *American Behavioral Scientist, 50*(5), 584–602.

Kenworthy, L., & Pontusson, J. (2005). Rising Inequality and the Politics of Redistribution in Affluent Countries. *Perspectives on Politics, 3*(3), 449–471.

Kilbourne, B., England, P., & Beron, K. (1994). Effects of Individual, Occupational, and Industrial Characteristics of Earnings: Intersections of Race and Gender. *Social Forces, 72*(4), 1149.

Kim, C. H., & Sakamoto, A. (2008). The rise of intra-occupational wage inequality in the United States, 1983 to 2002. *American Sociological Review, 73*(1), 129–157.

Kim, C., & Sakamoto, A. (2005). Bringing Inequality Back In: The Role of Occupational Structure in Growing Wage Dispersion. *American Sociological Review, 73*(1), 129–157.

Korsnes, O., Heilbron, J., Hjellbrekke, J., Bühlmann, F., & Savage, M. (2017). New directions in elite studies. In *New Directions in Elite Studies.* Taylor and Francis.

Kranzinger, S. (2020). The decomposition of income inequality in the EU-28. *Empirica, 47*(3), 643–668.

Krishna, P., Poole, J. P., & Senses, M. Z. (2012). Trade, labor market frictions, and residual wage inequality across worker groups. *American Economic Review, 102*(3), 417–423.

Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review, 45*(1), 1.

Lakner, C., & Milanovic, B. (2016). Global Income Distributiion: From the Fall of the Berlin Wall to the Great Recession. *Source: The World Bank Economic Review, 30*(2), 203–232.

Larrañaga, O. (2009). Inequality, Poverty and Social Policy: Recent Trends in Chile. *Social Development, 85.*

Larrañaga, O., & Rodríguez, M. E. (2015). Desigualdad de ingresos y pobreza en Chile: 1990 a 2013. *Las Nuevas Políticas de Protección Social En Chile*, 251–294.

Larrimore, J. (2014). Accounting for United States Household Income Inequality Trends: The Changing Importance of Household Structure and Male and Female Labor Earnings Inequality. *Review of Income and Wealth*, *60*(4), 683–701.

Laurison, D., & Friedman, S. (2016). The Class Pay Gap in Higher Professional and Managerial Occupations. In *American Sociological Review* (Vol. 81, Issue 4, pp. 668–695).

Lear, J., & Collins, J. (1995). Working in Chile's Free Market. *Latin American Perspectives*, *22*(1), 10–29.

Leicht, K. T. (2008). Broken Down by Race and Gender? Sociological Explanations of New Sources of Earnings Inequality. *Annual Review of Sociology*, *34*(1), 237–255.

Lemieux, T. (2003). *Residual Wage Inequality: A Re-examination. June.*

Lemieux, T. (2006). Increasing Residual Wage Inequality: Composition Effects, Noisy Data, or Rising Demand for Skill? *American Economic Review*, *96*(3), 461–498.

López, R., & Miller, S. J. (2008). Chile: The Unbearable Burden of Inequality. *World Development*, *36*(12), 2679–2695.

López-Calva, L. F., & Lustig, N. (2010). *Declining inequality in Latin America: a decade of progress?* Washington, D.C. : Brookings Institution Press.

López-Calva, L. F., Ortiz-Juarez, E., Ortiz-Juarez, E., & López-Calva, L. F. (2014). A vulnerability approach to the definition of the middle class. *J Econ Inequal*, *12*, 23–47.

Lopez-Calva, L. F., Rigolini, J., & Torche, F. (2016). Is there such thing as middle-class values? Class differences, values and political orientations in Latin America. *Journal of Globalization and Development*, *7*(2).

Lustig, N. (2018). *Commitment to Equity Handbook. Estimating the impact of fiscal policy on inequality and poverty.* (N. Lustig, Ed.). The Brookings Institution Press.

Mac-Clure, O. (2012). Las nuevas clases medias en Chile un análisis de cohortes. *Revista CEPAL*, *18*.

Machin, S. (2001). The changing nature of labour demand in the new economy and skill-biased technology change. *Oxford Bulletin of Economics and Statistics*, *63* (SUPPL.), 753–776.

Magnusson, C. (2009). Gender, occupational prestige, and wages: A test of devaluation theory. *European Sociological Review*, *25*(1), 87–101.

Manacorda, M., Sánchez-Páramo, C., & Schady, N. (2010). Changes in returns to education in Latin America: The role of demand and supply of skills. *Industrial and Labor Relations Review*, *63*(2), 307–326.

Martin, M. (2006). Family Structure and Income Inequality in families with children, 1976 to 2000. *Demography*, *43*(3), 445.

Massey, D. S., & Hirst, D. S. (1998). From Escalator to Hourglass: Changes in the U.S. Occupational Wage Structure 1949–1989. *Social Science Research*, *27*(1), 51–71.

McLanahan, S., & Percheski, C. (2008). Family structure and the reproduction of inequalities. *Annual Review of Sociology*, *34*, 257–276.

Méndez, M. L. (2008). Middle class identities in a neoliberal age: Tensions between contested authenticities. *Sociological Review*, *56*(2), 220–237.

Méndez, M. L., & Gayo, M. (2018). *Upper Middle Class Social Reproduction: Wealth, schooling, and residential choice in Chile*. Palgrave.

Messina, J., & Silva, J. (2021). Twenty Years of Wage Inequality in Latin America. *The World Bank Economic Review*, *35*(1), 117–147.

Mills, W. (2000). *The power elite* (A. Wolfe, Ed.). Oxford : Oxford University Press.

Mincer, J. (1974). Schooling, Experience, and Earnings. Human Behavior and Social Institutions. *National Bureau of Economic Research*.

Ministerio de Desarrollo Social y Familia. (n.d.). *Observatorio Social*. Retrieved October 29, 2024, from https://observatorio.ministeriodesarrollosocial.gob.cl/storage/docs/casen/2022/20231012_Resultados_Casen_Trabajo.pdf

Mizala, A., & Romaguera, P. (2003). Remuneraciones y tasas de retorno de los profesionales chilenos. *Oferta y Demanda de Profesionales y Técnicos En Chile. El Rol de La Información Pública*, 171–209.

Montecinos, V. (1993). Economic policy elites and democratization. *Studies in Comparative International Development*, *28*(1), 25–53.

Morris, M., & Western, B. (1999). Inequality in Earnings At the Close of the Twentieth Century. *Annual Review of Sociology*, *25*(1), 623–657.

Moulian, T. (1997). *Chile actual : anatomía de un mito* (1. ed.). Santiago, Chile : ARCIS Universidad : LOM Ediciones.

Mouw, T., & Kalleberg, A. (2010). Occupations and the Structure of Wage Inequality in the United States, 1980s to 2000s. *American Sociological Review*, *75*(3), 402–431.

Murakami, Y., & Nomura, T. (2020). Expanding higher education and wage inequality in Chile. *Journal of Economic Studies*, *47*(4), 877–889.

Myles, J., & Myers, K. (2007). Introduction: Who Gets What and Why? Answers From Sociology. *American Behavioral Scientist*, *50*(5), 579–583.

Neckerman, K. M., & Torche, F. (2007). Inequality: Causes and Consequences. *Annual Review of Sociology*, *33*(1), 335–357.

Núñez, J., & Pérez, G. (2007). Díme Cómo Te Llamas y Te Diré Quién Eres: La Ascendencia Como Mecanismo de Diferenciación Social en Chile. *Serie Documentos de Trabajo*, *269*, 1–26.

Ocampo, J. A. (2017). Commodity-Led Development in Latin America. *Alternative Pathways to Sustainable Development: Lessons from Latin America*, *9*, 51–76.

OECD. (2008). Growing Unequal?: Income Distribution and Poverty in OECD Countries. *Distribution*, 1–7.

OECD. (2011a). An Overview of Growing Income Inequalities in OECD Countries: Main Findings. *Divided We Stand: Why Inequality Keeps Rising, OECD 2011*, 21–45.

OECD. (2011b). *Doing Better for Families*.

OECD. (2018a). *A Broken Social Elevator? How to Promote Social Mobility*.

OECD. (2018b). *Is the Last Mile the Longest? Economic Gains from Gender Equality in Nordic Countries*.

OECD. (2018c). *OECD Economic surveys: Chile* (Issue February).

OECD. (2021). *Caregiving in crisis: Gender inequality in paid and unpaid work during COVID-19 - OECD*.

OECD. (2024). *Informality and Households' Vulnerabilities in Latin America. Data, insights and implications for labour formalisation policies*. www.oecd.org/about/publishing/corrigenda.htm.

Orellana, V. (2011). *Nuevos y viejos profesionales en Chile: Impacto de la educación superior en la estructura social*. Universidad de Chile.

Palma Aguirre, G. A. (2007). Explaining Earnings and Income Inequality in Chile. In *Economic Studies: Department of Economics Göteborg University* (Vol. 169).

Parro, F., & Reyes, L. (2017). The rise and fall of income inequality in Chile. *Latin American Economic Review*, *26*(1), 1–31.

Parsons, T. (1961). *The structure of social action: a study in social theory with special reference to a group of recent European writers*. New York : Free Press of Glencoe.

Pérez Ahumada, P. (2018). *Clases sociales, sectores económicos y cambios en la estructura social chilena entre 1992 y 2013*. https://repositorio.cepal.org/handle/11362/44308

Pérez, P., & Cifuentes, L. (2020). The Service Industry, Private-sector Employment and Social Class in Chile: New Developments from Labour Process Theory. *Critical Sociology*, *46*(3), 443–461.

Pfau-Effinger, B. (2004). Socio-historical paths of the male breadwinner model - An explanation of cross-national differences. *British Journal of Sociology*, *55*(3), 377–399.

Piketty, T. (2014). *Capital in the twenty-first century* (A. Goldhammer, Ed.). Cambridge, Massachusetts : The Belknap Press of Harvard University Press.

Piketty, T., & Saez, E. (2006). *The Evolution of Top Incomes: A Historical and International Perspective*. *96*(2), 200–205.

Piketty, T., Saez, E., & Zucman, G. (2018). Distributional National Accounts: Methods and Estimates for the United States. *The Quarterly Journal of Economics*, *133*(2), 553–609.

PNUD. (2017). *Desiguales. Orígenes, cambios y desafíos de la brecha social en Chile* (A. Palet & P. De Aguirre, Eds.). Programa de las Naciones Unidas para el Desarrollo.

Polanco, D., & Osorio, S. (2021). Régimen de acumulación de capital y transición campo-ciudad en el Estado desarrollista chileno (1933-1973): una contribución a los estudios de la UP desde la economía heterodoxa. *Izquierdas*, *50*, 1–24.

Portes, A., & Hoffman, K. (2003). Latin American class structures: Their composition and change during the Neoliberal era. *Latin American Research Review*, *38*(1), 41–82.

Powell, W. W., & Snellman, K. (2004). *The Knowledge Economy*. *30*(1), 199–220.

Quaresma, L., & Villalobos, C. (2018). La (re) producción de las élites en tiempos de democratización del sistema universitario. Análisis conceptual a partir de las experiencias. *Ciencias Sociales y Educación*, *7*(13), 65–87.

Reed, D., & Cancian, M. (2001). Sources of inequality: Measuring the contributions of income sources to rising family income inequality. *Review of Income and Wealth*, *47*(3), 321–333.

Robinson, J. A. (2001). Where Does Inequality Come From?: Ideas and Implications for Latin America. *OECD Development Centre, OECD Development Centre Working Papers: 188, 2001*, *188*(188).

Robinson, W. (1999). Latin America in the age of inequality: Confronting the new "utopia." *International Studies Association*.

Robinson, W. (2004). Global Crisis and Latin America. *Society*, *23*(2), 135–153.

