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## **Socio-economic integration and social citizenship of migrants: empirical analyses**

Boffi, G.

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Socio-Economic Integration and Social Citizenship of Migrants

Empirical Analyses



# Socio-Economic Integration and Social Citizenship of Migrants

Empirical Analyses

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G. Boffi

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Promotores: prof. dr. O.P. van Vlie

Co-promotor: dr. E. Suari-Andreu

Promotiecommissie: prof. dr. E.L.W. Jongen

dr. A.K.O. Ahmadov

prof. dr. T. Frattini (University of Milan, Italy)

prof. dr. M.J. Siegel (Maastricht University)

dr. J. Mazza (Utrecht University)

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# Preface

According to the International Organization for Migration (IOM), the estimated number of international migrants has been continuously increasing over the past five decades. In 2020, approximately 281 million people were living in a country other than their country of birth, almost double the 1990 estimate and more than three times the 1970 one. More specifically, in the twenty-first century, migration to high-income countries has been growing at a faster rate than migration to middle- or low-income countries. Currently, around two-thirds of international migrants reside in high-income countries (IOM, 2024).

I have had the privilege of researching this highly relevant subject for the past four years. The result of this research is a dissertation that examines various economic aspects of migrant integration in high-income countries. I hope it serves as an informative starting point for fact-based and solution-oriented discussions among academics, policymakers, and the general public.

My work would not have been possible without, first and foremost, the guidance and support of my supervisors. Eduard and Olaf, you provided me with the necessary academic freedom and valuable feedback to conduct my research rigorously and independently. I would also like to express my gratitude to all members of the Department of Economics and the Social Citizenship and Migration research programme at Leiden University for their interest in my research over the years. I am pleased to have witnessed the growth of Leiden's team of migration economists since 2020. A special acknowledgement goes to the members of the International Migration Division at the OECD, with whom I had the opportunity to collaborate in 2022. Finally, I wish to extend a heartfelt thanks to my families, the one I was born into in Lodi and the ones I found for myself in The Hague, Brussels, Paris, and Amsterdam. I feel surrounded by love, and it makes me humble and grateful.

Giacomo Boffi,  
Europe, October 2024



## List of Abbreviations

|         |                                                           |
|---------|-----------------------------------------------------------|
| 2SLS    | Two-Stage Least-Squares                                   |
| AUD     | Australian Dollar                                         |
| CAD     | Canadian Dollar                                           |
| CBS     | Central Bureau of Statistics                              |
| CEE     | Central and Eastern European                              |
| DKK     | Danish Krone                                              |
| EBOPS   | Extended Balance Of Payments Servicesw                    |
| EEA     | European Economic Area                                    |
| EPL     | Employment Protection Legislation                         |
| EU      | European Union                                            |
| EU-SILC | European Union Statistics on Income and Living Conditions |
| FY/FTE  | Full-Year / Full-Time Equivalent                          |
| GBP     | Great British Pound                                       |
| GDP     | Gross Domestic Product                                    |
| GE      | General Equilibrium                                       |
| HUF     | Hungarian Forint                                          |
| IOM     | International Organization for Migration                  |
| IV      | Instrumental Variable                                     |
| LATE    | Local Average Treatment Effect                            |
| LISS    | Longitudinal Internet studies for the Social Sciences     |
| NAFSA   | National Association of Foreign Student Advisers          |
| NFP     | Net Fiscal Position                                       |
| NZD     | New Zealand Dollar                                        |
| ODA     | Official Development Assistance                           |
| OECD    | Organisation for Economic Cooperation and Development     |
| OLS     | Ordinary Least-Squares                                    |
| S&E     | Science and Engineering                                   |
| SEK     | Swedish Krona                                             |
| SNA     | System of National Accounts                               |
| STEM    | Science Technology Economics and Math                     |
| UK      | United Kingdom                                            |
| US      | United States                                             |
| UNHCR   | United Nations High Commissioner for Refugees             |
| WHO     | World Health Organization                                 |



International migration has emerged as one of the defining challenges of the twenty-first century, profoundly impacting the socio-economic structures of both high-income and middle- or low-income countries.<sup>1</sup> As millions of people move across borders in search of better work opportunities, asylum, family reunification, or international education, the integration of migrants into their host societies has become a focal point of policy discussions, academic research, and public debate. The integration process is complex and multidimensional, involving a wide range of economic, social, and cultural factors (OECD and European Commission, 2023).

Central to understanding this process is the concept of social citizenship, which encompasses not only the voting rights of migrants, but also their ability to fully participate in the economic, social, and political life of the host country (Faist, 2000; Marshall, 1992; Miller, 2008). Social citizenship involves the full set of rights and responsibilities that individuals hold within a society, extending beyond mere legal status to include the possibility to participate in the labour market, and access to the welfare state, healthcare, education system, and civic activities. For migrants, achieving social citizenship is often a demanding and lengthy process that requires overcoming various barriers. These include cultural distance, language and skill gaps, discrimination, and limited recognition of foreign work and education (Kuptsch and Sparreboom, 2018). The successful integration of migrants into their host societies, and the capacity of governments to facilitate this process, are important for both the migrants and the host communities. In this sense, a successful socio-economic integration is an important step towards social citizenship (Soysal, 2012).

As high-income countries continue to experience significant levels of immigration, societies must strike a balance between integrating newcomers, maintaining social harmony, and stimulating economic well-being. The socio-economic integration of migrants is an ongoing test with no easy solution. Migrants bring with them skills, knowledge, and cultural diversity that can enrich host societies (Dorn and Zweimüller, 2021; Hunt and Gauthier-Loiselle, 2010). However, their integration requires supportive policies and

---

1 The terms 'high-income' and 'middle- or low-income' countries are now more widely accepted and used than 'developed' and 'developing' countries, as the latter imply a value judgement. This newer terminology focuses on measurable economic criteria rather than subjective notions of progress (Barros Leal Farias, 2023).

inclusive practices. If poorly managed, immigration can impose additional costs on the host country and lead to discrimination and segregation.

In recent years, the debate around immigration has often been polarised, with public discourse frequently dominated by concerns over security, pressure on public finances, and cultural identity (Alesina et al., 2023). On the one hand, classical economic theory points to potential adverse economic consequences of immigration, including displacement effects, downward pressure on wages, and rising inequality (Borjas, 2005). On the other hand, a growing body of research highlights the positive contributions that successfully integrated migrants can make to high-income countries, particularly in terms of economic activity and demographic sustainability. For instance, migrants often fill labour market gaps, contribute to innovation and entrepreneurship, and rejuvenate native populations (Beine et al., 2022; Chevalier, 2022; Fiorio et al., 2024).

As immigration to high-income countries remains a topic of contentious debate, this dissertation focuses on some of the most pressing issues regarding the socio-economic integration of migrants. These include the types of employment of first-generation migrants, the differences in net fiscal positions between various migrant groups and natives in Europe, and the economic impact of international students on receiving countries. The dissertation employs a set of empirical analyses to draw policy recommendations that aim at maximising the positive effects of immigration while limiting potential pitfalls. In doing so, it also tries to provide examples of how successful socio-economic integration can help migrants achieve social citizenship.

## 1.1 MAIN RESEARCH QUESTION, CONTRIBUTION, AND METHODOLOGICAL APPROACH

The main research question of this dissertation is: *‘How does the economic performance of migrants contribute to their socio-economic integration, as a path to social citizenship?’* This question is addressed through a set of empirical analyses focusing on migrants’ types of employment, their net fiscal position, and the economic impact of international higher education. By tackling this question, this dissertation aims to provide an in-depth study of how migrants influence, and are influenced by, the socio-economic structures of their host countries, with a focus on the implications for their social citizenship.

This dissertation is academically relevant because it attempts to fill several gaps in the existing literature on immigration to high-income countries and socio-economic integration. More in particular, Chapter 2 investigates the question of whether migrants are more likely to be temporarily employed than natives and whether education, language problems, and social contacts moderate this probability. As temporary forms of employment increase in high-income countries, securing stable jobs is

crucial for migrants to achieve economic success and integration in the host country. Chapter 3 examines a different, but related, important aspect of socio-economic integration. Namely, it estimates and compares the net fiscal positions of migrants and natives across 15 EU countries from 2007 to 2018. In addition, Chapter 4 tackles the question of which factors contribute to the difference between the fiscal positions of migrants and natives in Europe. The study in this chapter is the first to apply an Oaxaca-Blinder decomposition to this subject, making a significant contribution to the understanding of the key background characteristics influencing fiscal integration. Finally, Chapter 5 addresses the question of the economic impact of international students on host OECD countries. It reviews the available evidence on the topic from the early 2000's until 2020 and presents the first findings on the effect of the Covid-19 pandemic on international student enrolments and revenues.

By adopting a multidimensional economic approach, this dissertation seeks to provide a comprehensive analysis of various aspects of migrant integration that have traditionally been examined separately. Typically, studies on migrant integration have focused on either labour market outcomes, welfare dependency, or educational achievements, without fully exploring how these dimensions interrelate. For example, research on labour market participation often examines participation rates or employability of migrants but may overlook how these factors influence their reliance on welfare systems or access to educational opportunities (Dorn and Zweimüller, 2021; Kuptsch and Sparreboom, 2018). Similarly, studies on the fiscal impact of migrants might assess their net contributions to public finances but may overlook how employment status or educational attainment affects these contributions (Christl et al., 2022). Such compartmentalisation limits the understanding of the broader socio-economic integration process, which is inherently interconnected and multifaceted.

This dissertation examines multiple aspects together, offering a more integrated perspective on how labour market participation, fiscal contributions, and educational outcomes collectively shape the socio-economic integration of migrants. For instance, the empirical analyses include evidence on the type of employment contract (temporary versus permanent) that migrants have and their subsequent net fiscal contributions. They also explore how international higher education affects both labour market outcomes and the overall socio-economic integration into host societies. By connecting these dimensions, this dissertation aims to provide a holistic view of the integration process towards social citizenship, highlighting how success or challenges in one area can ripple across others.

Besides the aforementioned contributions to specific economic fields, this work also extends the application of the concept of social citizenship to economics. Social citizenship is a popular concept in disciplines like sociology and public administration, often used to describe the full spectrum of rights and duties of individuals within a society, including access to welfare, education, and healthcare (Marshall, 1992; Miller, 2008). For instance, soci-

ologists may explore how the participation of migrants in civic activities fosters their acquisition of social citizenship. However, this concept has received little attention in economics, where the focus tends to be more on market outcomes and less on broader societal integration (Dorn and Zweimüller, 2021). By examining how migrants' economic behaviour intersects with social rights and responsibilities, this dissertation envisages economic integration as a path to social citizenship. For example, migrants who can successfully integrate into the host country's labour market and welfare system can both increase the labour supply and positively contribute to public finances (Beine et al., 2022). This would make them citizens who can provide a more substantial and meaningful contribution to the host society, rather than just holding residence and/or voting rights.

The importance of answering the main research question of this dissertation extends beyond the mere academic contribution; it also directly informs public policy and debate. By providing empirical evidence on the socio-economic integration of migrants, this work aims to improve discussions often dominated by misinformation and polarised views. The findings offer a balanced account of the benefits and costs of immigration, supporting an informed and constructive dialogue to harness the economic potential of immigration, in the interest of host societies and the migrants themselves. For example, on the one hand, it emerges that most migrants often contribute relatively more than natives to public finances in many EU countries. On the other hand, it also appears that non-Western migrants are often more likely to be temporarily employed than natives, which instead pushes them towards more frequent social assistance and potential labour market and social exclusion. Thus, the analysis not only advances scholarly understanding, but also has practical policy implications to improve social cohesion, economic output, and the overall well-being of both migrants and native populations.

The economic approach chosen for this dissertation has several advantages. First, economic analysis provides a quantifiable framework to assess the impacts of immigration, making it possible to evaluate the contributions and costs associated with migrants' integration into host countries. The analytical methodologies applied to measure and interpret data allow for an accurate understanding of complex socio-economic dynamics. This is particularly important in the context of increasing immigration, where the impact on labour markets, public finances, and local population groups needs to be accurately calculated and constantly updated to formulate effective policies (OECD and European Commission, 2023).

Moreover, an economic approach brings a unique perspective by focusing on the efficiency and distributional effects of immigration. It permits to identify how migrants contribute to economic growth and demographic sustainability, among other outcomes, and how these effects are distributed across different population groups. This is essential for developing integration practices that maximise the positive impacts of immigration while addressing any potential negative externalities. The ability to dissect labour

market dynamics, fiscal impacts, and educational outcomes, provides governments with valuable knowledge. This enables them to formulate actionable attraction and retention strategies in both the short and the long term. In doing so, they also benefit from insights from other social sciences researching migration phenomena, like sociology, anthropology, and history. Maintaining a perspective open to interdisciplinary contributions is key for advancing theoretical frameworks and empirical methodologies in migration studies.

1.2 OUTLINE OF THE CHAPTERS

The structure of this dissertation consists of an introduction, four core chapters, and a conclusion. Each of the core chapters addresses a different aspect of the socio-economic integration of migrants. The research focuses on the labour market outcomes of first-generation migrants in the Netherlands, the net fiscal positions of different migrant groups and natives in Europe, and the economic impact of international students on receiving OECD countries. In doing so, this dissertation looks at diverse aspects of immigration to high-income countries. The core chapters of this dissertation are based on academic articles that I have written separately during the course of my PhD track. I am either the single author or the main author of every article included in this dissertation. I am responsible for the design, the analysis, and the content of each article. Table 1.1 below outlines the title and the specific research question of each chapter. Short summaries of their content follow.

Table 1.1 Outline of the core chapters

| Chapter number and title                                                         | Specific research question(s)                                                                                                                                                                                       |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chapter 2: Temporary Employment and First-Generation Migrants in the Netherlands | Are first-generation migrants in the Netherlands more likely to be temporarily employed than native-born individuals? Do higher education, language problems, and active social contacts moderate this probability? |
| Chapter 3: The Net Fiscal Position of Migrants in Europe: Trends and Insights    | What is the net fiscal position of migrants and natives across 15 EU countries from 2007 to 2018? Are there common trends and differences across years, countries, and groups of migrants?                          |
| Chapter 4: Decomposing the Net Fiscal Position of Migrants in Europe             | What are the factors determining the differences between the net fiscal positions of migrants and natives in Europe? Do they differ across intra-EU and extra-EU migrants?                                          |
| Chapter 5: The Economic Impact of International Students in OECD Countries       | What is the economic impact of the arrival of international students in OECD countries? What is the available evidence from the literature? What have been the effects of Covid-19 on it?                           |

## *Chapter 2: Temporary Employment and First-Generation Migrants in the Netherlands*

Chapter 2 focuses on the labour market integration of first-generation migrants in the Dutch context. The Netherlands presents a unique case study because it reports a high share of temporary employment and a significant migrant population, both having increased in recent years (CBS, 2024; Eurostat, 2024e). This chapter investigates whether having a first-generation migration background increases the likelihood of temporary employment and examines some of the moderating factors influencing this relationship.

The chapter starts with an overview of the historical and contemporary migration patterns that have shaped the Dutch labour market since the 1960's, focusing on the experiences and labour outcomes of first-generation migrants. Furthermore, it discusses the increasing prevalence of temporary employment in the country (Bolhaar et al, 2018; Hartog and Salverda, 2018; OECD, 2019). Temporary employment provides both employees and employers with flexibility in managing their work relationship. Ideally, it should serve as a stepping stone to permanent employment. However, if the labour market does not facilitate transitions from temporary to permanent roles, temporary employment can lead to precarious employment conditions, with potentially large welfare implications (Barbieri and Cutuli, 2015; Boeri et al., 2020; Bolhaar et al., 2018). As first-generation migrants often experience significant disadvantages in the labour market compared to natives, the hypothesis is that they are also more likely to be temporarily employed.

The main research question of this chapter is: *'Are first-generation migrants in the Netherlands more likely to be temporarily employed than native-born individuals?'* This chapter contributes to the literature on the labour market integration of migrants by being the first to examine how migration background influences temporary employment. In doing so, it provides insights from the EU country which has seen the highest increase in temporary jobs in the 2010's, with policy implications relevant also for others. Most importantly, it uses a high-quality twelve-year panel to assess moderating factors like education, language skills, and social contacts.

For the empirical analysis, I use data from the Longitudinal Internet studies for the Social Sciences (LISS) panel, covering the period from 2008 to 2019. The findings reveal that first-generation migrants, particularly those with a non-Western migration background, are significantly more likely to be temporarily employed than natives. Language problems, higher education, and active social contacts are considered as the moderating factors that may influence this relationship. Among these, the empirical analysis shows that lower Dutch language proficiency is the main variable increasing the chances of temporary employment of non-Western migrants in the Netherlands. The results are robust to several checks. These include the adoption of an instrumental variable (IV) technique that I borrow from the literature on host country language proficiency and labour integration of migrants (Bleakley and Chin 2004, 2010; Budria and Martinez de Ibarreta, 2020; Chiswick and Wang, 2019; Miranda and Zhu, 2013; Yao and Van Ours, 2015).

The chapter also discusses two factors that are difficult to quantify in the empirical analysis: discrimination against non-Western migrants and preferences for temporary employment. Finally, it concludes by elaborating on the implications of the findings to develop more effective labour market policies, emphasising the need for measures that enhance the skills and employability of migrants.

### *Chapter 3: The Net Fiscal Position of Migrants in Europe: Trends and Insights*

In Chapter 3, the focus shifts to the fiscal integration of migrants in Europe. The chapter provides a comparative descriptive analysis of the trends in net fiscal positions of migrants and natives across 15 European Union (EU) countries, from 2007 to 2018. The net fiscal position (NFP) of migrants, i.e., the difference between how much they pay in taxes and how much they receive in transfers and benefits, is a contentious issue, often subject to political partisanship and misinformation (Reeskens and Van Der Meer, 2019; Vargas-Silva et al., 2022). Migrants are frequently accused of exploiting the rich welfare states of (Western) European countries without paying their fair share (Markaki and Blinder, 2019a, 2019b). This chapter brings novel empirical evidence on the subject by calculating the NFP of migrants and natives as the difference between direct taxes and social contributions paid and cash transfers received.

The chapter begins by summarising the methodologies used in the literature to calculate the individual NFP, including a distinction between static versus dynamic, direct versus indirect, and bottom-up versus top-down approaches (Hennessey and Hagen-Zanker, 2020). The chapter provides a detailed analysis of trends in the direct fiscal contributions of migrants and natives across many countries and years. This analysis employs a static, direct, and bottom-up approach entirely based on microdata at the individual level from the European Union Statistics on Income and Living Conditions (EU-SILC) and tax information from the OECD. The main research question of this chapter is: *‘What is the net fiscal position of migrants and natives across 15 EU countries from 2007 to 2018?’* In answering this question, this chapter makes several contributions to the literature on the welfare integration of migrants in Europe. It is the first to use a static, direct, and bottom-up approach with individual-level microdata to estimate the NFP of migrants over 12 years (2007-2018) across 15 EU countries. Unlike most studies that focus on a single country or year, my analysis employs a comparative approach to analyse trends across a large number of countries and over time (Dustmann et al., 2010; Ruist, 2014). This updates Boeri’s (2010) work, which used a similar methodology for fewer years. By examining a range of countries, it also explores how different welfare states influence the NFP of migrants and natives.

The results show that, on average, natives tend to have a relatively more negative NFP than migrants across most countries and years. The analysis considers both intra-EU and extra-EU migrants, revealing significant variations in their NFP depending on the type of welfare state and the migrants’

background. The findings indicate that intra-EU migrants tend to be net fiscal contributors across most countries and years, while extra-EU migrants are comparatively more likely to be net recipients. This is due to lower tax payments and a higher reliance on non-contributory benefits by extra-EU migrants. This chapter also provides policy-relevant insights in relation to how different types of migrants affect public finances in diverse welfare state contexts. In particular, Southern European countries, where the local population is ageing fast and the welfare state is largely oriented towards pensions, appear to be the ones benefiting the most from the net fiscal contributions of migrants.

#### *Chapter 4: Decomposing the Net Fiscal Position of Migrants in Europe*

Chapter 4 delves deeper into the factors determining the gap between the NFP of migrants and natives discussed in Chapter 3. Using the Oaxaca-Blinder decomposition, this chapter dissects the differences between the NFP of intra-EU and extra-EU migrants and natives. This empirical approach allows for a nuanced understanding of how personal characteristics (such as age, gender, education, family structure, and health) and country- and year-specific factors contribute to the NFP of different population groups.

The chapter begins with an overview of the previous findings on the NFP of migrants in Europe and the application of the Oaxaca-Blinder decomposition in migration studies (Fiorio et al., 2024; Österman et al., 2024). This method explains differences between two population groups by separating them into two components: the endowment effect or explained part (differences in observed characteristics) and the coefficient effect or unexplained part (differences in returns to observed characteristics and differences in unobserved characteristics) (Blinder, 1973; Oaxaca, 1973). By doing so, the chapter tries to uncover the underlying mechanisms that drive disparities between the NFP of migrants and natives in Europe. Therefore, the main research question of this chapter is: *‘What are the factors determining the net fiscal position of migrants and natives in Europe?’* This chapter makes an important contribution to the literature on welfare integration by being the first to use the Oaxaca-Blinder decomposition to isolate the effects of background characteristics on the fiscal gap between migrants and natives. This helps identify how various migrant groups contribute to European welfare states and how they differ from natives and each other. In doing so, it offers insights for assessing social safety nets and informing public perception about the fiscal effects of immigration.

The empirical analysis focuses on the same 15 EU countries and the same 12-year period discussed in Chapter 3, selecting individuals who provide full information on their personal characteristics. This allows for a deeper understanding of the factors influencing the direct fiscal impact of immigration. The findings reveal that personal characteristics like age and education, along with country-specific variables such as the composition of the migrant population and the structure of the tax-and-benefits system, explain most of the more positive NFP of migrants compared to natives.

Moreover, the Oaxaca-Blinder decomposition shows that age and education make the most positive contributions to the explained part of the fiscal gap between migrants and natives, while the number of children makes the most negative contribution. Interestingly, the analysis finds different effects for intra-EU and extra-EU migrants. While both migrant groups tend to be younger, healthier, and better educated than natives in most countries and years, intra-EU migrants have a more positive NFP compared to extra-EU migrants. The results indicated that this discrepancy is due to the fact that extra-EU migrants, despite having similar levels of education compared to intra-EU migrants, do not experience a positive contribution from higher education to their NFP. This finding suggests there is little payoff from extra-European higher education, as the lack of recognition of foreign qualifications leads to worse employment outcomes compared to high-skilled intra-EU migrants and natives, resulting in a lower average NFP. In other words, extra-EU migrants tend to have the same average NFP whether they are highly educated or not.

The chapter ends by discussing the policy implications of these findings, emphasising the need for targeted interventions that address the specific barriers faced by different migrant groups. In doing so, this chapter provides a link between broad fiscal trends and the specific characteristics that shape the socio-economic integration of the various migrant groups.

#### *Chapter 5: The Economic Impact of International Students in OECD Countries*

Chapter 5 examines the economic impact of international students in OECD countries. Obtaining higher education in the destination country is often one of the stepping stones for migrants' integration (Chevalier, 2022; Lev-ent, 2016; Morris-Lange, 2019). International students represent a sizable and growing population group in many high-income countries, not only enriching cultural and academic diversity but also deeply affecting the host economy during and after studies. This chapter provides a thorough review of the available literature on the subject and presents new descriptive empirical evidence on the direct economic impact of international students on host OECD countries in the most recent years.

From the early 2000's, the number of international students in OECD countries has grown significantly, peaking at almost 4.4 million in 2020 (68% of all international students globally) (OECD, 2023). Despite the challenges posed by the Covid-19 pandemic, which temporarily disrupted international education and mobility, the resilience in international student enrolments highlights the relevance and persistence of this trend. The main research question of this chapter is: '*What is the economic impact of international students in receiving OECD countries?*' This chapter contributes to the literature in two main ways. First, it reviews empirical evidence on the economic impact of international students up to the start of the Covid-19 pandemic in 2020, highlighting the lack of a comparative overview in existing studies. Second, it descriptively examines the direct impact of Covid-19 on international student enrolments and revenues, bridging pre-2020 evidence

with the most recent developments. This analysis sets the stage for future research when post-Covid-19 data becomes available.

The literature review begins by detailing the methodologies used to measure the income directly and indirectly received from international students by the host country. These are the export, input-output, and general equilibrium approaches (OECD, 2022). Furthermore, the chapter also investigates broader economic effects, such as the impact on local and national labour markets, technological innovation, and long-term economic growth. While the chapter studies income gains and broader economic effects, it is important to note that it does not consider the costs associated with the rising influx of international students. This is because most of the studies in the literature tend to focus primarily on the benefits, often overlooking the expenses incurred by the host countries, such as increased demand for public services, infrastructure, housing, and potential displacement effects in the labour market (Chevalier, 2022).