Rodríguez, C., & Muñoz, J. (2017). La contribución económica de la mujer en los hogares chilenos. *Convergencia Revista de Ciencias Sociales*, *24*(74), 209–230.

Rodríguez Weber, J. (2015). *Impulsando la desigualdad "de mercado": El vínculo elite-Estado en Chile en el siglo XX*. 1–26.

Rodríguez Weber, J. (2016). Impulsando la desigualdad "de mercado". El vinculo elite-Estado en Chile en el siglo XX. *Perfiles Económicos*, *1*, 11–41.

Rodríguez Weber, J. (2018). High inequality in Latin America: since when and why? *Munich Personal RePEc Archive*. https://mpra.ub.uni-muenchen.de/87619/

Rodríguez-Castelán, C., López-Calva, L. F., Lustig, N., & Valderrama, D. (2022). Wage inequality in the developing world: Evidence from Latin America. *Review of Development Economics*.

Rubery, J., Bettio, F., Fagan, C., Maier, F., Quack, S., & Villa, P. (1997). Payment structures and gender pay differentials: some societal effects. *The International Journal of Human Resource Management*, *8*(April), 131–149.

Ruggles, R., & Ruggles, N. D. (1986). The Integration of Macro and Micro Data for the Household Sector. *Review of Income and Wealth*, *32*(3), 245–276.

Ruiz-Tagle, J. (2007). Forecasting Wage Inequality. *Estudios de Economía*, *34*(2), 141–162.

Sánchez, A. (2014). Policies for Making the Chilean Labour Market More Inclusive. *OECD Economics Department Working Papers*, *1117*(1117), 32.

Savage, M. (2015). *Social class in the 21st century*. London : Pelican, an imprint of Penguin Books.

Savage, M., Devine, F., Cunningham, N., Taylor, M., Li, Y., Hjellbrekke, J., Le Roux, B., Friedman, S., & Miles, A. (2013). A New Model of Social Class? Findings from the BBC's Great British Class Survey Experiment. *Sociology*, *47*(2), 219–250.

Savage, M., & Egerton, M. (1997). Social Mobility, Individual Ability and the Inheritance of Class Inequality. *Sociology*, *31*(4), 645–672.

Schultz, T. P. (1982). Family Composition and Income Inequality. *Development Review*, *8*, 137–150.

Sehnbruch, K. (2006). *The Chilean labor market : a key to understanding Latin American labor markets* (1st ed.). New York : Palgrave Macmillan.

Sehnbruch, K., Carranza, R., & Prieto, J. (2019). The Political Economy of Unemployment Insurance based on Individual Savings Accounts: Lessons from Chile. *Development and Change*, *50*(4), 948–975.

Sehnbruch, K., & Donoso, S. (2020). Social Protests in Chile: Inequalities and other Inconvenient Truths about Latin America's Poster Child. *Global Labour Journal*, *11*(1).

Sheahan, J. (2013). Effects of liberalization programs on poverty and inequality: Chile, Mexico and Peru. *Latin American Research Review*, *32*(3), 7–37.

Signor, D., Kim, J., & Tebaldi, E. (2019). Persistence and determinants of income inequality: The Brazilian case. *Review of Development Economics*, *23*(4), 1748–1767.

Simbürger, E., & Donoso, A. (2020). Key elements in the naturalisation of neoliberal discourse in higher education in Chile. *Discourse: Studies in the Cultural Politics of Education*, *41*(4).

Smith, A. (1991). The wealth of nations. In A. Smith (Ed.), *1776*. London: Everyman's Library.

Snijders, T. A. B., & Bosker, R. J. (2011). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling.* 368.

Solimano, A. (2016). Is inequality really declining in Latin America? Evidence on income, wealth and the social structure. *Revista de Economía Mundial*, *43*, 69–92.

Solimano, A., & Torche, A. (2008). *La distribución del ingreso en Chile 1987-2006: Análisis y consideraciones de política.*

Somma, N. M. (2021). Power cages and the October 2019 uprising in Chile. *Journal for the Study of Race, Nation and Culture*, *27*(5), 579–592.

Steger, M., & Roy, R. (2010). *Neoliberalism : a very short introduction* (R. K. Roy, Ed.). New York.

Stiglitz, J. E. (2015). *The great divide : unequal societies and what we can do about them* (First edit). New York : W.W. Norton & Company.

Stockhammer, E. (2011). Neoliberalism, Income Distribution and the Causes of the Crisis. *The Financial Crisis*, 234–258.

Tam, T. (2002). Sex Segregation and Occupational Gender Inequality in the United States: Devaluation or Specialized Training? *American Journal of Sociology*, *102*(6), 1652–1692.

Tejada, M. (2016). Lifetime inequality measures for an emerging economy: The case of Chile. *Labour Economics*, *42*, 1–15.

Tilly, C. (1998). *Durable Inequality* (1st ed.). Berkeley: University of California Press.

Torche, F. (2005). Unequal But Fluid: Social Mobility in Chile in Comparative Perspective. *American Sociological Review*, *70*(3), 422–450.

Torche, F. (2010). Educational assortative mating and economic inequality: A comparative analysis of three Latin American countries. *Demography*, *47*(2), 481–502.

Torche, F., & Wormald, G. (2004). *Estratificación y movilidad social en Chile: Entre la adscripción y el logro*.

Tornarolli, L., Ciaschi, M., & Galeano, L. (2018). Income Distribution in Latin America. The Evolution in the Last 20 Years: A Global Approach. *Documentos de Trabajo CEDLAS*, *Nro. 234*, 1–43.

UNDP. (2024). *The Missing Piece: Valuing women's unrecognized contribution to the economy*. https://www.undp.org/latin-america/blog/missing-piece-valuing-womens-unrecognized-contribution-economy

U.S. Bureau of Labor Statistics. (n.d.). *Standard Occupational Classification*. Retrieved July 1, 2024, from https://www.bls.gov/soc/

Weeden, K. (2003). Why Do Some Occupations Pay More than Others? Social Closure and Earnings Inequality in the United States. *American Journal of Sociology*, *108*(1), 55–101.

Weeden, K., & Grusky, D. (2005). The Case for a New Class Map. *American Journal of Sociology*, *111*(1), 141–212.

Western, B., & Bloome, D. (2009). Variance function regressions for studying inequality. *Sociological Methodology*, *39*(1), 293–326.

Western, B., Bloome, D., & Percheski, C. (2008). Inequality among American Families with Children, 1975 to 2005. *American Sociological Review*, *73*(6), 903–921.

Williams, M. (2013). Occupations and British wage inequality, 1970s-2000s. *European Sociological Review*, *29*(4), 841–857.

Williams, M. (2017). An old model of social class? Job characteristics and the NS-SEC schema. *Work, Employment and Society*, *31*(1), 153–165.

Williamson, J. G. (2010). Five centuries of Latin American income inequality. *Revista de Historia Economica - Journal of Iberian and Latin American Economic History*, *28*(2), 227–252.

Winkler, A. E. (2022). Women's labor force participation: Family-friendly policies increase women's labor force participation, benefiting them, their families, and society at large. *IZA, Wolrd of Labour*, *2*(289).

Witt, U., Gross, C. (2019). The rise of the "service economy" in the second half of the twentieth century and its energetic contingencies. *Journal of Evolutionary Economics*, *30*, 231–246.

Wooldridge, J. (2010). *Econometric Analysis of Cross Section and Panel Data* (Second). MIT Press.

Wright, E. O. (1984). A General Framework for the Analysis of Class Structure. *Politics & Society*, *13*(4), 383–423.

Xie, Y., Killewald, A., & Near, C. (2016). Between- and Within-Occupation Inequality: The Case of High-Status Professions. *The Annals of the American Academy of Political and Social Science*, *663*(1), 53–79.

Young, M. (1958). *The rise of meritocracy 1870-2033: An essay on education and society.* Thames and Hudson.

Appendices

Chapter 2: Methods and Data

Detailed description of major groups from ISCO-88

Managers:
This group includes workers who plan, direct, and coordinate organisational operations and resources to achieve strategic objectives. These positions involve comprehensive oversight of departments or entire organisations, demanding advanced leadership competencies, strategic decision-making capabilities, and extensive industry-specific expertise. This group, however, can be quite diverse in terms of educational qualifications, and it is expected to have significant variance depending on the size of the workplace and the industry. In this group, we can find workers who, for instance, manage a small family-owned business and someone who is the CEO of a large transnational company. As such, the dispersion of wages among this type of worker can be significant, as well as the different social classes present in this group.

Professionals:
This classification represents occupations requiring advanced theoretical knowledge typically acquired through tertiary education. Professionals engage in complex problem-solving, research, and conceptual innovation across diverse disciplines. The category includes scientists, engineers, educators, and health professionals who apply specialised expertise within their respective domains. This is the occupational group where a higher educational level is required to be part of this category, and therefore, there is less educational heterogeneity and the differences between these workers stem from the type of career they chose and the industry they work.

Technicians and Associate Professionals:
This group comprises workers who perform technical and specialised support functions, typically under professional supervision. These occupations generally require post-secondary education and emphasise practical skill application. The category features medical technicians, IT support specialists, and engineering associates, who serve as crucial intermediaries in implementing professional expertise.

Clerical Support Workers:
This classification defines occupations centred on information management and organisational processes within administrative contexts. These workers maintain operational efficiency through tasks including data processing, customer service administration, and financial documentation. The role typically requires proficiency in contemporary office technologies and systematic attention to detail. The typical qualification level is secondary school or vocational training since they require good levels of literacy and numeracy skills, as well as good communication skills. Experience acquired in the roles is also considered relevant as part of their qualifications.

Service and Sales Workers:
This group includes occupations focused on personal service delivery, protective services, and commercial transactions. These positions, including retail personnel, hospitality professionals, and security officers, require strong interpersonal competencies and adaptability. The category reflects the significance of service-oriented roles in contemporary consumer economies. The level of qualification for these roles is similar to that of clerical workers.

Skilled Agricultural, Forestry, and Fishery Workers:
This classification describes workers engaged in resource management and cultivation within primary industries. These workers combine traditional methodologies with contemporary technologies to manage natural resources. This category is particularly relevant for countries such as Chile, and others in Latin America, where agriculture is a major economic sector and where large proportions of national production rely on natural resources. The level of skills for these workers is secondary education and

may require some level of specialised vocational education, as well as on-the-job training. Additionally, they required a high level of manual dexterity.

Craft and Related Trades Workers:
This group covers occupations requiring specialised technical expertise in construction, manufacturing, and maintenance. Workers, including electricians, plumbers, and carpenters, typically undergo structured apprenticeships or vocational education.

Plant and Machine Operators and Assemblers:
This classification includes workers who operate and monitor industrial equipment and processes. The category includes manufacturing operators, transport workers, and assembly specialists, requiring operational expertise and adherence to safety protocols. Similar to the previous two groups, it requires skills acquired in secondary school and specialised vocational training.

Elementary Occupations
This group consists of positions involving routine tasks requiring limited formal qualifications. These roles, including cleaning personnel, general labourers, and agricultural assistants, emphasise physical capability and basic practical skills. The level of qualification required for these jobs is primary school. Most of the expertise acquired in these roles comes from practice and on-the-job learning. This category often correlates with informal employment patterns, highlighting socioeconomic vulnerabilities within labour markets.

Armed Forces Occupations
This classification represents military personnel across operational and administrative functions. These positions require specialised training and physical preparedness within hierarchical structures. This category encompasses the most diverse range of skills, since it includes administrative workers as well as more complex roles which required tertiary levels of education. In terms of skills is the most heterogeneous, and the commonality is the area of work where these jobs sit.