To connect the findings from the literature to the most recent evidence, the chapter employs OECD data for descriptively analysing the impact of the Covid-19 pandemic on international student enrolments and revenues. The pandemic posed sudden challenges to international education, with many institutions transitioning to online learning and facing travel restrictions. Despite these obstacles, the total number of international students in OECD countries experienced only a modest decrease during the pandemic. However, the change in the direct economic impact was more pronounced, with a significant decline in direct revenues from international students, especially in isolated countries like Australia and New Zealand. The descriptive analysis highlights the vulnerability of the international education sector to changes in demand and remarks the need for adaptive policies to support its growth.

The findings lay the groundwork for future research on this relatively recent type of migration. The chapter concludes by emphasising that the direct and indirect costs associated with the intake of international students, such as the potential strain on limited resources and inflation, have received little attention compared to the benefits. Despite being understudied, such costs can be minimised by implementing policies that smoothen the socio-economic integration of international students. Key policies would include offering internships and vacancies that align with the students' fields of study to enhance their contributions to the local economy and welfare while minimising displacement effects. Additionally, assistance with visa requirements and residence procedures can help attract and retain students, ensuring their economic contributions are maximised.

#### *Chapter 6: Main findings, policy implications, and future research*

Chapter 6 answers the main research question, discusses policy implications from the findings, suggests possible future research directions, and concludes.

## ABSTRACT

The Netherlands is the EU country that has undergone the highest relative increase in temporary jobs in the 2010's. These occupations are characterised by a low level of job security and, in the case of workers with low employability, might lead to social exclusion and higher welfare dependence. Using the LISS panel data (2008-2019) for the resident population of the Netherlands, I establish a link between migration background and temporary employment. First, I investigate whether first-generation migrants (Western and non-Western) are more likely to be temporarily employed than Dutch-born natives. Besides, I explore whether higher education, language problems, and active social contacts influence this relationship. The findings show that non-Western migrants are more likely to be temporarily employed than both Western migrants and Dutch-born natives. Language problems are the main moderator increasing migrants' probability of being temporarily employed, while higher education and active social contacts appear not to be significant.

## 2.1 INTRODUCTION

In recent years, the Dutch labour market has been experiencing two contemporaneous phenomena: a growing number of workers in non-standard

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1 A journal version of the study this chapter is based upon is published as Boffi (2023). I am grateful to CentERdata for making the LISS data available for the study. I thank Eduard Suari-Andreu, Olaf Van Vliet, Anar Ahmadov, Thomas Van Huizen, Anna Salomons, Marike Knoef, Giovanni Peri, as well as participants to the work-in-progress seminar on April 14th, 2020, at the Department of Economics of Leiden University, participants to the New Papers Session organised by the Dutch Economists Association on June 17th, 2020, participants to the Leiden Interdisciplinary Seminars on Migration (LIMS) session on September 8th, 2020, participants to the kick-off event of the research programme Social Citizenship & Migration at Leiden University on October 6th, 2020, participants to the Migration Economics Summer School at the Paris School of Economics in June, 2021, and participants to the 36th Annual Conference of the Italian Association of Labour Economists (AIEL) on November 26th, 2021, for the useful comments on earlier versions of the study. The study upon which this chapter is based is part of the research programme Social Citizenship & Migration at Leiden University.

forms of employment (flexibilization) and rising participation of people with a migration background to the labour force (OECD, 2019).<sup>2</sup>

Temporary forms of employment are characterised by weak employment protection legislation, and their adoption is increasing in high-income countries (Boeri et al., 2020; Ter Weel, 2018). Temporary forms of employment allow both the employee and the employer to manage their work relationship with more flexibility. Ultimately, especially for the youth, they should work as a trampoline to more permanent jobs. However, if the employer has no interest in shifting to permanent employment, temporary forms of employment can create a more fragile labour market or even a dual labour market. In this situation, a considerable share of workers is trapped in a loop of temporary occupations, having little or no career perspectives (Barbieri and Cutuli, 2015; Boeri et al., 2020; Bolhaar et al., 2018).

In 2023, the Netherlands reported the highest share of temporary workers as a percentage of total employees in the European Union (EU) (23.0% compared to an EU-27 average of 12.2%) (Eurostat, 2024e). Most importantly, from 2008 to 2017, i.e., for most of the period considered in this chapter, the share of temporary workers versus permanent workers has been rising every year (CBS, 2018). This may be because the overall costs to hire and dismiss a permanent worker are higher than the ones for a temporary employee, which in turn may push employers towards heavy reliance on temporary jobs (Bolhaar et al, 2018; Hartog and Salverda, 2018; OECD, 2019).

In 2024, first-generation migrants (defined as Dutch residents born abroad) made up 16.2% of the resident population. Including second-generation migrants (defined as Dutch residents born in the Netherlands, with at least one parent born abroad) the percentage goes up to 27.7% (CBS, 2024). The present composition of the migrant population in the country is heavily influenced by the arrival in the 1960's-1970's of guest-workers from Morocco and Turkey, who were encouraged to come to work in the booming Dutch economy. From the 1980's to the 2000's, the Netherlands welcomed people from the former Dutch colonies (Dutch Caribbean and Suriname) and refugees from Eastern European countries, the Balkans, Afghanistan, Iraq, and Somalia (Schröver, 2010).

Because of its relatively long migration history, advanced economic development, and high quality of the available population data, the Netherlands provides a good case study on the determinants of the integration

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2 The European definition of flexworkers is not uniform, so it is the case that EU countries categorise them differently, and the data are difficult to compare. For this study the definition provided by Statistics Netherlands (CBS) is adopted. Flexworkers are people who either are in temporary employment and/or have flexible working hours (CBS, 2019). This rather broad group comprises seven different subcategories. Four for employees with temporary contracts, depending on the duration of their contract and whether or not they have a fixed number of hours of work. Three for employees with on-call contracts, workers hired through temporary employment agencies (also called temporary staffers), and permanent employees with flexible hours (CBS, 2019).

of migrants in the local labour market. Recent evidence shows that non-Western migrants are the ethnic group that, on average, needs the most time to transit from unemployment to employment, presents the lowest level of earnings, and has the most mismatches between profession and skills level (Bevelander and Veenman, 2008; Bolhaar et al., 2018; Hartog and Salverda, 2018; Quillian and Lee, 2023).<sup>3</sup> Possible reasons for this disadvantaged position are low education, poor language proficiency, and lack of inter-ethnic social contacts (Chiswick and Wang, 2019; Hartog and Zorlu, 2009; Lancee, 2010; Van Ours and Veenman, 2006; Veenman and Bijwaard, 2012).

The aforementioned studies have investigated the position of migrants in the Dutch labour market by looking at outcomes such as employment, hours of work, and wages. However, despite the fast-growing relevance of temporary employment in the Netherlands, the determinants of temporary employment across different population groups have received limited attention (Pijpers, 2010). The present chapter makes a novel contribution to the literature by investigating whether having a first-generation migration background increases the chances of temporary employment. Besides, it examines some of the moderating factors that possibly affect migrants' likelihood of temporary employment. The hypothesis is that, for first-generation migrants, the lack of higher education (or its acquisition outside the Netherlands), language barriers, and lack of inter-ethnic social contacts reinforce the probability of temporary employment.

The individual data used for the empirical part of the analysis are extracted from a representative sample of the Dutch population provided by the Longitudinal Internet Studies for the Social Sciences (LISS) for the period 2008-2019. The analysis starts by estimating through probit the effect of having a first-generation migration background on the probability of being temporarily employed, while controlling for demographic characteristics, profession, sector of employment, and the three integration variables that may affect the labour market position of a worker: education, language problems, and active social contacts. In addition, the integration variables are interacted with the migration background to study whether they influence migrants' chance of being temporarily employed. For both stages of the analysis, the general pool of migrants is first compared with native-born individuals and subsequently divided between migrants with Western and non-Western background.

The findings show that first-generation migrants are, on average, almost seven percentage points more likely to be temporarily employed than natives, with a particularly strong effect for migrants with a non-Western migration background. First-generation migrants who report having prob-

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3 Until 2022, Statistics Netherlands (CBS) defined Europe, North America, Oceania, Japan, and Indonesia, the latter being a former Dutch colony as Western, Africa, Asia, and Latin America as non-Western. From 2022 on, the CBS started gradually adopting a new classification. Greater emphasis is to be placed on where a person was born and less on where their parents were born.

lems with reading and/or speaking Dutch are significantly more likely to be temporarily employed than those who do not. Again, this effect is particularly strong for migrants with a non-Western migration background.

The estimation of the effect of language problems is known to possibly suffer from endogeneity. For this reason, the impact of language problems is re-estimated by employing an instrumental variable technique initially proposed by Bleakley and Chin (2004, 2010) and later employed by others (Budria and Martinez de Ibarreta, 2020; Chiswick and Wang, 2019; Miranda and Zhu, 2013; Yao and Van Ours, 2015). This method instruments language problems with an interaction between age at arrival in the Netherlands and a dummy variable for speaking non-Dutch during childhood. The IV estimates confirm the effect of language problems on the probability of being temporarily employed.

The contribution to the literature is threefold. To begin with, this is the first study of its kind to examine how different migration backgrounds influence the probability of temporary employment in the Netherlands. This moves beyond English-speaking countries, on which most of the temporary employment literature has been focused and provides evidence from the EU country that has seen the highest increase in temporary jobs in the last decade, with policy implications relevant also for others. For example, the over-exposure of migrants to temporary employment may translate into job insecurity, high job transition rates, and eventually social exclusion, which can put upward pressure on welfare expenditure. Second, it presents a broader picture of the labour market position of first-generation migrants, rather than focusing on a specific parameter like wage levels or hours of work. Third, on the empirical side, it employs data from a high-quality twelve-year panel, and it assesses the moderating role of origin, personal characteristics, profession, sector of employment, education, Dutch language proficiency, and active social contacts.

The rest of the chapter is structured as follows. Section 2.2 provides a review of the general literature on the labour market integration of first-generation migrants and the factors that might affect it. Section 2.3 describes the specific case of migration and temporary employment in the Netherlands. Section 2.4 includes the empirical analysis. Section 2.5 discusses implications and limitations of the findings. Section 2.6 concludes.

## 2.2 LITERATURE REVIEW

The literature on the labour market integration of first-generation migrants has identified three important moderating factors: education, language proficiency, and social contacts. Education is often regarded as one of the main tools through which immigrants can enrich their human capital and achieve professional success in the host country. However, the available empirical evidence on the labour market beneficial effects of migrants' education supports this idea only partially. The little compatibility between different

educational systems and the difficulties in translating one's own knowledge into a foreign language are possible explanations for this discrepancy (Zorlu, 2013a).<sup>4</sup> It is also the case that second-generation migrants benefit from the host country's education much more than their parents from the home country's one (Gonzalez, 2003; Hartog and Zorlu, 2009; Piton and Rycx, 2021). Migrating at a younger age allows the individual to complete secondary education in the host country and greatly improves job prospects (Åslund et al., 2015; Chiswick and Miller, 1995; Chiswick and Wang, 2019).

Contrary to education, the benefits from high host country language proficiency are often found to be significantly positive also for first-generation migrants. Dustmann (1994) is among the earliest to find a positive correlation between host country language proficiency and earnings of migrants in Germany. Chiswick and Miller (1995) are the first to use an IV estimation technique to account for the potential endogeneity of language problems. Bleakley and Chin (2004, 2010) improve this strategy by instrumenting language skills with the interaction of a dummy for arriving in the US as a child and one for being born in a non-English speaking country. Their approach is based on the assumption that non-language age-at-arrival effects are the same irrespective of the country of origin.

The relevance of social contacts in the literature on the labour market integration of migrants has considerably grown since the publication of Bourdieu's (1986) theory of social capital. Putnam (1993) extended on the previous definition by applying the concept of social capital to collective bodies such as migrant communities. Migrants may increase their social capital through two different social interactions: bonding and bridging. Social capital comes from bonding when the individual strengthens his/her ties with his/her migrant community (intra-ethnic contacts), and from bridging when the social ties are made instead with the local community (inter-ethnic contacts) (Patulny and Svendsen, 2007). Inter-ethnic contacts are often found to improve migrants' employability and earnings (Chiswick and Wang, 2019; Lancee, 2010). Intra-ethnic contacts might instead have negative implications such as little integration in the host country's society, excessive trust in one's inner circle, and restrictions imposed by leaders of the migrant community on others' professional choices (Portes, 2000, 2014; Sanders and Nee, 1996).<sup>5</sup>

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4 The field of study can also have important consequences not only on the type and level of skills obtained by a migrant (before migrating), but also on the transferability/applicability of these skills in the host country (for evidence from Europe, see Bevelander and Pendakur, 2014; Brücker et al., 2021; Montt; 2017; Visintin et al., 2015). However, as explained above, the research interest with regards to education lies in whether having or not higher education at all moderates the chances of temporary employment for migrants. The impact of different fields of study on the probability of temporary employment is a promising topic for future research.

5 The strength of social ties is also another important determinant for migrants' labour market integration. For seminal work on the topic, see Granovetter (1973).

### 2.3 THE DUTCH CASE

Recent contributions to the literature on the integration of migrants in the Dutch labour market have found non-Western migrants to be the ethnic group that faces the most labour market difficulties. Their participation rate is more than five percent lower than the one for Western migrants and natives, whose rates are comparable (above 80%) (Fasani and Mazza, 2023; Hartog and Salverda, 2018). They are also the population group that, on average, takes more time to transit from unemployment to employment (Veenman and Bijwaard, 2012) and is less likely to be employed in jobs matching their skill level (Chiswick and Wang, 2019; Hartog and Zorlu, 2009; Quillian and Lee, 2023; Zorlu, 2013a). Finally, they are the ones whose earnings benefit from naturalisation the least (Bevelander and Veenman, 2008).

Attaining higher education in non-Western countries appears to have no positive effect on employment prospects (Hartog and Zorlu, 2009). Instead, obtaining education in the Netherlands, the EU, or a former Dutch colony, is found to have a significant positive effect on employment chances (Bevelander and Veenman, 2008; Van Ours and Veenman, 2006). Language problems are found to have a major negative impact on the employability and earnings of migrants, especially when they come from non-Western countries (Chiswick and Wang, 2019; Yao and Van Ours, 2015). Regarding social contacts, the results are mixed. Inter-ethnic contacts seem to have a positive effect on migrants' job prospects; however, intra-ethnic contacts do not (Chiswick and Wang, 2019; Lancee, 2010; Martinovic et al., 2009).

The lack of such skills may lead to temporary employment through several ways. First, migrants may be more employable in professions not requiring such skills. For example, migrants with language problems might pick up occupations in sectors that require limited interactions with the local population, like the transport and food logistics services, which in turn make large use of temporary employment. Statistics Netherlands (2022) reports a higher percentage of migrants (especially of refugees, who often lack Dutch language proficiency) in such sectors. At the same time, migrants lacking higher education and having language problems will be hardly employable in the public sector, which makes large use of permanent jobs. Second, as previous evidence has shown, migrants in the Dutch labour market are often subject to skills mismatches, being employed in jobs below their skill level. In turn, low-skilled occupations are usually characterised by temporary forms of work (Bolhaar et al., 2018; Hartog and Salverda, 2018). It is reasonable to presume that these mismatches might be aggravated by one's incapability to effectively communicate in Dutch or with no contacts with local employers. Finally, with no inter-ethnic social contacts and low language capabilities, migrants often recur to private employment agencies, which make large use of temporary work arrangements.

In recent years, migrants coming to the Netherlands have had to adapt to rapid labour market changes as well. Statistics Netherlands (2019) reports

that the Netherlands has been the country with the highest increase in the number of flexworkers in the period 2008-2017 (+4.7%).<sup>6</sup> In 2019, the country had the third most flexible labour market in the EU (30% of all the workers), following Poland (33.3%) and Spain (33.1%) (CBS, 2019). This growth has been driven by a constant increase in temporary jobs relative to permanent ones (CBS, 2018). In 2018, i.e., at the end of my period of study, temporary workers made up 70% of the flexworkers in the Netherlands and 21% of all workers (CBS, 2018).

The Dutch rise in temporary jobs has several possible explanations. First, non-standard forms of employment are increasing in most high-income countries as a result of the job polarisation fostered by globalization and technological change (OECD, 2019). Being the Netherlands one of the world's most advanced labour markets, it does not come as a surprise that it is the leading European country for growth in the number of flexworkers in the period 2008-2017. Second, the Netherlands is a country with a high level of labour market dualism: the extent to which employment is divided between more protected permanent contracts and more fragile temporary contracts (Hartog and Salverda, 2018; OECD, 2019; Pijpers, 2010; Ter Weel, 2015). In the Netherlands, an employer can terminate a permanent employment contract only by showing fair grounds for dismissal, proved that the employee cannot be moved to another position within the company (Bolhaar et al., 2018).

Although it is still weaker than in most other OECD countries, the stringency of Dutch employment protection legislation (EPL) for temporary employment increased from 2013 to 2018 (OECD, 2019). This rise was led by the 2015 introduction of the Work and Security Regulation (*Wet Werk en Zekerheid*). The law reduced the maximum period for successive fixed-term employment contracts with the same employer from three to two years. As a result of this, the regulation has increased the average contract's duration but has not provided a real incentive for switching from temporary to permanent work (Hartog and Salverda, 2018). When a strict EPL for permanent jobs is combined with a more liberal one for temporary jobs, as in the Dutch case, firms react by substituting temporary for permanent workers (Boeri et al., 2020; Bolhaar et al., 2018; OECD, 2019).

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6 Flexworkers are defined as people who either are in temporary employment and/or have flexible hours (CBS, 2019). This category is therefore broader, and EU countries rank differently in terms of flexibility, than when considering temporary employment only. For more on the definition, see Footnote 1.

## 2.4 EMPIRICAL ANALYSIS

### 2.4.1 Data and Sample Composition

The dataset employed for the empirical analysis is derived from the Longitudinal Internet studies for the Social Sciences (LISS) administered by CentERdata (Tilburg University, The Netherlands).<sup>7</sup> The LISS provides information on a wide array of topics including personal characteristics, labour market position, and financial situation of households. Most importantly for this study, it contains information on migration background, type of employment, education, language skills, and social contacts. The dataset employed is composed of the waves covering the twelve years between 2008 and 2019.

Since the interest is in the working-age population, the sample is restricted to residents in the Netherlands between 15 and 64 years of age. To focus on the first generation, second-generation migrants (2,168) are excluded from the sample. Given that second-generation migrants are usually better integrated than their parents, pooling together the two groups would likely lead to an underestimation of the impact of having a migration background on the probability of temporary employment for just first-generation migrants.<sup>8</sup>

After deleting the observations of those who do not report information on their ethnic background (1,370) and their current or last type of employment (6,886), the final dataset consists of 32,406 observations from 8,252 individuals, who appear on average for 3.9 years each, from 5,776 unique households. Migrants make up 8.0% of the individuals in the sample (6.8% of the observations, meaning that they are slightly more likely than Dutch-born natives to leave the sample). This is lower than the percentage provided by CBS (2022) for each year (9.2% in the sample compared to 12.5% in CBS statistics for 2019, for example).

The three-percentage point gap between the share of migrants in the sample and the one provided by the CBS has several possible explanations. First, the sample lacks all the migrants who are not active in the labour market (or at least do not fill their labour market position in the survey) or are first-time jobseekers<sup>9</sup>. Eurostat reports that in 2023 around 28% of

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7 The population of reference is the Dutch-speaking population regularly residing in the Netherlands and the sample frame is the nationwide address registry by CBS. The sampling and survey units are independent, private households, thereby excluding any form of collective household. When a household receives the request for participation in the survey, all the members older than 15 are invited to participate. Importantly, households in which no adult is capable of understanding Dutch are not included.

8 For more on the labour market integration of second-generation migrants in the Netherlands, see CBS (2016), Gracia et al. (2015), Sweetman and Van Ours (2014), and Van Elk et al. (2019).

9 First-time jobseekers are beyond the scope of the analysis as for them the probability of being employed has never turned real. It is also reasonable to assume that migration background has a different impact for them. The same applies to inactive individuals.

non-EU-born residents in the working age population were not active in the Dutch labour market, compared to around 13% of Dutch and EU-born residents (Eurostat, 2024a). Second, it is important to remark that migrants with no one in their household with a sufficient command of Dutch to fill in the survey are also not included. It is reasonable to presume that for the migrants who were not able to fill in the survey, language problems may constitute an even higher barrier to their labour market integration.<sup>10</sup>

#### *Temporary employment variable*

From the survey question ‘Are (/In your last job) (/were) you an employee in permanent or temporary employment’, based on the CBS definition discussed in Section 2.1, I create a dummy variable for whether someone’s current or last job is/was temporary. The specification includes all the employees with temporary contracts, on-call employees, and temp-staffers, without any distinction for the number of hours worked. Workers with a permanent contract and flexible working hours are not categorised as temporarily employed. The same applies to self-employed and independent professionals.<sup>11</sup>

#### *Migration background variables*

The survey question asking respondents to disclose their ethnic background has five possible CBS categories as answer: Dutch-born native (born in the Netherlands by two parents born in the Netherlands), first-generation migrant with a Western migration background (born outside the Netherlands by both the parents, or just the mother, this is because the mother’s birth details are more likely to be known than those of the father, from a Western country), first-generation migrant with a non-Western migration background (born outside the Netherlands by both the parents, or just the mother, from a non-Western country), second-generation migrant with a Western background (born in the Netherlands by both the parents, or just

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10 The sample can still be considered representative of the overall migrant population residing in the Netherlands for three reasons. First, seasonal workers, who are the type of migrants with the lowest incentive to learn Dutch are not included in the LISS as most of them do not register in the country and are out of the scope of the study. Second, migrants tend to have bigger households than Dutch-born natives (Van Elk et al., 2019), therefore, it is likely they will often have at least one household member able to help them fill in the survey. Third, the underrepresentation of migrants in the sample compared to CBS statistics is minor and likely due also to the lower activity rate of migrants, as discussed in the text, and not only to their level of Dutch language proficiency.

11 As visible in Table 2.2, self-employed individuals and permanently employed ones present almost identical background characteristics. Therefore, including both groups under the specification for non-temporarily employed individuals does not produce any bias. As an additional form of check, the results of the main analysis have been replicated leaving out the self-employed and all the estimates (not reported) appeared with similar coefficient sizes and statistical significance to the ones presented in Section 2.4.4.

the mother, from a Western country), and second-generation migrant with a non-Western background (born in the Netherlands by both the parents, or just the mother, from a non-Western country).<sup>12</sup>

From this question, first, I create a dummy for whether someone has a first-generation migration background or not. Second, to study ethnic backgrounds separately, I create a categorical variable taking value zero if the individual is native Dutch, one if the individual is a first-generation Western migrant, and two if the individual is a first-generation non-Western migrant. As said, I exclude second-generation migrants from the analysis.

### *Control variables*

As control variables, I use the selection made by Yao and Van Ours (2015), who also employ the LISS to study the labour market position of migrants in the Netherlands. These are age, gender, civil status, number of children at home, and whether someone is living in an urbanised area or not.<sup>13</sup>

In addition, I include profession and sector of employment as controls by using two other categorical variables (the full specification can be found in Table 2.1). The reasoning for including them in the analysis is because they can correlate with both type of employment and migration background. Without controlling for them, the estimation strategy would calculate the impact of having a migration background on the probability of being employed in a sector or profession which makes high use of temporary employment, rather than on the pure probability of being temporarily employed. In other words, their exclusion would likely lead to omitted variable bias.

### *Integration variables*

To capture the moderating factors that may influence the probability of being temporarily employed, I employ three variables: level of education, whether someone has language problems or not, and the number of social clubs at which an individual is an active member. The latter is a proxy for active social contacts. Education is expressed in CBS categories: primary education, lower secondary education (VMBO), intermediate secondary

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12 Until 2022, Statistics Netherlands (CBS) defined Europe, North America, Oceania, Japan, and Indonesia, the latter being a former Dutch colony as Western, Africa, Asia, and Latin America as non-Western. From 2022 on, the CBS has started gradually adopting a new classification. Greater emphasis is to be placed on where a person was born and less on where their parents were born.