Variable list for all years

The table indicates data availability for every year included in the analysis

Variable label	Var	1992	1994	1996	1998	2000	2003	2006	2009	2011	2013	2015	2017
Working activity	activ	X	X	X	X	X	X	X	X	X	X	X	X
National per capita autonomous income decile	dau	X	X	X	X	X	X	X	X	X	X	X	X
Regional per capita autonomous income decile	daur			X	X	X	X	X	X	X	X	X	X
Industrial Classification of Economic Activities	ec1	X	X	X	X	X	X	X	X	X	X	X	X
Civil status	ecivil	X	X	X	X	X	X	X	X	X	X	X	X
Age	edad	X	X	X	X	X	X	X	X	X	X	X	X
Educational level	educ	X	X		X	X	X	X	X	X	X	X	X
Educaitonal level vocational training	educft					X	X						
Years of education	esc	X	X	X	X	X	X	X	X	X	X	X	X
Dummy ethnicity	ethdummy			X		X							
Ethnicity	ethnicity			X		X							
Borough level Expansion Factor	expc	X	X	X	X	X	X	X	X	X	X	X	X
Regional Expansion Factor	expr	X	X	X	X	X	X	X	X	X	X	X	X
Household identificator	folio	X	X	X	X	X	X	X	X	X	X	X	X
Gender	gender	X	X	X	X	X	X	X	X	X	X	X	X
ID	id	X	X	X	X	X	X	X	X	X	X	X	X
Head of household marker 1	marca	X	X	X	X	X	X	X	X	X	X	X	X
Head or partner	nationality									X	X	X	
Number of people in the household	numper	X	X	X	X	X	X	X	X	X	X	X	X
Order	o	X	X	X	X	X	X	X	X	X	X	X	X
Did you work last week?	o1	X	X	X	X	X	X	X	X	X	X	X	X
Main occupation	oc1	X	X	X	X	X	X	X	X	X	X	X	X
Occupations 2-digit level	oc2	X	X	X	X	X	X	X	X	X	X	X	X
Occupations 3-digit level	oc3	X	X	X	X	X	X	X	X	X	X	X	X
Occupations 4-digit level	oc4			X	X	X	X	X	X	X	X	X	X
Occupation	oficio	X	X	X	X	X							
Relationship to the head of household	pco1	X	X	X	X	X	X	X	X	X	X	X	X

Description	Code												
Head of household marker	pco3	X	X	X	X	X	X	X	X	X	X	X	X
Head of household marker	pco4	X	X	X	X	X	X	X	X	X	X	X	X
National autonomous quintile	qaut	X	X	X	X	X	X	X	X	X	X	X	X
Regional per capital autonomous income quintile	qautr	X	X	X	X	X	X	X	X	X	X	X	X
Industrial Classification of Economic Activities	rama	X	X	X	X	X	X	X	X	X	X	X	X
Region	region	X	X	X	X	X	X	X	X	X	X	X	X
Region	regionz	X	X	X	X	X	X	X	X	X	X	X	X
Sex	sexo						X	X	X	X	X	X	X
Working with a contract	w_contract	X	X	X	X	X	X	X	X	X	X	X	X
Full-time workers	w_fulltime								X			X	X
Working hours per month	w_hours				X	X		X					
Working hours per week	w_hoursw	X	X			X		X	X	X	X	X	X
Employment status	w_ocat	X	X	X	X	X	X	X	X	X	X	X	X
Employment status - 3	w_ocat3	X	X	X	X	X	X	X	X	X	X	X	X
Total number of people at work	w_size	X	X	X	X	X	X	X	X	X	X	X	X
Workplace size	w_size4	X	X	X	X	X	X	X	X	X	X	X	X
Tenure - years	w_tenure				X			X		X	X	X	X
Type of work	w_type		X		X	X	X	X	X	X	X	X	X
Autonomous income	yautaj	X	X	X	X	X	X	X	X	X			X
Autonomous income - household	yautajh	X	X	X	X	X	X	X	X	X		X	X
Year	year	X	X	X	X	X	X	X	X	X	X	X	X
Monetary income	ymoneaj	X	X	X	X								
Monetary income - household	ymoneajh	X	X	X	X	X	X	X	X	X	X	X	X
Income from main occupation	yopraj	X	X	X	X	X	X	X	X	X	X	X	X
Income from main occupation - household	yoprajh						X	X	X	X	X	X	X
Income from main occupation household	yoprhaj	X	X	X	X	X							
Income from work	ytrabaj	X	X	X	X	X		X	X	X	X	X	X
Income from work - household	ytrabajh	X	X	X	X	X		X	X	X	X	X	X
Zone	zone	X	X	X	X	X	X	X	X	X	X	X	X

Detailed reforms affecting the labour market from 1990 to 2020

Year	Description of the reform
1990	**Minimum wage**: Since this year, minimum wage has regular adjustment to keep pace with inflation. Source: https://www.bcn.cl/portal/
1991	**Labour reform**: Restoration of labour rights and increasing work regulations, this year the government enacted two labour laws: Law No. 19,069, on collective bargaining and trade union organisations, and Law No. 19,250, which amended the Labour Code affecting the protection of workers, the individual employment contract, and labour jurisdiction. Source: https://www.bcn.cl/portal/
1999	**Asian economic crisis:** The crisis had an impact on national exports. The price of copper dropped negatively impacting the most significant primary export resource. Source: https://www.bcentral.cl
2001	**Labour reforms:** Enactment of the Law No. 19,759, which aimed at improving the regulation of unions and protect workers against anti-union practices, enhancing workers ability to negotiate collectively. Source: https://www.bcn.cl/portal/
2003	**Education reform**: Constitutional Reform establishing 12 years of compulsory and free education (Law No. 19,876). Source: https://bibliotecadigital.mineduc.cl/
2005	**Health reform**: This reform introduced Universal Access with Explicit Guarantees (AUGE), aimed at improving the quality and timeliness of care, as well as providing greater financial protection. Source: https://www.bcn.cl/portal/
2005	**Labour reform**: This reform reduced the weekly hours worked from 48 to 45. Source: https://www.dt.gob.cl/
2006	**Students protest**: Secondary students asking for better quality education and access. Sources: https://www.bbc.com/ and https://www.elmostrador.cl/
2007	**Labour reform**: Enactment of the Law No. 20,123 which established higher regulations for outsourcing and subcontracting. Source: https://www.dt.gob.cl/
2008	**Pension reform:** This reform created the Solidarity Pension Fund to address the limitations of the private pension system, up to then led by the AFPs. Source: https://www.dipres.gob.cl/
2009	**Global financial crisis**: This economic crisis affected the countries exports, again copper experienced a reduction of over 50% in its price, hugely affecting public and private revenues. Source: https://www.bcentral.cl
2011	**Changes to postnatal parental leave:** Extension to 24 weeks, allowing fathers to take leave. Source: https://www.dt.gob.cl/
2011	**Students protest:** Secondary and tertiary students asking for the state to be guarantee of quality, and improved access. Sources: https://www.bbc.com/ , https://uchile.cl and https://www.elmostrador.cl/
2014	**Tax reform:** Increase in corporate taxes to finance increase in social spending. Source: https://www.bcn.cl/portal/
2016	**Educational reform:** Free education at public universities for students from low-income households. Source: https://www.bcn.cl/portal/
2016	**Labour reform:** Enactment of the Law No. 20,940, which expanded and improved collective bargaining so that it can be exercised by more workers, through mechanisms that facilitate agreements with their

	employers, always appealing to institutionalised dialogue within companies. Source: https://www.bcn.cl/portal/				
2018	**Tax reform:**				
	Simplification of tax structures. Attempt to balance corporate incentives with social spending needs. Source: https://www.bcn.cl/portal/				
2019	**Social uprise "Estallido social":**				
	This constituted one of the most consequential social movements in the nation's history. Led by diverse social actors, the movement demanded an end to neoliberal reforms affecting essential services, education, healthcare, pensions and housing, revealing profound societal discontent with how successive governments had conceived and implemented economic progress. Sources: https://www.bbc.com/ , https://www.latercera.com/ and https://www.elmostrador.cl/				
2020	**Global public health crisis:** COVID-19 Pandemic				

Chapter 3: Chilean labour market for formal workers

CPI transformations for years used in the analysis

Year	Inflation	Inflation/100	1+Inflation/100	CPI 2017	CPI 2017/CPI year X
1992	15.4	0.15	1.15	33.6	2.98
1994	11.4	0.11	1.11	42.2	2.37
1996	7.4	0.07	1.07	49.0	2.04
1998	5.1	0.05	1.05	54.7	1.83
2000	3.8	0.04	1.04	58.7	1.70
2003	2.8	0.03	1.03	64.0	1.56
2006	3.4	0.03	1.03	68.9	1.45
2009	0.4	0.00	1.00	78.5	1.27
2011	3.3	0.03	1.03	82.3	1.22
2013	1.8	0.02	1.02	86.3	1.16
2015	4.3	0.04	1.04	94.3	1.06
2017	2.2	0.02	1.02	100.0	1.00

Own calculations using data from the World Bank:
 https://data.worldbank.org/indicator/FP.CPI.TOTL?locations=CL

Sample sizes

Sampling variables	Year	1992	1994	1996	1998	2000	2003	2006	2009	2011	2013	2015	2017	**Total**
Activity status	Employed (%)	51.0	50.9	51.7	50.4	50.1	51.5	53.1	50.0	51.8	53.3	54.0	54.8	52.0 (74,916,282)
	Unemployed (%)	3.0	3.6	3.1	5.5	5.8	5.5	4.2	5.7	4.3	4.0	4.4	4.7	4.5
	Inactive (%)	46.0	45.4	45.2	44.1	44.1	42.9	42.7	44.3	43.9	42.7	41.7	40.6	43.5
	Total N	9,615,784	10,017,866	10,337,607	10,675,542	10,976,129	11,634,076	12,385,857	12,976,277	13,366,427	13,667,081	13,977,485	14,380,346	144,010,477
Age groups	15 to 17	1.7	1.3	1.2	1.1	0.7	0.7	0.7	0.5	0.4	0.4	0.3	0.2	0.7
	18 to 65	96.1	96.4	96.3	96.2	96.5	96.6	96.0	96.2	96.0	95.5	95.3	94.5	95.9
	66 and older	2.2	2.4	2.5	2.7	2.8	2.7	3.3	3.3	3.6	4.1	4.5	5.3	3.4
	Total N	4,904,445	5,101,708	5,343,801	5,379,402	5,496,444	5,994,631	6,578,325	6,493,557	6,923,503	7,277,759	7,546,055	7,876,652	**74,916,282**
Employment status	Employer (%)	3.5	3.24	3.73	4.04	4.22	3.94	3.07	3.11	2.08	2	2.71	2.23	3.06
	Self-employed (%)	21.4	21.5	20.2	20.0	19.6	20.1	20.3	20.1	20.7	19.4	19.3	21.5	20.3
	Employee (%)	66.8	65.0	67.8	68.1	67.4	67.0	69.0	70.7	70.1	73.7	73.0	71.4	69.5
	Other (%)	8.3	7.7	8.3	7.9	8.9	9.0	7.6	6.1	7.1	4.9	5.1	4.8	6.9
	Missing cases (%)	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	Total N	4,904,445	5,101,708	5,343,801	5,379,402	5,496,444	5,994,631	6,578,325	6,493,557	6,923,503	7,277,759	7,546,055	7,876,652	74,916,282
Working with a contract	Yes (%)	62.3	58.7	56.1	55.5	55.8	56.1	59.6	61.4	64.0	66.7	66.8	64.8	61.1
	No (%)	10.5	14.5	16.1	17.1	16.6	16.2	15.8	13.7	11.4	10.1	9.9	9.7	13.2
	Missing cases (%)	27.3	26.8	27.8	27.5	27.7	27.7	24.6	24.9	24.6	23.2	23.3	25.5	25.7
	Total N	4,904,445	5,101,708	5,343,801	5,379,402	5,496,444	5,994,631	6,578,325	6,493,557	6,923,503	7,277,759	7,546,055	7,876,652	74,916,282
Working schedule	Part-time (%)	10.7	11.3	15.3	18.5	14.3	19.6	17.8	18.0	19.6	17.9	18.6	19.0	17.1
	Full-time (%)	58.3	63.5	58.2	57.2	57.6	55.5	63.9	66.1	66.9	67.7	70.2	70.7	63.7
	Overworked (%)	17.0	13.4	13.7	12.8	16.2	11.6	9.8	7.4	6.8	6.4	6.1	5.3	10.0
	Over 60 hrs (%)	14.0	11.9	10.7	10.1	11.6	8.0	8.1	5.6	5.2	5.6	5.1	4.9	8.0
	Missing cases (%)	0.0	0.0	2.0	1.5	0.4	5.4	0.5	2.9	1.5	2.4	0.0	0.1	1.4
	Total N	4,904,445	5,101,708	5,343,801	5,379,402	5,496,444	5,994,631	6,578,325	6,493,557	6,923,503	7,277,759	7,546,055	7,876,652	74,916,282
Final sample	Selected (%)	39.5	40.2	37.8	36.9	36.3	37.3	43.9	46.4	48.0	50.4	52.1	51.2	**44.1 (33,068,595)**
	Employed not selected (%)	60.5	59.8	62.2	63.1	63.7	62.7	56.2	53.6	52.0	49.6	47.9	48.8	55.9
	Total Employed N	4,904,445	5,101,708	5,343,801	5,379,402	5,496,444	5,994,631	6,578,325	6,493,557	6,923,503	7,277,759	7,546,055	7,876,652	74,916,282