13 Age at arrival (or years since migration), a factor widely recognised in the literature as an important determinant of migrant integration into the host country's labour market, is not included in the main analysis due to limited data availability. Only a few individuals in the survey report this information, and including it would reduce the main sample by 90%. However, it is a crucial component of the main robustness check discussed in Section 2.4.5.

education (HAVO/VWO/MBO), and higher education (HBO/WO). Language problems are measured by a dummy variable that takes value one if the respondent reports to have problems in reading or speaking Dutch, and zero if not. The variable for active social contacts takes values zero to three for whether an individual is an active member of zero to three social clubs (sports clubs, culture/hobby clubs, and religious groups).

## 2.4.2 Descriptive Statistics

Table 2.1 provides an overview of the summary statistics for the variables included in the analysis, split by origin.<sup>14</sup> The three ethnic groups are heterogeneous when it comes to types of employment. Dutch-born natives show the highest share of individuals permanently employed (76.0%), Western migrants are the population group most involved in self-employment (self-employed and independent professionals) (10.4%), and non-Western migrants have the largest share of temporarily employed individuals (temporary contracts, on-call employees, and temporary staffers) (26.0%).

These statistics can be related to the ones for professions and sectors of employment, as different sectors and professions rely on different types of employment. In fact, Dutch-born natives and Western migrants, whose numbers for permanent and temporary employment are rather similar, show also similar professional profiles, with the latter slightly more employed in high- or medium-skilled jobs (52.9% and 53.3%). Non-Western migrants have instead a greater incidence in low-skilled professions (33.8%), which largely employ temporary jobs. Dutch-born natives are relatively more employed in sectors related to public services (38.7%) like healthcare, welfare, and education, all of which provide a high number of permanent jobs. Western migrants are relatively more present in the industrial production sector (17.1%) and in business services (8.4%), which might explain the relatively high number of self-employed individuals among them. Non-Western migrants are relatively more employed in catering (6.8%), which is a sector that makes high use of on-call contracts.

Regarding the integration variables, non-Western migrants are once again the most different population group from the other two. They are the ones with the lowest share of individuals with higher education (33.0%) and the highest one for individuals who have language problems in reading or speaking Dutch (45.4%). Western migrants show instead the largest share of individuals with higher education (47.9%) and a slightly lower number of people who report language problems (40.8%). Regarding social contacts, the three ethnic groups show similar statistics. All three have a share of individuals who are active members of a sports club, cultural/hobby association, or religious group slightly below 30%.

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14 Table 2.9 at the end of the chapter reports the summary statistics by labour market status. Additionally, Table 2.10 presents the summary statistics only for unemployed individuals by origin, while Table 2.11 provides those only for permanently employed individuals by origin.

Table 2.1a Summary statistics by origin

|                                                            | Dutch | West. Migr. | Non-West. Migr. |
|------------------------------------------------------------|-------|-------------|-----------------|
| <i>Demographic variables</i>                               |       |             |                 |
| Age                                                        | 44.0  | 44.5        | 43.5            |
| Female (%)                                                 | 53.0  | 52.4        | 47.0            |
| Civil status: single (%)                                   | 19.3  | 19.0        | 22.7            |
| Civil status: unmarried partner, not living together (%)   | 7.6   | 6.8         | 8.9             |
| Civil status: unmarried partner, living together (%)       | 16.7  | 13.9        | 9.0             |
| Civil status: married (%)                                  | 56.4  | 60.3        | 58.4            |
| N. of children at home                                     | 1.0   | 0.8         | 1.2             |
| Urban domicile (%)                                         | 82.4  | 87.5        | 97.4            |
| <i>Integration variables (%)</i>                           |       |             |                 |
| Level of education: primary education                      | 5.0   | 7.9         | 10.4            |
| Level of education: lower secondary education              | 19.8  | 9.9         | 18.5            |
| Level of education: intermediate secondary education       | 38.2  | 34.3        | 38.6            |
| Level of education: higher education                       | 37.0  | 47.9        | 33.0            |
| Language problems                                          | 11.1  | 40.8        | 45.4            |
| Active membership in social clubs                          | 27.2  | 29.5        | 29.6            |
| <i>Current/last type of employment (%)</i>                 |       |             |                 |
| Permanent contract                                         | 76.0  | 73.4        | 68.1            |
| Temporary contract                                         | 9.9   | 11.3        | 16.5            |
| On-call employee                                           | 2.9   | 1.4         | 3.1             |
| Temp-staffer                                               | 2.0   | 3.0         | 6.4             |
| Self-employed/freelancer                                   | 6.9   | 9.3         | 4.6             |
| Independent professional                                   | 0.9   | 1.1         | 0.1             |
| Director of a limited liability or private limited company | 0.4   | 0.2         | 0.1             |
| Majority shareholder director                              | 1.0   | 0.3         | 1.1             |
| <i>Profession (%)</i>                                      |       |             |                 |
| Higher academic or independent profession                  | 7.5   | 9.7         | 7.0             |
| Higher supervisory profession                              | 7.7   | 8.7         | 6.9             |
| Intermediate academic or independent profession            | 24.7  | 24.5        | 18.7            |
| Intermediate supervisory or business profession            | 13.0  | 11.4        | 6.4             |
| Other mental work                                          | 24.2  | 18.2        | 20.5            |
| Skilled and supervisory manual work                        | 6.7   | 8.6         | 5.8             |
| Semi-skilled manual work                                   | 6.6   | 10.5        | 12.4            |
| Unskilled and trained manual work                          | 7.5   | 6.1         | 17.7            |
| Agrarian profession                                        | 1.4   | 1.3         | 3.7             |

*Notes:* In an urbanised area population density is above 1,500 people per square kilometre. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. *Source:* author's calculation from the data (LISS, 2008-2019).

Table 2.1b Summary statistics by ethnic background, continuation

|                                                     | Dutch  | West. Migr. | Non-West. Migr. |
|-----------------------------------------------------|--------|-------------|-----------------|
| <i>Sector of employment (%)</i>                     |        |             |                 |
| Agriculture, forestry, fishery, hunting             | 2.1    | 0.4         | 1.7             |
| Mining                                              | 0.05   | 0.1         | 0.07            |
| Industrial production                               | 9.2    | 17.1        | 9.9             |
| Utilities production, distribution, and/or trade    | 0.8    | 0.9         | 3.6             |
| Construction                                        | 4.2    | 4.1         | 3.0             |
| Retail trade                                        | 8.3    | 8.9         | 6.6             |
| Catering                                            | 3.6    | 3.5         | 6.8             |
| Transport, storage, communication                   | 4.4    | 3.5         | 3.3             |
| Financial                                           | 4.3    | 3.9         | 6.6             |
| Business services (including real estate, rental)   | 6.3    | 8.4         | 4.0             |
| Government services, P.A., and social insurances    | 8.9    | 9.5         | 8.4             |
| Education                                           | 9.0    | 8.0         | 7.7             |
| Healthcare and welfare                              | 20.8   | 13.6        | 14.6            |
| Environmental services, culture, and other services | 2.4    | 2.1         | 1.7             |
| Other                                               | 15.8   | 15.7        | 22.3            |
| Individuals                                         | 7,593  | 256         | 403             |
| N. of households                                    | 5,275  | 193         | 308             |
| N                                                   | 30,193 | 902         | 1,311           |

*Notes:* The categories for professions and sectors are taken from the LISS. *Source:* author's calculation from the data (LISS, 2008-2019).

### 2.4.3 Methodology

Equation 2.1 below is used to estimate the influence of having a migration background on the likelihood of being temporarily employed:

$$TE_{it} = \beta_0 + \beta_1 MB_i + \beta_2 X'_{it} + \beta_3 P_{it} + \beta_4 Se_{it} + \beta_5 E_{it} + \beta_6 LP_{it} + \beta_7 SC_{it} + \delta_t + \varepsilon_{it} \quad (2.1)$$

with  $P(TE_{it} = 1 | \oplus) = \Phi(\beta_0 + \beta_1 MB_i + \beta_2 X'_{it} + \beta_3 P_{it} + \beta_4 Se_{it} + \beta_5 E_{it} + \beta_6 LP_{it} + \beta_7 SC_{it} + \delta_t)$ .

$TE_{it}$  is the dependent dummy variable which takes value one if individual  $i$ 's last/current job is temporary and zero if not.  $MB_i$  is a dummy variable which takes value one if individual  $i$  has a migration background and zero

otherwise.  $X_{it}$  is a vector containing a set of variables measuring background demographic characteristics (age, age squared, gender, civil status, number of children at home, and whether someone lives in an urbanised area or not).  $P_{it}$  is the variable for profession and  $Se_{it}$  is the one for the sector of employment.  $E_{it}$ ,  $LP_{it}$ , and  $SC_{it}$  are the three integration variables for the factors that may influence the type of employment reported by individual  $i$  at time  $t$ : level of education, language problems, and number of active memberships in social clubs respectively.  $\delta_t$  are the calendar year effects captured with the inclusion of year dummies and  $\varepsilon_{it}$  is the error term.

The probit estimator is chosen because the dependent variable is binary, as a linear probability model (OLS) would unlikely yield robust and consistent estimates (Gourieroux, 2012). The standard errors are clustered at the household level to avoid correlation of the error term between observations of different individuals in the same household, as well as between different observations of the same individual over time. To estimate the impact of the three integration variables on migrants' probability of being temporarily employed, each of them is interacted with migration background, keeping the others as controls. For the sake of simplifying the interaction analysis, each integration variable is treated as a dummy (having or not higher education, having or not language problems, and having or not active social contacts).<sup>15</sup>

#### 2.4.4 Results

Table 5.3 below reports the probit average marginal effects resulting from Equation 2.1. As Columns 1 to 3 show, having a migration background always increases the chances of being temporarily employed, whether background variables and integration variables are included as controls or not. When including all control variables, an individual with a migration background is estimated to be, on average, 6.7 percentage points more likely to be temporarily employed than a Dutch-born native, significant at 1%. Column 4 shows that this result is driven by non-Western migrants, who are 10.6 percentage points more likely to be temporarily employed than natives. Western migrants are 3.2 percentage points more likely to be temporarily employed than natives, but this estimate is not statistically significant at 5%.<sup>16</sup>

15 Interacting the three dummies for the integration variables among themselves would create nine possible combinations. In addition to being out of the scope of the study, this would produce a highly fragmented sample, with different sizes depending on the interaction considered, and insufficient statistical power for the estimates of these interactions to be consistent. The same would happen if considering different fields of study separately.

16 As additional checks, the results have been re-estimated with a linear probability model (OLS), with a logit estimator, with a Mundlak estimator, and by running separate regressions for males and females. The estimates obtained in these checks do not present major differences from the ones discussed in Section 2.4.4 and are available at the end of this chapter. A fixed effects estimator is not considered because migration background is time-invariant.

Table 2.2 Probit estimates

| VARIABLE                                   | (1)                   | (2)                   | (3)                    | (4)                    |
|--------------------------------------------|-----------------------|-----------------------|------------------------|------------------------|
|                                            |                       | Temporary Employment  |                        |                        |
| Origin: Western                            |                       |                       |                        | 0.0325*<br>(0.0195)    |
| Origin: non-Western                        |                       |                       |                        | 0.106***<br>(0.0199)   |
| Migration background                       | 0.0634***<br>(0.0135) | 0.0666***<br>(0.0114) | 0.0673***<br>(0.0115)  |                        |
| Level of education: lower secondary        |                       |                       | 0.0129<br>(0.0128)     | 0.0122<br>(0.0128)     |
| Level of education: intermediate secondary |                       |                       | 0.0186<br>(0.0119)     | 0.0182<br>(0.0120)     |
| Level of education: higher                 |                       |                       | 0.0117<br>(0.0134)     | 0.0121<br>(0.0135)     |
| Language problems                          |                       |                       | -0.000283<br>(0.00784) | -0.000597<br>(0.00787) |
| N. active memberships in social clubs: 1   |                       |                       | -0.00382<br>(0.00523)  | -0.00406<br>(0.00522)  |
| N. active memberships in social clubs: 2   |                       |                       | 0.0134<br>(0.0104)     | 0.0136<br>(0.0104)     |
| N. active memberships in social clubs: 3   |                       |                       | 0.00312<br>(0.0232)    | 0.00264<br>(0.0232)    |
| Background variables                       |                       | Yes                   | Yes                    | Yes                    |
| Year-fixed effects                         |                       | Yes                   | Yes                    | Yes                    |
| Observations                               | 32,406                | 32,406                | 32,406                 | 32,406                 |

Notes: Robust standard errors clustered at the household level in parentheses. Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author’s calculation from the data (LISS, 2008-2019).

The estimates for the background variables appear with the expected signs and effect sizes being one year older decreases the chances of being temporarily employed by 4.5 percentage points; age squared shows that the effect is increasing with age (+0.04 percentage points).<sup>17</sup> Females are 3.4 percentage points more likely to be temporarily employed than males, while married individuals are 4.9 percentage points less likely to be tem-

17 To improve the readability, the estimates for the background variables and Year-fixed effects are not displayed in Table 2.2. They are available upon request.

porarily employed than singles. Unsurprisingly, individuals in low-skilled professions (semi- or unskilled manual work and agriculture) are around 10 percentage points more likely to be temporarily employed than those in high-skilled professions. The three integration variables, here included as controls and not interacted with the migration background dummy, do not yield estimates statistically different from zero.

The estimates for the impact of the three integration variables on migrants’ probability of being temporarily employed are presented in panels *a* and *b* of Table 2.3, Table 2.4, and Table 2.5. Language problems appears to be the only integration variable significantly affecting migrants’ likelihood of being temporarily employed. Migrants with language problems are estimated to be statistically different from migrants without language problems (the average marginal effect of an interaction term is not meaningful in a probit model) and, on average, 12.9 percentage points more likely to be temporarily employed than natives, significant at 1%. As shown in panel *b* of Table 2.4 below, these numbers are largely driven by non-Western migrants. Being a non-Western migrant with language problems increases the chances of temporary employment by 16.8 percentage points with respect to natives, significant at 1%. Higher education and active social contacts appear to be not significant in explaining migrants’ temporary employment probability. Migrants with higher education or active social contacts are not statistically significantly different from those without, across both migration backgrounds.

Table 2.3 Moderators: higher education

Panel a: by general migration background

| VARIABLES                           | (1)<br>Temporary Employment<br>(coefficients) | (2)<br>Temporary Employment<br>(average marginal effect<br>when higher education=1) |
|-------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Migration background                | 0.763***<br>(0.0767)                          | 0.0710***<br>(0.0228)                                                               |
| Higher education                    | -0.00455<br>(0.0429)                          |                                                                                     |
| Migration background × Higher educ. | -0.0295<br>(0.122)                            |                                                                                     |
| Background variables                | Yes                                           |                                                                                     |
| Year-fixed effects                  | Yes                                           |                                                                                     |
| Observations                        | 32,406                                        | 32,406                                                                              |

Panel b: by specific migration background

| VARIABLES                  | (1)<br>Temporary Employment<br>(coefficients) | (2)<br>Temporary Employment<br>(average marginal effect<br>when higher education=1) |
|----------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Origin: Western            | 0.112<br>(0.118)                              | 0.0436<br>(0.0299)                                                                  |
| Origin: non-Western        | 0.478***<br>(0.0950)                          | 0.0992***<br>(0.0325)                                                               |
| Higher education           | -0.0219<br>(0.0429)                           |                                                                                     |
| Western × Higher educ,     | 0.106<br>(0.177)                              |                                                                                     |
| Non-Western × Higher educ. | -0.0301<br>(0.159)                            |                                                                                     |
| Background variables       | Yes                                           |                                                                                     |
| Year-fixed effects         | Yes                                           |                                                                                     |
| Observations               | 32,406                                        | 32,406                                                                              |

Notes: Robust standard errors clustered at the household level in parentheses. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

Table 2.4 Moderators: language problems

Panel a: by general migration background

| VARIABLES                         | (1)<br>Temporary Employment<br>(coefficients) | (2)<br>Temporary Employment<br>(average marginal effects<br>when lang. problems=1) |
|-----------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------|
| Migration background              | 0.0538***<br>(0.0759)                         | 0.129***<br>(0.0240)                                                               |
| Language problems                 | -0.00115<br>(0.0460)                          |                                                                                    |
| Migr. background × Lang. problems | 0.372***<br>(0.114)                           |                                                                                    |
| Background variables              | Yes                                           |                                                                                    |
| Year-fixed effects                | Yes                                           |                                                                                    |
| Observations                      | 32,406                                        | 32,406                                                                             |

*Panel b: by specific migration background*

| VARIABLES                    | (1)<br>Temporary Employment<br>(coefficients) | (2)<br>Temporary Employment<br>(average marginal effects<br>when lang. problems=1) |
|------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------|
| Origin: Western              | 0.0852<br>(0.121)                             | 0.0638**<br>(0.0312)                                                               |
| Origin: non-Western          | 0.285***<br>(0.0938)                          | 0.168***<br>(0.0326)                                                               |
| Language problems            | -0.0731<br>(0.0460)                           |                                                                                    |
| Western × Lang. problems     | 0.233<br>(0.181)                              |                                                                                    |
| Non-Western × Lang. problems | 0.430***<br>(0.140)                           |                                                                                    |
| Background variables         | Yes                                           |                                                                                    |
| Year-fixed effects           | Yes                                           |                                                                                    |
| Observations                 | 32,406                                        | 32,406                                                                             |

Notes: Robust standard errors clustered at the household level in parentheses. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

*Table 2.5 Moderators: active social contacts**Panel a: by general migration background*

| VARIABLES                           | (1)<br>Temporary Employment | (2)<br>Temporary Employment<br>(average marginal effects<br>when active social<br>contacts=1) |
|-------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------|
| Migration background                | 0.362***<br>(0.0681)        | 0.0725***<br>(0.0208)                                                                         |
| Active social contacts              | -0.00189<br>(0.0272)        |                                                                                               |
| Migration background × Active s. c. | -0.0224<br>(0.0971)         |                                                                                               |
| Background variables                | Yes                         |                                                                                               |
| Year-fixed effects                  | Yes                         |                                                                                               |
| Observations                        | 32,406                      | 32,406                                                                                        |

Panel b: by specific migration background

| VARIABLES                  | (1)<br>Temporary Employment | (2)<br>Temporary Employment<br>(average marginal effects<br>when active social<br>contacts=1) |
|----------------------------|-----------------------------|-----------------------------------------------------------------------------------------------|
| Origin: Western            | 0.184*<br>(0.0992)          | 0.0178<br>(0.0284)                                                                            |
| Origin: non-Western        | 0.471***<br>(0.0858)        | 0.106***<br>(0.0285)                                                                          |
| Active social contacts     | -0.00209<br>(0.0272)        |                                                                                               |
| Western × Active s. c.     | -0.0917<br>(0.145)          |                                                                                               |
| Non-Western × Active s. c. | 9.24e-05<br>(0.122)         |                                                                                               |
| Background variables       | Yes                         |                                                                                               |
| Year-fixed effects         | Yes                         |                                                                                               |
| Observations               | 32,406                      | 32,406                                                                                        |

Notes: Robust standard errors clustered at the household level in parentheses. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

### 2.4.5 Robustness Check

The findings from Section 2.4.4 point to language problems as the main moderator affecting migrants' temporary employment probability. Migrants with language problems appear statistically significantly different from those without, and 12.9 percentage points more likely to be temporarily employed than natives. However, the estimation of the effects of language problems may suffer from endogeneity from three potential sources. These are omitted variables, reverse causality, and measurement error.

As for omitted variables, several unobserved characteristics are potentially correlated with both the type of employment and language problems. For example, migrants with more free time or higher motivation may have more possibilities and desire to learn Dutch and be more active in their job search. Regarding reverse causality, it is reasonable to assume that migrants with permanent jobs have a stronger incentive for learning Dutch. Additionally, measurement error may be an issue since the measure of language problems employed in this study is self-reported. If individuals tend to exaggerate their language problems, this will lead to an underestimation of the language proficiency effect. In the case of the present study, 11.1%

of the Dutch natives in the sample report to have difficulties in reading or speaking Dutch. This is probably due to an exaggerated perception of one own's struggles, rather than an objective linguistic barrier as the one that migrants may face.

To correct for potential endogeneity, I employ an instrumental variable (IV) technique similar to the one proposed by Bleakley and Chin (2004, 2010) and subsequently used in other studies on the labour market position of migrants in the Netherlands (Chiswick and Wang, 2019; Yao and Van Ours, 2015). This method consists of instrumenting *language problems* with an interaction between two other variables: age at arrival in the Netherlands and a dummy indicating whether a migrant did not speak Dutch during childhood.<sup>18</sup>

Previous research has extensively shown that being born in a household from a country where Dutch is not spoken is associated with a worse command of it at adulthood, while early age at arrival in the Netherlands can compensate for this initial disadvantage (Chiswick and Wang, 2019; Sweetman and Van Ours, 2014; Yao and Van Ours, 2015). Given the interaction of the two, the identifying assumption is that non-language labour market effects of age of arrival are the same for migrants who spoke Dutch during childhood and those who did not. Because age at arrival should affect the language skills mostly of those immigrants whose did not speak Dutch during childhood, the interaction between these two variables is used as the main identifying instrument and can be interpreted as a local average treatment effect (LATE) (Angrist and Pischke, 2009; Budria and Martinez de Ibarreta, 2021; Chiswick and Wang, 2019; Miranda and Zhu, 2013; Yao and Van Ours, 2015).

To apply the IV strategy described above, I restrict the sample to first-generation migrants who report their age at arrival in the Netherlands and the language spoken during childhood and exclude Dutch-born natives from it. For these reasons, the number of observations drops to 1,471. To control for possible non-language assimilation effects of age at arrival, I include a dummy for having a non-Western migration background. To apply the IV strategy described above, I use a bivariate probit estimator. A single IV probit estimator cannot be used as *language problems*, the main explanatory variable of interest, is binary (Han and Lee, 2019; Wooldridge, 2010). A bivariate probit estimator (or biprobit) is a maximum-likelihood two-step estimator that calculates a first probit model for the binary endogenous variable *language problems* regressing it on the instrument created from interaction between *age at arrival* and *not-speaking Dutch during childhood*. Then, it calculates a second probit model adding *language problem*

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18 Given the colonial past of the Netherlands and that many individuals migrated to the country during their childhood, the share of first-generation migrants who grew up speaking Dutch is considerable. In the present sample, they constitute 45% of first-generation migrants.

estimated through the first probit model as an additional explanatory variable for the probability of temporary employment.

Table 2.6 below presents the estimates obtained with the biprobit estimator. As visible in Column 1, arriving one year later in the Netherlands increases the chances of language problems by an average of 1.5 percentage points for individuals who did not speak Dutch during childhood, significant at 1%. In turn, as visible in Column 2, language problems increase the probability of temporary employment by an average of 17.5 percentage points, significant at 5%. The increase in effect size from the 12.9 percentage points average marginal effect obtained in panel *a* of Table 2.4 suggests that the downward bias caused by measurement error is bigger than the upward bias caused by omitted variables and reverse causality. In Columns 3 and 4, the biprobit estimation from Columns 1 and 2 is re-run but now including *age at arrival* not interacted with *migration background* as an additional instrument. Although this implies the stronger assumption that age at arrival affects the labour market position of migrants only through language skills, it is now possible to calculate the age at arrival effects on language problems for immigrants who spoke Dutch during their childhood. The estimates show that the effect of language problems on temporary employment is robust to the inclusion of age at arrival as an additional instrument and the coefficient size grows to 21.4 percentage points, significant at 1%. As reported in Column 3, it is noteworthy that age at arrival increases language problems also for people who grew up speaking Dutch by an average of 0.7 percentage points, significant at 1%.

Table 2.6 also reports a coefficient (*rho*) which is the correlation coefficient between the residuals of each model in the two steps biprobit estimation. If the value of  $\chi^2$  for a Wald test of *rho* is statistically significantly different from zero, then the two steps should be estimated simultaneously, as correlation between the error terms of the two probits cannot be excluded. If not, estimating two probits one after the other is correct (Filipini et al., 2018). As visible in Table 2.6, the test result suggests that the error terms of the two probits are not correlated, and the two steps of the biprobit estimator can be correctly estimated one after the other in both IV specifications.