STATA commands

```
//Sample//
*Employed population
tab year activ [fw=expr], row missing

*Age groups for individuals declared "active" o21
gen agegroups=.
replace agegroups=1 if age>14 & age<18
replace agegroups=2 if age>17 & age<66
replace agegroups=3 if age>65
label variable agegroups "Age groups"
label define agegroups 1"15 to 17" 2"18 to 65" 3"66 and older"
label values agegroups agegroups
tab agegroups

*Working hours
*Transform monthly to weekly hours
gen w_hoursr=w_hours/4.3 if w_hours!=.
label variable w_hoursr "From monthly to weekly hours"
sum w_hoursr w_hours
replace w_hoursr=1 if w_hoursr<1
replace w_hoursr = round(w_hoursr)
replace w_hoursw= w_hoursr if missing(w_hoursw)

gen w_hourscat=w_hoursw
recode w_hourscat (1/35=1) (36/50=2) (51/60=3) (61/220=4) (0=.)
label var w_hourscat "Working schedule"
label define w_hourscat 1"Part-time" 2"Full-time" 3"Overworked" 4"Over 60 hours a week"
label values w_hourscat w_hourscat
tab w_hourscat activ, col missing

*Sample
gen sample_all=.
label variable sample_all "Sample of active workers"
replace sample_all=1 if activ==1 & agegroups==2 & w_ocat3==3 & w_contract==1 & w_hourscat==2 & yopraj>0

*Final number of sampled workers 418,355  and  33,068,595  exp = 44% of employed

*Wage transformations
format yautaj yautajh        ymoneaj ymoneajh yopraj  yoprajh ytrabaj    ytrabajh %20.0f
*Check minimum wage for all years and how many cases have information on income

tabstat yopraj [fweight = expr] if sample_all==1, statistics( mean min max sd count ) by(year) format (%20.0f)
*Roughly 98%. of cases have data on income

/* Minimum wage per year
1992      33,800
1994      52,150
1996      65,500
1998      80,500
2000      100,000
2003      115,648
2006      135,000
2009      165,000
2011      182,000
2013      210,000
2015      241,000
2017      270,000
*/
replace sample_all=2 if year==1992 & yopraj<33800
```

```
replace sample_all=2 if year==1994 & yopraj<55150
replace sample_all=2 if year==1996 & yopraj<65500
replace sample_all=2 if year==1998 & yopraj<80500
replace sample_all=2 if year==2000 & yopraj<100000
replace sample_all=2 if year==2003 & yopraj<115648
replace sample_all=2 if year==2006 & yopraj<135000
replace sample_all=2 if year==2009 & yopraj<165000
replace sample_all=2 if year==2011 & yopraj<182000
replace sample_all=2 if year==2013 & yopraj<210000
replace sample_all=2 if year==2015 & yopraj<241000
replace sample_all=2 if year==2017 & yopraj<270000
replace sample_all=. if yopraj==.

tabstat yopraj [fweight = expr] if sample_all==1, statistics( mean min max sd count ) by(year) format (%20.0f)

*Roughly 20% of the sample is lost, depending on the year
*The highest loss is in 2006, keeping 78.2% of the original cases
*Estimating real wages based on the prices in 2017 using Chile's CPI information from the World Bank
gen cpi_r=.
replace cpi_r=2.98 if year==1992 & sample_all==1
replace cpi_r=2.37 if year==1994 & sample_all==1
replace cpi_r=2.04 if year==1996 & sample_all==1
replace cpi_r=1.83 if year==1998 & sample_all==1
replace cpi_r=1.70 if year==2000 & sample_all==1
replace cpi_r=1.56 if year==2003 & sample_all==1
replace cpi_r=1.45 if year==2006 & sample_all==1
replace cpi_r=1.27 if year==2009 & sample_all==1
replace cpi_r=1.22 if year==2011 & sample_all==1
replace cpi_r=1.16 if year==2013 & sample_all==1
replace cpi_r=1.06 if year==2015 & sample_all==1
replace cpi_r=1.00 if year==2017 & sample_all==1

gen rv_yautaj=yautaj*cpi_r if sample_all==1
gen rv_yautajh=yautajh*cpi_r if sample_all==1
gen rv_ymoneaj=ymoneaj*cpi_r if sample_all==1
gen rv_ymoneajh=ymoneajh*cpi_r if sample_all==1
gen rv_yopraj=yopraj*cpi_r if sample_all==1
gen rv_yoprajh=yoprajh*cpi_r if sample_all==1
gen rv_ytrabaj=ytrabaj*cpi_r if sample_all==1
gen rv_ytrabajh=ytrabajh*cpi_r if sample_all==1

label variable yopraj "Wage from main occupation"
label variable rv_yopraj "Real wage from main occupation"
label variable rv_ytrabajh "Real houseold income"

*Create log wages
gen log_rv_yopraj= log(rv_yopraj)
label variable log_rv_yopraj "Log of real wages from main occupation"

*Histograms with all years using log wages
histogram log_rv_yopraj [fweight = expr], by(year)

*Comparing deciles to mean wages
tabstat rv_yopraj [fweight = expr] if year==2017, statistics( mean ) by(dau) format (%10.0f)
table year dau [fweight = expr], c(mean rv_yopraj) format (%10.0f)

*Estimate mean wage by quintile using real wage, and the proportion of workers in each quintile for years 1992 and
2017
*85 without info on quintiles

tabstat rv_yopraj [fweight = expr], statistics( mean median min max sd count ) by(year) format (%15.0f)
```

```
table qaut year [fweight = expr] if year==1992 | year==2017, c(mean rv_yopraj median rv_yopraj count rv_yopraj)
format (%10.0f)


*Create log wages
gen log_rv_yopraj= log(rv_yopraj)
label variable log_rv_yopraj "Log of real wages from main occupation"

*Histograms with all years using log wages
histogram log_rv_yopraj [fweight = expr], by(year)

*Comparing deciles to mean wages

tabstat rv_yopraj [fweight = expr] if year==2017, statistics( mean ) by(dau) format (%10.0f)
table year dau [fweight = expr], c(mean rv_yopraj) format (%10.0f)


*Education
tab year educ , row nofreq missing
*Data from 1996 missing
tab year educ  if year!=1996 [fweight = expr], missing row nofreq

*Create new variable with fewer categories
gen educ_5=educ
labelbook educ
/*
        0   No formal education
        1   Primary incomplete
        2   Primary complete
        3   Secondary incomplete
        4   Secondary vocational incomplete
        5   Secondary complete
        6   Secondary vocational complete
        7   Tertiary education incomplete
        8   Tertiary education complete
*/

recode educ_5 (0=1) (3/4=2) (5/6=3) (7/8=4)
label variable educ_5 "Educational level completed"
label define educ_5 1"Lower than primary" 2"Primary complete" 3"Secondary complete"4"Tertiary complete"
label values educ_5 educ_5

tab year educ_5 [fweight = expr], missing
tab year educ_5 if year!=1996 [fweight = expr], missing row nofreq
bysort gender: tab year educ_5 [fweight = expr], row nofreq
bysort gender: tab year educ_5 [fweight = expr] if age>23, row nofreq
tab year educ_5 [fweight = expr] if age>23, row nofreq

*Wages and education
*Estimate general mean wages and wages by educational level
*Mean wage for workers aged 24 and older by year
tab year [fweight = expr] if age>23, sum (rv_yopraj)
tab year [fweight = expr] if age>23 & educ_5!=., sum (rv_yopraj)
table year educ_5 [fweight = expr]if age>23, c(mean rv_yopraj sd rv_yopraj count rv_yopraj ) format (%10.0f) missing
table year educ_5 [fweight = expr] if age>23 & educ_5!=.

*Education by deciles for specific years

tab year educ_5 [fweight = expr] if age>23 & educ_5!=. & dau==1 & year==1992 | year==2000 | year==2011 |
year==2017 , row nofreq
tab year educ_5 [fweight = expr] if age>23 & educ_5!=. & dau==10 & year==1992 | year==2000 | year==2011 |
year==2017 , row nofreq
```

```
*Gender
tab year gender , row nofreq missing
tab year gender [fweight = expr], missing row nofreq

*Recoding economic sector
labelbook rama
/*

        1   Agriculture and forestry
        2   Fishing - JOIN 1
        3   Mining and quarrying
        4   Manufacturing
        5   Electricity, gas, steam and water supply
        6   Construction
        7   Wholesale and retail trade; repair of motor vehicles and motorcycles
        8   Accommodation and food service activities - JOIN 7
        9   Transportation and storage
       10   Financial and insurance activities
       11   Real estate activities - JOIN 10
       12   Public administration and defence; compulsory social security - JOIN 14
       13   Education - JOIN 14
       14   Human health and social work activities
       15   Other service activities - JOIN 14
       16   Activities of households as employers
       17   Activities of extraterritorial organizations and bodies - JOIN 16
       18   Not specified
*/

tab rama year, missing col nofreq
tab ec1 year, missing col nofreq
recode rama (99=18)
recode ec1 (0=18)

gen rama_sum=rama
label variable rama_sum "Economic activities"
recode rama_sum (2=1) (8=7) (11=10) (12/15=14) (17=16)
label define rama_sum 1"Agriculture and finshing" 3"Mining" 4 "Manufacturing" 5"Electricity, gas and water"
6"Construction" 7" Wholesale and accommodation" 9 "Transportation" 10 "Financial services and real state" 14
"Social services" 16"Other activities" 18"Not specified"
label values rama_sum rama_sum
tab rama rama_sum, missing

recode rama_sum (18=16)

tab rama_sum year [fweight = expr], missing col nofreq
tab rama_sum year [fweight = expr], col nofreq

bysort year: tab rama_sum gender [fweight = expr] if year==1992 | year==2017, col nofreq

*Economic activity
tab rama_sum year [fweight = expr], col nofreq

*create three sectors variable
gen rama3=rama_sum
label variable rama3 "Three main economic sectors"
label define rama3 1"Primary sector" 2"Secondary sector" 3"Tertiary sector" 4"Other activities"
/*
        1   Agriculture and forestry
        3   Mining and quarrying
        4   Manufacturing
```

```
        5   Electricity, gas, steam and water supply
        6   Construction
        7   Wholesale and retail trade; repair of motor vehicles and motorcycles
        9   Transportation and storage
        10  Financial and insurance activities
        14  Human health and social work activities
        16  Other activities
                    */
recode rama3 (1/3=1) (4/6=2) (7/14=3) (16=4)
label values rama3 rama3
tab rama_sum rama3, missing

*Rama with desagregated info on services
gen rama_serv=rama_sum
label variable rama3 "Economic sectors - detailed services"
label define rama_serv 1"Primary sector" 2"Secondary sector" 7" Wholesale and accommodation" 9 "Transportation"
10 "Financial services and real state" 14 "Social services" 16"Other activities"
recode rama_serv (1/3=1) (4/6=2)
label values rama_serv rama_serv
tab rama_serv year [fweight = expr], col nofreq


*Estimate ratios
table oc1 year [fweight = expr], c(mean rv_yopraj) format (%10.0f)
tab year [fweight = expr],sum (rv_yopraj)

use "s_app_r92_17.dta"
save"MLM1992.dta", replace
keep if year==1992
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

*Multilevel regressions / Random intercept model for one digit occupations. Best option for fewer categories
*Created different datasets to run the analysis
use "s_app_r92_17.dta"
save"MLM1994.dta", replace
keep if year==1994
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM1996.dta", replace
keep if year==1996
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM1998.dta", replace
keep if year==1998
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
```

```
save"MLM2000.dta", replace
keep if year==2000
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2003.dta", replace
keep if year==2003
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2006.dta", replace
keep if year==2006
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2009.dta", replace
keep if year==2009
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2011.dta", replace
keep if year==2011
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2013.dta", replace
quietly keep if year==2013
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2015.dta", replace
keep if year==2015
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
clear

use "s_app_r92_17.dta"
save"MLM2017.dta", replace
keep if year==2017
mixed log_rv_yopraj  || oc1:
estat icc
save, replace
```

clear

Chapter 4: Households and the impact of structural transformations

STATA commands

```
**Total households  230,871 = 149,518  couples +  81,353 single
** Working households single and couple - where the head or the partner works
gen workhh=workheadsh if workheadsh>0 & workheadsh<3
label variable workhh "Working households"
tab workhh
tab workheadsh hhlp11
tab workheadsh hhw
*Total working households: 154,740 = 118,089 one works + 36,651 both work**
*Total working households: 154,740 = 38,238 single led works + 116,502 working couple**
*Total working households: 154,740 = 38,238 single led works + 79,851 couple one works + 36,651 both work**
*Total working households: 154,740 = 108,450 only head works + 9,639 only partner works + 36,651 both work**


**Sample working households // 154,740
egen samplewh=count(workhh), by (id)
label variable samplewh "Working households sample"
tab samplewh
tab samplewh workhh


**Discard households without income
drop if samplewh!=1


** TOTAL SAMPLE OF HOUSEHOLDS 154,740  ***************
**Groups variable that divides the sample****************************************
tab groups year [fweight = expr], nofreq col


// Checking that type of households matches the other variables
tab typehh extfamhh
tab typehh caringresp15
tab typehh hhlp1


//Types of housenods by year and number of people in the household
tabulate typehh year [fweight = expr] if pco1==1, summarize(numper) nostandard nofreq noobs
tabulate caringresp15 year if coupwe==3 [fweight = expr], summarize(numper) nostandard nofreq noobs
tabulate caringresp15 year if coupwe<3 [fweight = expr], summarize(numper) nostandard nofreq noobs


//Examine dual and single earning couples with and without children
//onlyworkhous to determine single and dual earning couples, and caringresp (children under 18 yo) for weighted
sample


tab workhous year if pco1==1 [fweight = expr], col
tab coupwe year if pco1==1 [fweight = expr], col
bysort year: table onlyworkhous caringresp  [fweight = expr], contents(mean capwork)


//Income from work by gender and year
tab gender year [fweight = expr] if activ1==1 & age>17 & age<66, sum(capwork)nostandard nofreq noobs


//Real income from work and children for couples and breadwinners - also did the calculations for income from
work, and log income from work


bysort year: tab groups caringresp15 [fweight = expr], summarize(capwork) nostandard nofreq noobs


** Gen workage


gen workage=1 if age>17 & age<66
```

```
//Hours worked by type of household - hours per week, and estimated hours per month
tab earningcoup year [fweight = expr] if age>17 & age<66 & groups<4, sum (o_hoursmonthh)nostandard nofreq
noobs
tab earningcoup year [fweight = expr] if age>17 & age<66 & groups<4, sum (o_hourswh)nostandard nofreq noobs

** Create variable for dual earning couples and male breadwinners with and without children*  110,562
gen coup2=earningcoup if groups==2 | groups==3
tab groups coup2
label define coup2 1"Dual earning" 2"Dual earning w/children" 3"Male breadwinner" 4"Male breadwinner
w/children"
label values coup2 coup2
label variable coup2 "Dual earning and male breadwinner couples"
tab coup2


****Create variable for dual earning and male breadwinner couples***  110,562 (dual earners 36,651 +  73,911 male
breadwinners )
gen coup1=coup2
replace coup1=1 if coup2<3
replace coup1=2 if coup2<5 & coup2>2
label define coup1 1"Dual earning" 2"Male breadwinner"
label values coup1 coup1
tab coup1 coup2
tab coup1 year [fweight = expr], nofreq col

//Working couples years of education
tab coup1 year [fweight = expr] if age>17 & age<66, sum (esc_wh)nostandard nofreq noobs
tab coup1 year [fweight = expr] if age>17 & age<66, sum (esc_hh)nostandard nofreq noobs

//Working couples first and fifth quintile
bysort year: tab qaut coup1 [fweight = expr] if age>17 & age<66, nofreq col

// same analysis with income per capita///
//from the data set: ingreso per capita autonomo (1992-2011), ingreso per capita ingreso total en el hogar//
//Best to estimate my own household income per capita from work using caphh (real income from work household
capped)/peopdispY (total number of people in the households using equivalence scales)
//define numpercapita using equivalence scales
// 1 to the first household member, 0.5 to each additional adult and 0.3 to each child (under 15 yo), OECD-modified
scale used also
//The only caviat is whether to use household income from work or total household income. I chose the former,
justify


**Ineqdeco for household real income from work capped
ineqdeco caphh [fweight = expr] if year==1992 & pco1==1
ineqdeco caphh [fweight = expr] if year==2000 & pco1==1
ineqdeco caphh [fweight = expr] if year==2011 & pco1==1
ineqdeco caphh [fweight = expr] if year==2017 & pco1==1

ineqdeco caphh [fweight = expr] if pco1==1, by (year)

*Summarise stats for couples with  without detail on percentiles by year *
ineqdeco caphh [fweight = expr] if year==1992, by (coup1)
ineqdeco caphh [fweight = expr] if year==2000, by (coup1)
ineqdeco caphh [fweight = expr] if year==2011, by (coup1)
ineqdeco caphh [fweight = expr] if year==2017, by (coup1)

*Estimating the variance of real log wages and log family wage for families with children and all families (capped)**

*Income
```

```
tabstat capwork [fweight = expr] if activ1==1, statistics( var ) by(year)
tabstat caphh [fweight = expr] if pco1==1, statistics( var ) by(year)


*Stats for men*
tabstat capwork [fweight = expr] if activ1==1 & gender==1, s(var) by (year)
*Stats for households with children*
tabstat caphh [fweight = expr] if pco1==1 & caringresp15==1, s(variance) by (year)


*Log income
tabstat lncapwork [fweight = expr] if activ1==1, s(variance) by(year)
tabstat lncaphh [fweight = expr] if pco1==1, s(variance) by(year)
*Stats for men*
tabstat lncapwork [fweight = expr] if activ1==1 & gender==1, s(var) by (year)
*Stats for households with children*
tabstat lncaphh [fweight = expr] if pco1==1 & caringresp15==1, s(variance) by (year)



**Boxplots for types of households and log real income from workcoupcont
graph hbox lncaphh [fweight = expr], over(hhlp11) over(year)
graph hbox lncaphh [fweight = expr], over(coup1) over(year)

graph hbox caphh [fweight = expr], over(hhlp11) over(year)
graph hbox caphh [fweight = expr], over(coup1) over(year)

*Barchart education, gender and age
graph hbar [fweight = expr] if age>23, over(educ4) over(gender) over(year)

**regressing couple's education

by year, sort : regress esc_wh esc_hh [fweight = expr]
by year, sort : regress esc_hh esc_wh [fweight = expr]

** Wages for males, husbands, females and wives - active and capearn and lncapearn
table year gender if activ1==1 [fweight = expr], c(mean capearn p50 capearn mean lncapearn p50 lncapearn)
table year gender if activ1==1 & wife==1 | husband==1 [fweight = expr], c(mean capearn p50 capearn mean
lncapearn p50 lncapearn) //male & female partner


** Age, college degree and income for women, men, wife and husband for every year**
tab gender year if age>17 [fweight = expr], sum(age) nostandard nofreq noobs          //Age by gender, wife
and husband
tab gender year if wife==1 | husband==1 [fweight = expr], sum(age) nostandard nofreq noobs //male & female
partner

bysort gender: tab educ4 year if age>24 [fweight = expr], nofreq col          //Education by gender
bysort gender: tab educ4 year if age>24 & wife==1 | husband==1 [fweight = expr], nofreq col  //male & female
partner

bysort gender: tab educ4 year if age>17 [fweight = expr], sum(capwork) nostandard nofreq noobs      //Education
and income by gender
bysort gender: tab educ4 year if age>17 & wife==1 | husband==1 [fweight = expr], sum(capwork) nostandard nofreq
noobs //male & female partner


** Returns to education for workers over 24

**Descriptive results households' structure
tab typehh year [fweight = expr], nofreq col


** Income overtime by type of family
```

bysort coup1: tabstat caphh if pco1==1 & coup1!=. [fweight = expr], statistics(mean p50 sd min max n) by(year)
bysort coup2: tabstat caphh if pco1==1 & coup2!=.[fweight = expr], statistics(mean p50 sd min max n) by(year)

*Correlation between couples' income from work**
by year, sort : correlate femaleYh maleYh [fweight = expr] if coup1==1, means // Only dual earning couples
sum femaleYh maleYh [fweight = expr] if coup1==1
sum femaleYh [fweight = expr] if femaleYh>0 //all females incomes
sum maleYh [fweight = expr] if maleYh>0   // all males income

table year [fweight = expr], c(mean gencont_p)   //Female contribution to the household

Average gender pay gap
mean capwork if activ1==1 [fweight = expr], over(gender year)
mean o_hoursw if activ1==1 [fweight = expr], over(gender year)

**regressing couple's incomes - hhY head of household income partnerYh partner's income

by year, sort : regress hhY partnerYh [fweight = expr] if coup1==1

** Estimating earnings by gender and spouses, % married couples, % working sopouses and Total income from male and female partners everything by quitile
*Table earnings from work by gender - general figures
table year gender if activ1==1 & age>17 & age<66 [fweight = expr], contents(median capwork) by(qaut)
*Table earnings for spouses
table year gender if activ1==1 & hhlp1==3 & age>17 & age<66 [fweight = expr], contents(median capwork) by(qaut)
* Percentage of married couples
by qaut, sort : tabulate year hhlp11 [fweight = expr], nofreq row
*Table for working spouses
by qaut, sort: tab year phhw if hhlp11==3 [fweight = expr], nofreq row
*Total income from female and male partners
table qaut year if hhlp11==3 [fweight = expr], contents (median capwork)

*Same analysis with log wages from work
table year gender if activ==1 & age>17 & age<66 [fweight = expr], contents(median lncapwork) by(qaut)
*Table earnings for spouses
table year gender if activ==1 & hhlp1==3 & age>17 & age<66 [fweight = expr], contents(median lncapwork) by(qaut)