Table 2.6 Robustness check, bivariate probit (average marginal effects)

| VARIABLES                           | (1)<br><i>Language Problems</i><br>(Biprobit, first step) | (2)<br><i>Temporary Employment</i><br>(Biprobit, second step) | (3)<br><i>Language Problems</i><br>(Biprobit with double instrument, first step) | (4)<br><i>Temporary Employment</i><br>(Biprobit with double instrument, second step) |
|-------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Language problems                   |                                                           | 0.175**<br>(0.0774)                                           |                                                                                  | 0.214***<br>(0.0796)                                                                 |
| Age at arrival × speaking non-Dutch | 0.0146***<br>(0.00138)                                    |                                                               | 0.0108***<br>(0.00207)                                                           |                                                                                      |
| Age at arrival                      |                                                           |                                                               | 0.00732***<br>(0.00259)                                                          |                                                                                      |
| Non-Western background              |                                                           | 0.0992***<br>(0.0322)                                         |                                                                                  | 0.0971***<br>(0.0314)                                                                |
| Background variables                | Yes                                                       | Yes                                                           | Yes                                                                              | Yes                                                                                  |
| Year-fixed effects                  | Yes                                                       | Yes                                                           | Yes                                                                              | Yes                                                                                  |
| Wald test of rho=0: $\chi^2$        |                                                           | 1.245                                                         |                                                                                  | 2.337                                                                                |
| Observations                        | 1,471                                                     | 1,471                                                         | 1,471                                                                            | 1,471                                                                                |

Notes: Robust standard errors clustered at the household level in parentheses. In Column 2, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood. In Column 4, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood, age at arrival in the Netherlands (not interacted). Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author’s calculation from the data (LISS, 2008-2019).

Unfortunately, to this date there is no unanimously accepted way of testing the strength of the instrument used in a bivariate probit estimator. For this reason, as Angrist and Pischke (2009) recommend in the case of non-linear estimations with endogenous binary explanatory variables, the estimates presented in Table 2.6 are checked by substituting the biprobit estimator with a two-stage stage least-squares (2SLS) estimator employing the same instrumental variable strategy. As visible in Table 2.7 below, the estimates obtained via 2SLS are almost identical to the ones obtained via biprobit in both coefficients’ sizes and significance levels.

Given the 2SLS estimator, it is now possible to perform two tests. First, a relevance check is done by running an F-test on the significance of the instrument. Weak instruments provide biased and inconsistent estimates. As a rule of thumb, an F-statistic above 10 signals that the instrument is strong enough (Stock and Yogo, 2005). As reported in Columns 2 and 4 of Table 2.7, the F-statistic is well above 10. Second, through a Hansen J test of overidentifying restrictions it is tested whether the two instruments used

the second IV specification in Columns 3 and 4 of Table 2.7 (*age at arrival* interacted with *speaking not-Dutch during childhood* and *age at arrival* alone) are correlated with the error term. To be carried out, the test requires the presence of more instruments than endogenous regressors.<sup>19</sup> Under the null hypothesis both instruments are exogenous to the error term and 2SLS estimates are valid. The Hansen J test-statistic in Column 4 shows that the null hypothesis cannot be rejected at all significance levels. Therefore, the additional instrument does not invalidate the IV strategy.

Table 2.7 Robustness check, 2SLS

| VARIABLES                           | (1)<br><i>Language Problems</i><br>(2SLS, first stage) | (2)<br><i>Temporary Employment</i><br>(2SLS, second stage) | (3)<br><i>Language Problems</i><br>(2SLS with double instrument, first stage) | (4)<br><i>Temporary Employment</i><br>(2SLS with double instrument, second stage) |
|-------------------------------------|--------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Language problems                   |                                                        | 0.161**<br>(0.0916)                                        |                                                                               | 0.189***<br>(0.0502)                                                              |
| Age at arrival × speaking non-Dutch | 0.0153***<br>(0.00174)                                 |                                                            | 0.0120***<br>(0.00116)                                                        |                                                                                   |
| Age at arrival                      |                                                        |                                                            | 0.00735***<br>(0.00223)                                                       |                                                                                   |
| Non-Western background              | 0.0809***<br>(0.0406)                                  | 0.0890***<br>(0.0339)                                      | 0.0607**<br>(0.0248)                                                          | 0.0873***<br>(0.0209)                                                             |
| Background variables                | Yes                                                    | Yes                                                        | Yes                                                                           | Yes                                                                               |
| Year-fixed effects                  | Yes                                                    | Yes                                                        | Yes                                                                           | Yes                                                                               |
| F-statistic                         |                                                        | 77.1***                                                    |                                                                               | 160.1***                                                                          |
| Hansen J-statistic                  |                                                        |                                                            |                                                                               | 2.6                                                                               |
| Constant                            | -0.289<br>(0.288)                                      | 1.387***<br>(0.271)                                        | -0.203<br>(0.206)                                                             | 1.395***<br>(0.217)                                                               |
| Observations                        | 1,471                                                  | 1,471                                                      | 1,471                                                                         | 1,471                                                                             |
| Partial R-squared                   |                                                        | 0.163                                                      |                                                                               | 0.180                                                                             |
| R-squared                           | 0.352                                                  | 0.234                                                      | 0.365                                                                         | 0.228                                                                             |

Notes: Robust standard errors clustered at the household level in parentheses. In Column 2, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood. In Column 4, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood, age at arrival. To perform the test for overidentifying restrictions, the standard errors in Column 4 are robust not-clustered. Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

19 The Hansen J-statistic follows a  $\chi^2$ -distribution with one degree of freedom.

## 2.5 DISCUSSION

The finding that non-Western migrants are the ethnic group most likely to be temporarily employed is in line with previous evidence on their low employability and earnings in the Dutch labour market (Chiswick and Wang, 2019; Veenman and Bijwaard, 2012; Yao and Van Ours, 2015; Zorlu, 2013a). Two plausible explanations for the findings of this study come from factors that are difficult to capture in the estimation strategy: discrimination and preferences.

### 2.5.1 Discrimination

Discrimination towards individuals with a non-Western background (or just with a non-Western appearance) is a well-documented phenomenon in European labour markets (for the Dutch case see Andriessen, 2012; Quilian and Lee, 2023; Thijssen et al., 2021; Zorlu, 2003). Despite the aim of this study is not to precisely estimate the discrimination against migrants, when demographic characteristics, profession, sector of employment, education, language problems, and social contacts are controlled for, a part of the residual effect of migration background on the probability of being temporarily employed may be interpreted as the effect of racial discrimination.

Two additional aspects suggest that discrimination may play a role in the labour market outcomes of non-Western migrants in the Netherlands. First, the Dutch population has the highest level of English proficiency among European countries where English is not a native language (CBS, 2018), which limits the circumstances under which Dutch proficiency is essential for workplace success. Second, in my sample, Western and non-Western migrants do not report significantly different levels of Dutch language problems. If Dutch language issues strongly influence employment types, Western migrants would then be expected to face a similar language penalty to that experienced by non-Western migrants, when other factors are controlled for. However, the results do not show this, and this disparity could indicate potential discrimination against non-Western migrants. Nonetheless, it is important to consider that Dutch language problems might also differ in nature for the two groups. Western migrants are more likely than non-Western migrants to be fluent in English (or German), which would reduce their need to learn Dutch. Their English proficiency would make them more employable and likely facilitate an easier Dutch language learning process.

### 2.5.2 Preferences

Temporary forms of employment are generally intended as a trampoline towards permanent employment, especially for the youth. It is often the case that young people look for temporary jobs because they can be more

easily combined with schooling and allow for more flexibility (CBS, 2018). Additionally, migrants could have a preference for temporary employment because of fewer job obligations and less bureaucracy in case of necessity to relocate again. Whether a migrant has the intention to stay long-term in the host country influences the type of jobs they will look for, and the type of job they find influences their attitude towards long-term stay (Bijwaard et al., 2014; Dustmann and Gorlach, 2016). For the Dutch case, recent evidence from Bijwaard and Wahba (2019) has shown that migrants' wage levels are different for those who decide to stay from those who decide to leave the Netherlands, after having migrated there in the first place. Wages tend to be overestimated if considering only the long-term stayers and ignoring outmigration, while they tend to be under-estimated if considering only the leavers and ignoring permanent residence (Bijwaard and Wahba, 2019).<sup>20</sup>

Therefore, it might be argued that, despite the population of reference of the dataset being the one of regular residents, the results of this study are endogenous and driven by a strong preference of (young) first-generation non-Western migrants for temporary employment. This hypothesis is weakened by the fact that temporarily employed non-Western migrants in the sample report an average age of 39 years. It could be argued that, at almost 40 years of age, most people would prefer a permanent occupation rather than a temporary one.<sup>21</sup>

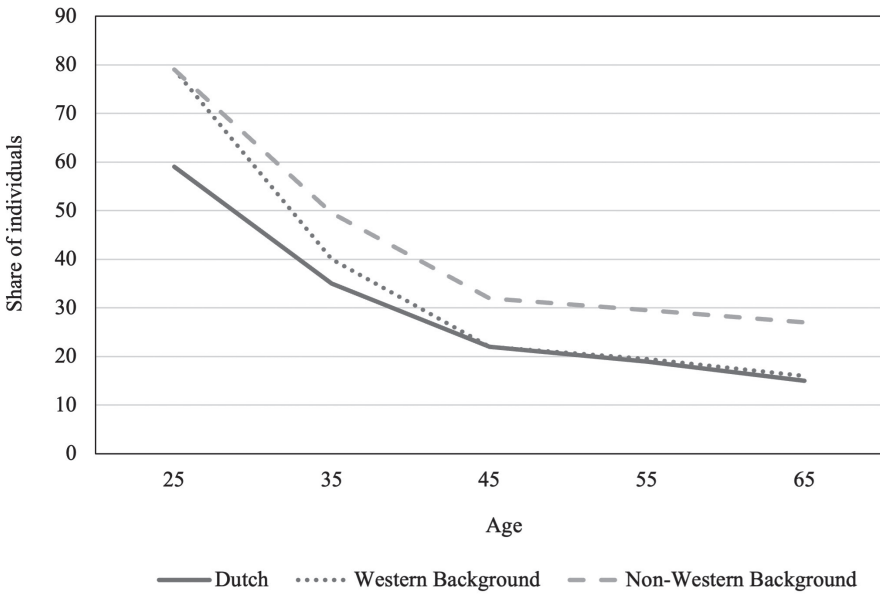
Despite there is no specific question in the LISS asking for a preference between a permanent and a temporary job, from the available data it is possible to derive some interesting insights about temporary employment across age groups, ethnic backgrounds, and career satisfaction levels. Figure 2.1 below shows the percentage of individuals in temporary employment across ethnic groups, by age.

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20 The sample has been checked to avoid that ignoring out-migration would bias the results. To do so, the main analysis has been replicated only for individuals who were present in the sample from their entrance until 2019. In other words, the analysis has been replicated for the long-term stayers to see if they were less likely to be temporarily employed than the overall group. The idea is to exclude the possibility that the results are driven by migrants taking up temporary employment and leaving after a couple of years. The effects of the different migration backgrounds on the probability of temporary employment for the subsample of long-term stayers resulted similar to the ones presented in Section 2.4.4 (not reported).

21 To further check the probability of temporary employment for individuals with considerable labour market experience, two additional estimations were performed (not reported). First, the main estimation was replicated only for individuals older than 40. Second, the main estimation was replicated only for individuals who appear for at least 8 years in the sample (two-thirds of the overall sample coverage), which are around 25% of the total. The estimates obtained in these checks did not present major differences from the ones discussed in Section 2.4.4.

Figure 2.1 Temporarily employed individuals over age, across origin



Source: author’s elaboration from the data (LISS, 2008-2019).

The majority of twenty-five-year-olds from all groups are employed in temporary jobs, even though the share for individuals with a migration background is 20 percentage points higher (reaching almost 80%). As age increases, the share of temporary jobs for Western migrants drops and converges with the one of Dutch natives. Interestingly, this does not happen for non-Western migrants: individuals aged from 45 to 65 remain ten percent more likely to be temporarily employed than Dutch natives.<sup>22</sup>

Since 2016, the LISS includes two questions that allow for a preliminary analysis of temporary employment over time. The first asks respondents who have previously asserted to be employed with a temporary contract whether the current one is their first temporary contract in a row or not. The second asks whether they expect their contract to switch to permanent soon. From these, I create two dummies, one for consecutive temporary contracts and one for positive expectations towards future permanent employment, and alternatively substituted as dependent variables in Equation 2.1.

22 Given that most of the individuals in the sample appear only for three consecutive years, it is not possible to distinguish between cohort effects and age effects. To do so, it would be needed to observe the same individuals over a longer period.