** Types of households by year*
*Quintile distribution households
bysort groups: tab qaut year if pco1==1 [fweight = expr], nofreq col
bysort coup1: tab qaut year if pco1==1 [fweight = expr], nofreq col
bysort coup2: tab qaut year if pco1==1 [fweight = expr], nofreq col

*Education
bysort coup1: tab educ4 year if pco3<3 [fweight = expr], nofreq col
*Occupation
bysort coup1: tab oc5 year if pco3<3 [fweight = expr], nofreq col
* Hours worked per worker by household
table year coup1 if activ1==1 & age>17 & age<66 [fweight = expr], contents(mean o_hoursw) by(qaut)
table year coup1 if activ1==1 & age>17 & age<66 [fweight = expr], contents(mean o_hoursw)

*Hours worked per household by household
table year coup1 if pco1==1 & age>17 & age<66 [fweight = expr], contents(mean o_hourswh)
*Household size by household
table year coup1 if pco1==1 [fweight = expr], contents(mean numper)

```
table year coup2 if pco1==1 [fweight = expr], contents(mean numper)
table typehh groups, c(mean numper)
tab typehh groups

*Number of children by household
table year coup1 if pco1==1 & num_child_15>0 [fweight = expr], contents(mean num_child_15)

*Total people working by type of household
table year coup1 if pco1==1 [fweight = expr], contents(mean totpeoplewh1)

*Compare Gini and other inequality measures between income from work for FT workers aged between 18 and 65
yo, and household income from work -
**Ineqdeco for household income from work

ineqdeco capwork [fweight = expr] if year==1992 & activ1==1 & age>17 & age<66
ineqdeco capwork [fweight = expr] if year==2000 & activ1==1 & age>17 & age<66
ineqdeco capwork [fweight = expr] if year==2011 & activ1==1 & age>17 & age<66
ineqdeco capwork [fweight = expr] if year==2017 & activ1==1 & age>17 & age<66

bysort year: sgini capwork if activ1==1 [fweight=expr] // all households with working heads or partners
bysort year: sgini capwork if groupshh==2 & activ1==1 [fweight=expr] // working couples
bysort year: sgini capwork if groupshh==3 & activ1==1 [fweight=expr] // male breadwinner

**Ineqdeco for household income from work by year
ineqdeco caphh [fweight = expr]if year==1992
ineqdeco caphh [fweight = expr]if year==2000
ineqdeco caphh [fweight = expr]if year==2011
ineqdeco caphh [fweight = expr]if year==2017

bysort year: sgini caphh [fweight=expr] // all households with working heads or partners
bysort year: sgini caphh if groups==2 [fweight=expr] // working couples
bysort year: sgini caphh if groups==3 [fweight=expr] // male breadwinner


**Income and education
table educ4 year if activ1==1 & fulltime==1 [fweight = expr], contents(mean capwork )
table educ4 year if activ1==1 & fulltime==1 [fweight = expr], contents(median capearn )

*Gender fulltime year**
bysort year: tab fulltime gender [fweight = expr], nofreq col

**Types of households 4 overall distribution
tab groups year if pco1==1 [fweight = expr], col nofreq

**stats for married couples
*age by year
tab gender year if age>17, col nofreq //working age population
bysort gender:tabstat age if age>17, statistics( mean) by(year) f(%12.1f)


** Check distribution of income using hours worked and activity status and income from work and main occupations
sum capearn capwork if activ1!=1 // previously set inactive households to those where none of the heads or partner
works
sum capearn capwork

*Education
**Education by gender for workers older than 23 years olde

bysort gender: tab educ5 year if age>23 [fweight = expr], nofreq col

**Industry distrution
```

```
tab ramaISIC year [fweight = expr] if activ1==1, col nofreq
tab arama year [fweight = expr] if activ1==1, col nofreq
tab arama3 year [fweight = expr] if arama3<4 & activ==1, col nofreq
*% of wifes in the labour force by year*
tab activ1 year [fweight = expr] if wife==1, missing col nofreq

*Households led by females
tab gender year if pco1==1 [fweight = expr], col nofreq

*Age
graph hbox age if activ1==1 [fweight = expr], over (gender) over(year)

* Children
graph hbox num_child [fweight = expr] if pco1==1, over(year)

*Education gender and civil status by year
by year, sort : tabulate ecivil3 gender [fweight = expr] if esc1225==2, chi2 col nofreq nolabel

*Types of households by gender and year*
bysort year: tab groupshh gender [fweight = expr] if pco3<3 & year==1992 | year==2017, chi2 col nofreq nolabel
**Log earnings for families with and without children and working men*

**Regression analysis to compare types of households using log income from work by households
bysort year: regress lncaphh i.groups numper caringresp15 extfamt i.ecivil3 totpeoplewh1 if pco1==1 [fweight = expr], vce(ols) beta cformat(%9.1f) pformat(%5.1f) sformat(%8.1f)

bysort year: regress caphh i.groups numper caringresp15 extfamt i.ecivil3 totpeoplewh1 if pco1==1 [fweight = expr], vce(ols) beta cformat(%9.1f) pformat(%5.1f) sformat(%8.1f)
```

Reweighting method

```
**logit regression for period 1 with 1 cov and with more covariates, saving the predicted probabilities
// year2 1992=0 2017=1
// gen year22 1992=1 & 2017=0
gen year22=0 if year==2017
replace year22=1 if year==1992
tab year22 year2
label define year22 0"2017" 1"1992"
label values year22 year22

*Minimal cleaning
drop if tersex==.
drop if inda1==.

save,replace
*New trial droping workers younger than 24 years old
save "Data append/92_17_workinghhDR24.dta"
sum age
drop if age<24
sum age

****************************************************
**Model 2 1992=0 and 2017=1
****************************************************
        svy : logit year2 i.groupshh
        predict p11, rules   // probability to "be in period 1 (2017)" given household structure in 2017
        label variable p11 "Probability to be in a similar household structure as in 2017"
        svy : logit year2 i.groupshh i.groupshh#i.hhest
        predict p21, rules   // probability to "be in period 1 (2017)" given household struct and other cov" second
model
        label variable p21 "Probability to be in similar household structures as in 2017"
        svy : logit year2 i.groupshh i.groupshh#(i.hhest i.tersex)
```

```
        predict p31, rules   // probability to "be in period 1 (2017)" given household struct and other cov" third
model model
        label variable p31 "Probability to be in similar household structures, gender and education as in 2017"
        svy : logit year2 i.groupshh i.groupshh#(i.hhest i.tersex i.inda1)
        predict p41, rules   // probability to "be in period 1 (2017)" given household struct and other cov" fourth
model model
        label variable p41 "Probability to be in a similar household structures, gender, education and industry as in
2017"
        svy : logit year2 i.tersex
        predict p51, rules   // probability to "be in period 1 (1992)" given household structure in 1992
        label variable p51 "Probability to be in a similar gender and education distribution as in 1992"
        svy : logit year2 i.inda1
        predict p61, rules   // probability to "be in period 1 (1992)" given household structure in 1992
        label variable p61 "Probability to be in a similar economic sector distribution as in 1992"

        //creating the reweighting factors for period 0: Creating a weight for to estimate the probability in 1992
using the distribution of 2017
        gen rw11 = cond(year2==1 , 1 , p11/(1-p11)) //reweighting for 1992 with the probit for 2017 first model
        gen rw21 = cond(year2==1 , 1 , p21/(1-p21)) //reweighting for 1992 with the probit for 2017 second model
        gen rw31 = cond(year2==1 , 1 , p31/(1-p31)) //reweighting for 1992 with the probit for 2017 third model
        gen rw41 = cond(year2==1 , 1 , p41/(1-p41)) //reweighting for 1992 with the probit for 2017 third model
        gen rw51 = cond(year2==1 , 1 , p51/(1-p51)) //reweighting for 2017 with the probit for 1992 tersex
        gen rw61 = cond(year2==1 , 1 , p61/(1-p61)) //reweighting for 2017 with the probit for 1992 inda1
        // Reweighting factors so the distribution of covariates in period 1 (2017) is similar to the one in period 0
(1992)

        tab groupshh year2 [aw=expr] , col
        tab groupshh year2 [aw=expr*rw11] , col        //should have similar distributions of groups to that of 2017
        tab groupshh year2 [aw=expr*rw21] , col                        //should have similar distributions of groups to that
of 2017
        tab groupshh year2 [aw=expr*rw31] , col                        //should have similar distributions of groups to that
of 2017
        tab groupshh year2 [aw=expr*rw41] , col                        //should have similar distributions of groups to that
of 2017

        tab hhest year2 [aw=expr] , col
        tab hhest year2 [aw=expr*rw21] , col        //should have similar distributions to that of 2017
        tab hhest year2 [aw=expr*rw31] , col        //should have similar distributions to that of 2017
        tab hhest year2 [aw=expr*rw41] , col

        tab tersex year2 [aw=expr] , col
        tab tersex year2 [aw=expr*rw31] , col        //should have similar distributions to that of 2017
        tab tersex year2 [aw=expr*rw41] , col        //should have similar distributions to that of 2017
        tab tersex year2 [aw=expr*rw51] , col //should have similar distributions to that of 2017

        tab inda1 year2 [aw=expr] , col
        tab inda1 year2 [aw=expr*rw41] , col        //should have similar distributions to that of 2017
        tab inda1 year2 [aw=expr*rw61] , col  //should have similar distributions to that of 2017

* 1992 inequality
        sgini dispYpc if year2==0 & pco1==1 [fw=expr] //original Gini coefficient in 1992 - households disp inc
        sgini capwork if year2==0 [fw=expr] //original Gini coefficient in 1992 - income from work

* Estimated Gini disp inc for heads in 1992 if the population had the same distribution as in 2017 (what is held fixed
is within group inequality)
        sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw11] //effects of changes in composition of household
        sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw51] //effects of changes in composition of tersex
        sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw61] //effects of changes in composition of inda1
        sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw21] // effects of changes in composition of households
and households
```

sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw31] // effects of changes in composition of household, households and tersex

sgini dispYpc if year2==0 & pco1==1 [aw=expr*rw41] // effects of changes in composition of household, households, tersex and industry

* Estimated Gini income from work in 1992 if the population had the same distribution as in 2017 (what is held fixed is within group inequality)

sgini capwork if year2==0 [aw=expr*rw11] //effects of changes in composition of household

sgini capwork if year2==0 [aw=expr*rw51] //effects of changes in composition of tersex

sgini capwork if year2==0 [aw=expr*rw61] //effects of changes in composition of inda1

sgini capwork if year2==0 [aw=expr*rw21] // effects of changes in composition of households and households

sgini capwork if year2==0 [aw=expr*rw31] // effects of changes in composition of household, households and tersex

sgini capwork if year2==0 [aw=expr*rw41] // effects of changes in composition of household, households, tersex and industry

* Gini in 2017

sgini dispYpc if year2==1 & pco1==1 [aw=expr] //final Gini coefficient households - effects of the conditional distributions.

sgini capwork if year2==1 [aw=expr] //final Gini coefficient Y from w- effects of the conditional distributions.

*The difference between the final Gini and the estimated Gini with reweighting by covariates. If there is a high difference with the last one being lower it means that is not so much about the changes in the composition of the population. What would explain the decline is the changes in the earning distribution conditional to the covariates, meaning it is in the residual distribution of earnings

**Apply a bootstrap for the different contributions - do bootstraps only for heads of households

//Graphic representation of wages
**1992
twoway (kdens dispYpc, ll(0)) (kdens lndispYpc, yaxis(2) xaxis(2)) if pco1==1 & year2==0, ///
        xti(Disposable income) xti(ln(disposable income), axis(2)) ///
        yti(density of income) yti(density of ln(income), axis(2)) ///
        legend(order(1 "income" 2 "ln(income)") pos(3))
        graph export "DR_1/graphs/24kens_disYpc92.jpg", as(jpg) name("Graph") quality(90)
**2017
twoway (kdens dispYpc, ll(0)) (kdens lndispYpc, yaxis(2) xaxis(2)) if pco1==1 & year2==1, ///
        xti(Disposable income) xti(ln(disposable income), axis(2)) ///
        yti(density of income) yti(density of ln(income), axis(2)) ///
        legend(order(1 "income" 2 "ln(income)") pos(3))
        graph export "DR_1/graphs/24kens_disYpc17.jpg", as(jpg) name("Graph") quality(90)

Quintile regression analysis

```
**********************************
//Only for households only groups
**********************************
        preserve
foreach hquantg of numlist 1(2)99 {
        quietly qreg lndispYpc i.groups [pw=expr] if year2==0 & pco1==1 , quantile(`hquantg')
        qui predict lnq_0_`hquantg'    // predict for both periods 0 and 1 !
        qui gen ghq_0_`hquantg' = exp(lnq_0_`hquantg')

        quietly qreg lndispYpc i.groups [pw=expr] if year2==1 & pco1==1, quantile(`hquantg')
        qui predict lnq_1_`hquantg'
        qui gen ghq_1_`hquantg' = exp(lnq_1_`hquantg')
}

        keep upid ghq* year2 expr pco1
        drop if pco1!=1
```

```
reshape long ghq_0_ ghq_1_ , i(upid year2) j(hquantg)
reshape error
save "DR_1/input/24quanthhg.dta"
use "DR_1/input/24quanthhg.dta"   //Types of households
sample 50 //sampling 50% of cases

sgini ghq_0_ if year2==0  [aw=expr] //Predicted Gini 1992 using samples based on indicators from 1992
```
Counterfactuals estimates which are holding constant the characteristics of the other period
```
sgini ghq_0_ if year2==1  [aw=expr] //Predicted Gini 2017 if conditions from 1992 would have remained
```
the same
```
sgini ghq_1_ if year2==0  [aw=expr] //Predicted Gini 1992 if conditions from 2017 would have "remained"
```
the same
```
sgini ghq_1_ if year2==1  [aw=expr] //Predicted Gini 2017 using random sampling based on indicators
```
from 2017
```
*save "DR_1/input/24quanthhgsample.dta"
*use "Data append/92_17_workinghhDR24.dta"
sgini dispYpc if year2==0 & pco1==1 [pw=expr] //actual Gini ln of disposable income 1992
sgini dispYpc if year2==1 & pco1==1 [pw=expr] //actual Gini ln of disposable income 2017
```


```
**********************************
//Only for households only tersex
**********************************
                preserve
        foreach thquant of numlist 1(2)99 {
                quietly qreg lndispYpc  i.tersex [pw=expr] if year2==0 & pco1==1 , quantile(`thquant')
                qui predict lnq_0_`thquant'    // predict for both periods 0 and 1 !
                qui gen thq_0_`thquant' = exp(lnq_0_`thquant')

                quietly qreg lndispYpc  i.tersex [pw=expr] if year2==1 & pco1==1, quantile(`thquant')
                qui predict lnq_1_`thquant'
                qui gen thq_1_`thquant' = exp(lnq_1_`thquant')
        }

        keep upid thq* year2 expr pco1
        drop if pco1!=1
        reshape long thq_0_ thq_1_ , i(upid year2) j(thquant)
        reshape error
        save "DR_1/input/24quanthht.dta"
        use "DR_1/input/24quanthht.dta" // Education and sex
        sample 50 //sampling 50% of cases

        sgini thq_0_ if year2==0  [aw=expr] //Predicted Gini 1992 using samples based on indicators from 1992
```
Counterfactuals estimates which are holding constant the characteristics of the other period
```
        sgini thq_0_ if year2==1  [aw=expr] //Predicted Gini 2017 if conditions from 1992 would have remained
```
the same
```
        sgini thq_1_ if year2==0  [aw=expr] //Predicted Gini 1992 if conditions from 2017 would have "remained"
```
the same
```
        sgini thq_1_ if year2==1  [aw=expr] //Predicted Gini 2017 using random sampling based on indicators
```
from 2017
```
        *save "DR_1/input/24quanthhtsample.dta"
        *use "Data append/92_17_workinghhDR24.dta"
        sgini dispYpc if year2==0 & pco1==1 [pw=expr] //actual Gini ln of disposable income 1992
        sgini dispYpc if year2==1 & pco1==1 [pw=expr] //actual Gini ln of disposable income 2017
```


```
**********************************
//Only for households only inda1
**********************************
```

```
                preserve
        foreach ihquant of numlist 1(2)99 {
                quietly qreg lndispYpc i.groups i.inda1 [pw=expr] if year2==0 & pco1==1 , quantile(`ihquant')
                qui predict lnq_0_`ihquant'    // predict for both periods 0 and 1 !
                qui gen ihq_0_`ihquant' = exp(lnq_0_`ihquant')

                quietly qreg lndispYpc i.groups i.inda1 [pw=expr] if year2==1 & pco1==1, quantile(`ihquant')
                qui predict lnq_1_`ihquant'
                qui gen ihq_1_`ihquant' = exp(lnq_1_`ihquant')
        }

        keep upid ihq* year2 expr pco1
        drop if pco1!=1
        reshape long ihq_0_ ihq_1_ , i(upid year2) j(ihquant)
        reshape error
        save "DR_1/input/24quanthhi.dta"
        use "DR_1/input/24quanthhi.dta" //industry
        sample 50 //sampling 50% of cases

        sgini ihq_0_ if year2==0  [aw=expr] //Predicted Gini 1992 using samples based on indicators from 1992
Counterfactuals estimates which are holding constant the characteristics of the other period
        sgini ihq_0_ if year2==1  [aw=expr] //Predicted Gini 2017 if conditions from 1992 would have remained
the same
        sgini ihq_1_ if year2==0  [aw=expr] //Predicted Gini 1992 if conditions from 2017 would have "remained"
the same
        sgini ihq_1_ if year2==1  [aw=expr] //Predicted Gini 2017 using random sampling based on indicators
from 2017

        *save "DR_1/input/24quanthhisamplesample.dta", replace
        *use "Data append/92_17_workinghhDR24.dta"
        sgini dispYpc if year2==0 & pco1==1 [pw=expr] //actual Gini ln of disposable income 1992
        sgini dispYpc if year2==1 & pco1==1 [pw=expr] //actual Gini ln of disposable income 2017


*********************************
//Only for households  by all covariates
*********************************
                preserve
        foreach hquant of numlist 1(2)99 {
                quietly  qreg  lndispYpc  i.groups  i.tersex  i.inda1  [pw=expr]  if  year2==0  &  pco1==1  ,
quantile(`hquant')
                qui predict lnq_0_`hquant'    // predict for both periods 0 and 1 !
                qui gen hq_0_`hquant' = exp(lnq_0_`hquant')

                quietly  qreg  lndispYpc  i.groups  i.tersex  i.inda1  [pw=expr]  if  year2==1  &  pco1==1,
quantile(`hquant')
                qui predict lnq_1_`hquant'
                qui gen hq_1_`hquant' = exp(lnq_1_`hquant')
        }

        keep upid hq* year2 expr pco1
        drop if pco1!=1
        reshape long hq_0_ hq_1_ , i(upid year2) j(hquant)
        reshape error
        save "DR_1/input/24quanthh.dta"
        use "DR_1/input/24quanthh.dta"    //Types of households, tersex and industry
        sample 50 //sampling 50% of cases

        sgini hq_0_ if year2==0  [aw=expr] //Predicted Gini 1992 using samples based on indicators from 1992
Counterfactuals estimates which are holding constant the characteristics of the other period
```

sgini hq_0_ if year2==1 [aw=expr] //Predicted Gini 2017 if conditions from 1992 would have remained the same
sgini hq_1_ if year2==0 [aw=expr] //Predicted Gini 1992 if conditions from 2017 would have "remained" the same
sgini hq_1_ if year2==1 [aw=expr] //Predicted Gini 2017 using random sampling based on indicators from 2017

*save "DR_1/input/"DR_1/input/24quanthhsample.dta"
*use "Data append/92_17_workinghhDR24.dta"
sgini dispYpc if year2==0 & pco1==1 [pw=expr] //actual Gini ln of disposable income 1992
sgini dispYpc if year2==1 & pco1==1 [pw=expr] //actual Gini ln of disposable income 2017

Chapter 5: Emerging professional occupations clusters

STATA commands

OLS regressions - Multilevel modelling

*First steps
*Concatenate variables by year and occ

```
egen oc1_year=concat (oc1 year)
recast float oc1_y
tab oc1_year
encode oc1_year, gen (oc1_y)
label define oc1_y  ///
1"Managers and senior officials 1992" ///
2 "Managers and senior officials 2000" ///
3 "Managers and senior officials 2006" ///
4 "Managers and senior officials 2009" ///
5 "Managers and senior officials 2011" ///
6 "Managers and senior officials 2013" ///
7 "Managers and senior officials 2015" ///
8 "Managers and senior officials 2017" ///
9 "Professionals 1992" ///
10 "Professionals 2000" ///
11 "Professionals 2006" ///
12 "Professionals 2009" ///
13 "Professionals 2011" ///
14 "Professionals 2013" ///
15 "Professionals 2015" ///
16 "Professionals 2017" ///
17 "Technicians 1992" ///
18 "Technicians 2000" ///
19 "Technicians 2006" ///
20 "Technicians 2009" ///
21 "Technicians 2011" ///
22 "Technicians 2013" ///
23 "Technicians 2015" ///
24 "Technicians 2017" ///
25 "Clerks 1992" ///
26 "Clerks 2000" ///
27 "Clerks 2006" ///
28 "Clerks 2009" ///
29 "Clerks 2011" ///
30 "Clerks 2013" ///
31 "Clerks 2015" ///
32 "Clerks 2017" ///
33 "Service workers 1992" ///
34 "Service workers 2000" ///
```

35 "Service workers 2006" ///
36 "Service workers 2009" ///
37 "Service workers 2011" ///
38 "Service workers 2013" ///
39 "Service workers 2015" ///
40 "Service workers 2017" ///
41 "Skilled agricultural workers 1992" ///
42 "Skilled agricultural workers 2000" ///
43 "Skilled agricultural workers 2006" ///
44 "Skilled agricultural workers 2009" ///
45 "Skilled agricultural workers 2011" ///
46 "Skilled agricultural workers 2013" ///
47 "Skilled agricultural workers 2015" ///
48 "Skilled agricultural and fishery workers 2017" ///
49 "Craft and related trades workers 1992" ///
50 "Craft and related trades workers 2000" ///
51 "Craft and related trades workers 2006" ///
52 "Craft and related trades workers 2009" ///
53 "Craft and related trades workers 2011" ///
54 "Craft and related trades workers 2013" ///
55 "Craft and related trades workers 2015" ///
56 "Craft and related trades workers 2017" ///
57 "Plant and machine operators 1992" ///
58 "Plant and machine operators 2000" ///
59 "Plant and machine operators 2006" ///
60 "Plant and machine operators 2009" ///
61 "Plant and machine operators 2011" ///
62 "Plant and machine operators 2013" ///
63 "Plant and machine operators 2015" ///
64 "Plant and machine operators 2017" ///
65 "Elementary occupations 1992" ///
66 "Elementary occupations 2000" ///
67 "Elementary occupations 2006" ///
68 "Elementary occupations 2009" ///
69 "Elementary occupations 2011" ///
70 "Elementary occupations 2013" ///
71 "Elementary occupations 2015" ///
72 " Elementary occupations 2017"
label value oc1_y oc1_y
tab oc1_y
tabstat lncapearn, by (oc1) by(year) stats (mean sd)

reg lncapearn c.age c.age2 i.gender i.rama3 i.w_size4 c.w_hours [fweight = expr] if pr_oc==1 & year==2017
sum lncapearn c.age c.age2 i.gender i.rama3 i.w_size4 c.w_hours [fweight = expr] if e(sample). //sample prof oc 2017

by year, sort : regress lncapearn c.age i.gender i.rama3 i.w_size4 c.w_hours if pr_oc==1 [fweight = expr], vce(ols) beta cformat(%9.2f)
by year, sort : regress lncapearn c.age i.gender i.rama3 i.w_size4 c.w_hours if pr_oc==1 [fweight = expr], vce(robust) beta cformat(%9.2f)

bysort year: reg capearn c.age c.age2 i.gender i.rama3 i.w_size4 c.w_hours [fweight = expr] if pr_oc==1
bysort year: predict predcapearn [fweight = expr] if pr_oc==1

bysort year: reg capearn c.age c.age2 i.gender i.rama3 i.w_size4 c.w_hours [fweight = expr] if pr_oc==1

reg capearn c.age c.age2 i.gender i.rama3 i.w_size4 c.w_hours [fweight = expr] if pr_oc==1 & year==2017
predict predcapearn if pr_oc==1 & year==2017

reg capearn c.w_hours [fweight = expr] if pr_oc==1 & year==2017
predict predcapearn3 if year==2017
replace predcapearn1=. if pr_oc==1 & year==2017

twoway (scatter capearn w_hours if gender==1, msymbol (o)) (line predcapearn1 w_hours if gender==1, sort lpatt(solid))(scatter capearn w_hours if gender==0, msymbol(oh)) (line predcapearn1 w_hours if gender==0, sort lpatt(dash)), ytitle (Income) xtitle (Working hours)
predict res, residual
replace res=. if pr_oc==1 & year==2017
hist res, normal

bysort year: anova capearn gender [fweight = expr] if pr_oc==1

Logit model using dummy variables for LAC


```
*New dummy vars
gen d_quint=qaut
recode d_quint (1/4=0) (5=1)
label define d_quint 0"1-4" 1"Top"
label values d_quint d_quint
tab qaut d_quint

gen d_hours=w_hourscat
recode d_hours (1=0) (2/3=1)
label define d_hours 0"Part-time" 1"Full-time"
label values d_hours d_hours
tab w_hourscat d_hours

gen d_sector=arama4
recode d_sector (2/3=1) (4=0)
label define d_sector 1"Market and others" 0"Non-market services"
label values d_sector d_sector
tab arama4 d_sector

gen d_contract=w_contract
recode d_contract(2=0)
label define d_contract 0"Fixed-term" 1"Permanent"
label values d_contract d_contract

gen d_size=w_size4
recode d_size (1/2=0) (3/4=1)
label define d_size 0"Micro/small" 1"Medium/large"
label values d_size d_size
tab w_size4 d_size

gen d_training=w_training
recode d_training (2=0)
label define d_training 0"No" 1"Yes"
label values d_training d_training

gen d_typehe=e_typehe
recode d_typehe (1/2=0)(3=1)
label define d_typehe 0"Non-traditional" 1"Traditional"
label values d_typehe d_typehe
tab e_typehe d_typehe

*2 classes
gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 2) level(95)
estimates store d2class

*3 classes
qui gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 3) level(95)
estimates store d3class
```

```
*4 classes
qui gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 4) level(95)
estimates store d4class

*5 classes
/* convergence not achieved
gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 5) level(95)
estimates store d5class

*5 classes
qui gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 5) level(95)
difficult iterate (50)
estimates store d5class

* GET MODEL SUMMARY STATS in order to choose best number of classes

estimates stats d2class d3class d4class d5class //Four classes slighlty better
```

Model	N	ll(null)	ll(model)	df	AIC	BIC
d2class	6,411	.	-30576.64	17	61187.28	61302.3
d3class	6,411	.	-30426.53	26	60905.06	61080.97
d4class	6,411	.	-30364.38	35	60798.75	61035.56
d5class	6,411	.	-30340.34	40	60760.67	61031.3

```
*refit best model based on stats
gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <- ), logit lclass(D 4) level(95)
estimates store d4class




*probabilities of class membership
estat lcprob
/*
```

	Margin	Std. Err.	[95% Conf. Interval]	
D				
1	.2763055	.0483604	.1920292	.3801655
2	.3849387	.0515554	.2899914	.4895391
3	.2382185	.0320952	.1810701	.3066499
4	.1005372	.0245751	.0615772	.1599458

```
* Estimated mean for each item in each class. Use this to understand composition of each class
*Conditional probabilities - composition of each class
estat lcmean

*Based on outputs we can observe what are the probabilities of different classes in having answer one way or the other

*Visualising

* Predict posterior class probability for each obs, i.e the prob that given the observed measured vars, the prob of
belonging to each classes

predict d_classpost*, classposteriorpr

list in 1/5, abbrev(10)
list in 51/60 abbrev(10)

*Create variable that assigns each obs a class based posterior probability
```

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```
gen classmember=.
replace classmember=1 if d_classpost1 > d_classpost2 & d_classpost1> d_classpost3 & d_classpost1> d_classpost4
replace classmember=2 if d_classpost2 > d_classpost1 & d_classpost2> d_classpost3 & d_classpost2> d_classpost4
replace classmember=3 if d_classpost3 > d_classpost1 & d_classpost3> d_classpost2 & d_classpost3> d_classpost4
replace classmember=4 if d_classpost4 > d_classpost1 & d_classpost4> d_classpost2 & d_classpost4> d_classpost3

*view distribution within each class - a, b, c, observable variables only for dichotomic vars
*gender d_quint d_hours d_sector d_contract d_size d_training d_typehe

margins, predict(outcome(gender) class(1)) ///
                predict(outcome(d_quint) class(1)) ///
                predict(outcome(d_hours) class(1)) ///
                predict(outcome(d_sector) class(1)) ///
                predict(outcome(d_contract) class(1)) ///
                predict(outcome(d_size) class(1)) ///
                predict(outcome(d_training) class(1)) ///
                predict(outcome(d_typehe) class(1))

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                         xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                         title ("Class 1") name (class1)

margins, predict(outcome(gender) class(2)) ///
                predict(outcome(d_quint) class(2)) ///
                predict(outcome(d_hours) class(2)) ///
                predict(outcome(d_sector) class(2)) ///
                predict(outcome(d_contract) class(2)) ///
                predict(outcome(d_size) class(2)) ///
                predict(outcome(d_training) class(2)) ///
                predict(outcome(d_typehe) class(2))

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                         xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                         title ("Class 2") name (class2)


margins, predict(outcome(gender) class(3)) ///
                predict(outcome(d_quint) class(3)) ///
                predict(outcome(d_hours) class(3)) ///
                predict(outcome(d_sector) class(3)) ///
                predict(outcome(d_contract) class(3)) ///
                predict(outcome(d_size) class(3)) ///
                predict(outcome(d_training) class(3)) ///
                predict(outcome(d_typehe) class(3))

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                         xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                         title ("Class 3") name (class3)

margins, predict(outcome(gender) class(4)) ///
                predict(outcome(d_quint) class(4)) ///
                predict(outcome(d_hours) class(4)) ///
                predict(outcome(d_sector) class(4)) ///
                predict(outcome(d_contract) class(4)) ///
                predict(outcome(d_size) class(4)) ///
                predict(outcome(d_training) class(4)) ///
                predict(outcome(d_typehe) class(4))
```

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) xaxis(angle(45)) ///
            xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
           title ("Class 4") name (class4)

graph combine class1 class2 class3 class4, cols(1)

****
*3 CLASSES MODEL
****

*refit best model based on stats - WILL USE 3 CLASES FOR INTERPRETABILITY
gsem (gender d_quint d_hours d_sector d_contract d_size d_training d_typehe <-), logit lclass(D 3) level(95)
estimates store d3class

*probabilities of class membership
estat lcprob

```
           |          Delta-method
           |    Margin   Std. Err.    [95% Conf. Interval]
-------------+----------------------------------------------
         D |
         1 |  .3158253   .0430902     .2379637   .4056032
         2 |  .3684084   .0410151     .2922393   .4517584
         3 |  .3157662   .0276685     .2641922   .3723139
```


* Estimated mean for each item in each class. Use this to understand composition of each class
*Conditional probabilities - composition of each class
estat lcmean

*Based on outputs we can observe what are the probabilites of different classes in having answer one way or the other

*Visualising

* Predict posterior class probability for each obs, i.e the prob that given the observed measured vars, the prob of belonging to each classes

predict n_classpost*, classposteriorpr

list in 1/5, abbrev(10)
list in 51/60 abbrev(10)

*Create variable that assigns each obs a class based posterior probability
gen classmember=.
replace classmember=1 if d_classpost1 > d_classpost2 & d_classpost1> d_classpost3
replace classmember=2 if d_classpost2 > d_classpost1 & d_classpost2> d_classpost3
replace classmember=3 if d_classpost3 > d_classpost1 & d_classpost3> d_classpost2

*view distribution within each class - a, b, c, observable variables only for dichotomic vars
*gender d_quint d_hours d_sector d_contract d_size d_training d_typehe

margins, predict(outcome(gender) class(1)) ///
       predict(outcome(d_quint) class(1)) ///
       predict(outcome(d_hours) class(1)) ///
       predict(outcome(d_sector) class(1)) ///
       predict(outcome(d_contract) class(1)) ///
       predict(outcome(d_size) class(1)) ///
       predict(outcome(d_training) class(1)) ///
       predict(outcome(d_typehe) class(1))

```
marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                        xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                        title ("Class 1") name (class1_)


margins, predict(outcome(gender) class(2)) ///
                predict(outcome(d_quint) class(2)) ///
                predict(outcome(d_hours) class(2)) ///
                predict(outcome(d_sector) class(2)) ///
                predict(outcome(d_contract) class(2)) ///
                predict(outcome(d_size) class(2)) ///
                predict(outcome(d_training) class(2)) ///
                predict(outcome(d_typehe) class(2))

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                        xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                        title ("Class 2") name (class2_)


margins, predct(outcome(gender) class(3)) ///
                predict(outcome(d_quint) class(3)) ///
                predict(outcome(d_hours) class(3)) ///
                predict(outcome(d_sector) class(3)) ///
                predict(outcome(d_contract) class(3)) ///
                predict(outcome(d_size) class(3)) ///
                predict(outcome(d_training) class(3)) ///
                predict(outcome(d_typehe) class(3))

marginsplot, recast(bar) xtitle ("") ytitle ("") ylabel (0(.2)1) ///
                        xlabel (1"Gender" 2"Quintile" 3"Hours" 4"Sector" 5"Contract" 6"Size" 7"Training"
8"Type HE") ///
                        title ("Class 3") name (class3_)

graph combine class1_ class2_ class3_, cols(1)

//Checking distribution by class

tab classmember d_training, row nofreq
tab classmember d_typehe, row nofreq
tab classmember gender, row nofreq
tab classmember d_quint, row nofreq
tab classmember d_hours, row nofreq
tab classmember d_sector, row nofreq
tab classmember d_contract, row nofreq
tab classmember d_size, row nofreq

tab oc3 classmember, row nofreq // Occupations

label variable classmember "Class membership"
label define classmember 1"Vulnerable" 2"Middle-class" 3"Elite"
label values classmember classmember
tab classmember

twoway scatter lncapear esc if classmember ==1 || ///
scatter lncapear esc if classmember ==2 || ///
scatter lncapear esc if classmember ==3 ||
line mu1 age if pclass ==1 || ///
line mu2 age if pclass ==2 , legend(off)
```

```
graph hbox lncapearn [fweight = expr], over(classmember)
graph hbox capearn [fweight = expr], over(classmember)
```