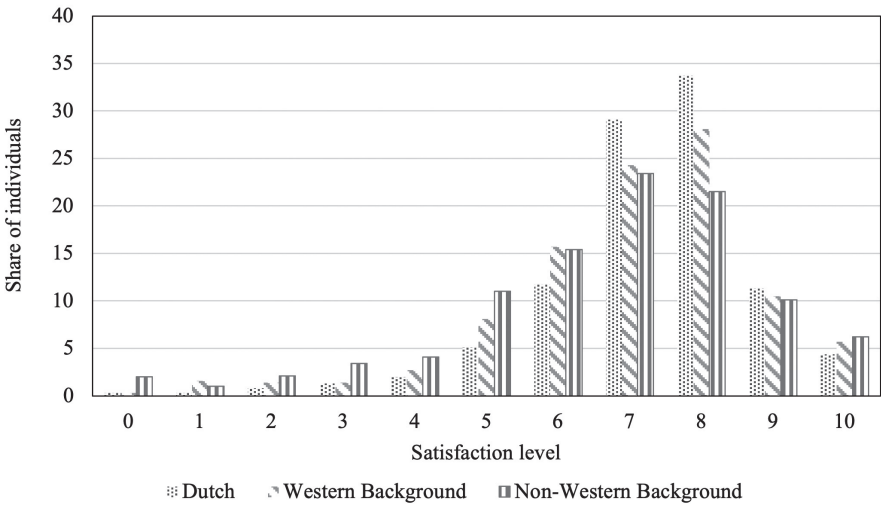
Table 2.8 Temporary contracts over time, probit (average marginal effects)

| VARIABLES            | (1)<br>Consecutive<br>temporary<br>contracts | (2)<br>Expected switch<br>to permanent | (3)<br>Consecutive<br>temporary<br>contracts | (4)<br>Expected switch<br>to permanent |
|----------------------|----------------------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------|
| Origin: Western      |                                              |                                        | -0.00257<br>(0.103)                          | -0.116<br>(0.0996)                     |
| Origin: non-Western  |                                              |                                        | 0.134**<br>(0.0666)                          | -0.0883<br>(0.0822)                    |
| Migration background | 0.0901<br>(0.0595)                           | -0.0971<br>(0.0700)                    |                                              |                                        |
| Background variables | Yes                                          | Yes                                    | Yes                                          | Yes                                    |
| Year-fixed effects   | Yes                                          | Yes                                    | Yes                                          | Yes                                    |
| Observations         | 885                                          | 816                                    | 885                                          | 816                                    |

Notes: Robust standard errors clustered at the household level in parentheses. Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Because survey questions on the successive number of temporary contracts are available only since 2016, this estimation is limited to the years 2016-2019, included. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

As visible in Columns 3 and 4 of Table 2.8 above, having a non-Western migration background increases the probability of consecutive temporary contracts by 13.4 percentage points, significant at 5%, and reduces the expectations for future permanent employment by almost eight percentage points. However, this latter estimate is not statistically significant. These findings are limited by the reduced period of availability, the small sample, and the fact that they do not consider the other forms of temporary employment included in the main analysis' specification (on-call contracts and temporary staffer contracts). Nonetheless, they still provide useful preliminary evidence that non-Western migrants, if currently temporarily employed, are more likely to be temporarily employed in the future as well.

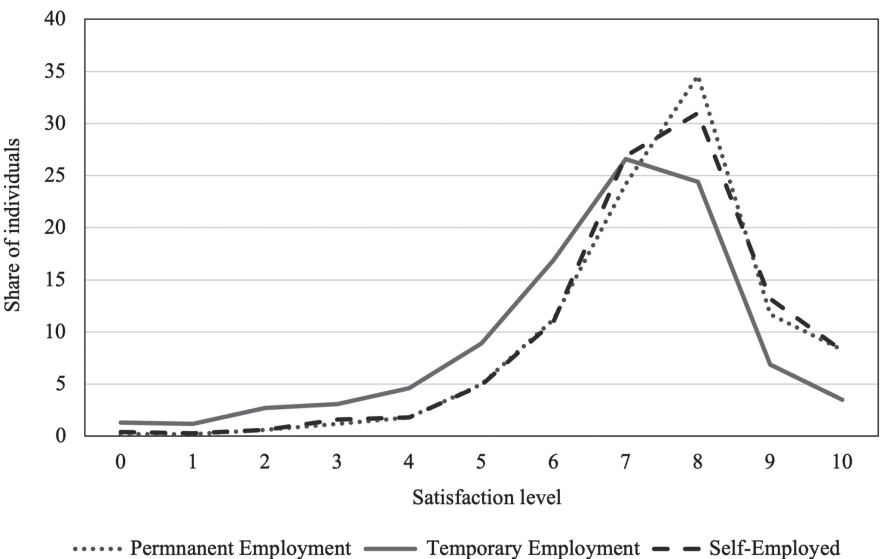
Figure 2.2 Career satisfaction levels across ethnic groups



Source: author’s elaboration from the data (LISS, 2008-2019).

As pictured in Figure 2.2 above, the professional patterns of non-Western migrants are also associated with the lowest average levels of career satisfaction. The values are taken from a LISS question asking respondents their career satisfaction level on a scale from one to ten. Only 61.2% of people with a non-Western migration background give a seven or more to their career, while 78.5% of Dutch-born natives do so. The lower average career satisfaction level among non-Western migrants suggests that individuals with a higher probability of having temporary and low-skilled professions may feel more dissatisfied with their careers. This is supported also by Figure 2.3 below, which shows that temporary employees, independently of their migration background, are considerably less satisfied with their career than permanent employees and self-employed individuals.

Figure 2.3 Career satisfaction levels, across types of employment



Source: author’s elaboration from the data (LISS, 2008-2019).

These statistics about job satisfaction would not represent an issue if non-Western migrants were mostly young people who just entered the labour market but, as seen in Figure 2.1, non-Western migrants are the population group with the highest share of temporary professionals also in later age groups. For older individuals, temporary contracts can become a trap leading to social exclusion (Bolhaar et al., 2018; Buiskool et al., 2016). When the data on consecutive temporary jobs will be available for more years, it will be interesting to investigate whether individuals with a migration background and language problems tend to have labour market trajectories characterised by consecutive temporary occupations.

2.6 CONCLUSION

This study contributes to the literature on the integration of migrants in flexible labour markets. By using the LISS panel data for the resident population of the Netherlands from 2008 to 2019, it investigates whether individuals with a first-generation migration background are more likely to be temporarily employed than Dutch-born natives. The findings show that having a migration background increases, on average, the probability of being temporarily employed by almost seven percentage points, with a stronger effect for individuals with a non-Western migration background. This significant difference highlights the systemic challenges faced by non-Western migrants in securing stable employment compared to their Western counterparts and native Dutch individuals.

In addition to this, the study assesses the impact of three integration variables on migrants' chances of being temporarily employed: education, language problems, and active social contacts. Among these three, only language problems appear to significantly increase migrants' probability of temporary employment. Non-Western migrants with language problems are, on average, 16.8 percentage points more likely to be temporarily employed than Dutch-born natives. This finding is robust, as confirmed by the employment of an IV estimation technique to tackle potential estimation biases. The higher probability of non-Western migrants to end up in temporary jobs even at a later age is consistent with previous academic findings on their overall low employability and earnings. This persistent issue can be attributed not only to language problems but possibly also to racial discrimination and personal preferences, two factors that are challenging to fully capture and quantify.

These findings are highly informative for policymakers. The over-exposure of non-Western migrants to temporary employment may translate into job insecurity, high job transitionality, and eventually social exclusion. Such outcomes can place upward pressure on welfare expenditure, necessitating targeted interventions to mitigate these risks. Policymakers should consider initiatives that address language barriers, enhance access to education, and promote inclusive employment practices to reduce the reliance on temporary employment among migrant populations. Furthermore, the study's findings underscore the importance of integrating language acquisition programs and support services for non-Western migrants. Enhancing language proficiency can significantly improve their employability and reduce their likelihood of being confined to temporary jobs. Community-based initiatives that foster social integration and build inert-ethnic social capital could also play a relevant role in improving the labour market outcomes of migrants.

A promising avenue for future research is to investigate the persistence of temporary employment over time and its relationship with welfare spending. Longitudinal studies could provide deeper insights into the labour market trajectories of migrants and the long-term impacts of temporary employment on their socio-economic well-being. Additionally, exploring the role of discrimination and personal preferences in shaping employment outcomes could offer a more comprehensive understanding of the barriers faced by non-Western migrants. In conclusion, while the Netherlands has made strides in integrating migrants into its labour force, significant disparities remain, particularly for non-Western migrants. Addressing these challenges requires a multifaceted approach that includes policy reforms, targeted support programs, and a commitment to fostering an inclusive and equitable labour market. By doing so, the Netherlands can better harness the potential of its diverse population and ensure that all residents have the opportunity to achieve stable and fulfilling employment.

## 2.A ADDITIONAL TABLES

Table 2.9 Summary statistics by labour market status

|                                                   | Perm.<br>Empl. | Temp.<br>Empl. | Self-Empl. | Unempl. |
|---------------------------------------------------|----------------|----------------|------------|---------|
| <i>Origin (%)</i>                                 |                |                |            |         |
| Dutch-born native                                 | 93.8           | 90.9           | 94.3       | 90.8    |
| Western migrant                                   | 2.6            | 2.7            | 3.3        | 3.7     |
| Non-Western migrant                               | 3.6            | 6.3            | 2.3        | 5.5     |
| <i>Demographic variables</i>                      |                |                |            |         |
| Age                                               | 45.0           | 33.7           | 48.0       | 46.1    |
| Female (%)                                        | 50.5           | 61.6           | 50.0       | 59.3    |
| Civil status: single (%)                          | 16.7           | 31.9           | 16.0       | 24.7    |
| Civil status: unmarried partner, no co-living (%) | 6.1            | 16.2           | 5.5        | 9.7     |
| Civil status: unmarried partner, co-living (%)    | 16.3           | 21.9           | 18.3       | 10.3    |
| Civil status: married (%)                         | 60.9           | 30.0           | 60.3       | 55.3    |
| N. of children at home                            | 1.0            | 1.2            | 1.1        | 0.9     |
| Urban domicile (%)                                | 83.5           | 84.7           | 75.2       | 83.7    |
| <i>Integration variables (%)</i>                  |                |                |            |         |
| Level of education: primary education             | 3.8            | 9.0            | 4.2        | 10.6    |
| Level of education: lower secondary education     | 18.6           | 16.9           | 17.1       | 29.     |
| Level of education: intermediate secondary educ.  | 38.5           | 41.3           | 33.7       | 35.1    |
| Level of education: higher education              | 39.1           | 32.8           | 45.0       | 25.0    |
| Language problems                                 | 12.4           | 14.3           | 12.3       | 18.1    |
| Active membership in social clubs                 | 2.6            | 2.8            | 3.0        | 3.0     |
| <i>Profession (%)</i>                             |                |                |            |         |
| Higher academic or independent profession         | 7.6            | 8.2            | 15.8       | -       |
| Higher supervisory profession                     | 8.6            | 2.8            | 11.9       | -       |
| Intermediate academic or independent prof.        | 25.9           | 21.3           | 24.6       | -       |
| Intermediate supervisory or business prof.        | 13.6           | 7.6            | 15.8       | -       |
| Other mental work                                 | 24.4           | 25.7           | 12.2       | -       |
| Skilled and supervisory manual work               | 7.3            | 4.2            | 6.4        | -       |
| Semi-skilled manual work                          | 6.7            | 10.0           | 2.7        | -       |
| Unskilled and trained manual work                 | 5.2            | 18.7           | 3.5        | -       |
| Agrarian profession                               | 0.9            | 1.6            | 7.3        | -       |

*Notes:* In an urbanised area population density is above 1,500 people per square kilometre. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. The categories for origin, profession, and sector are taken from the CBS. *Source:* author's calculation from the data (LISS, 2008-2019).

Table 2.9 Summary statistics by labour market status, continuation

|                                                  | <i>Perm.<br/>Empl.</i> | <i>Temp.<br/>Empl.</i> | <i>Self-Empl.</i> | <i>Unempl.</i> |
|--------------------------------------------------|------------------------|------------------------|-------------------|----------------|
| <i>Sector of employment (%)</i>                  |                        |                        |                   |                |
| Agriculture, forestry, fishery, hunting          | 1.4                    | 1.5                    | 8.3               | -              |
| Mining                                           | 0.0                    | 0.0                    | 0.3               | -              |
| Industrial production                            | 10.6                   | 5.9                    | 2.9               | -              |
| Utilities production, distribution, and/or trade | 1.0                    | 1.1                    | 0.5               | -              |
| Construction                                     | 4.4                    | 0.02                   | 5.9               | -              |
| Retail trade                                     | 7.7                    | 8.8                    | 11.2              | -              |
| Catering                                         | 2.2                    | 9.4                    | 3.8               | -              |
| Transport, storage, communication                | 4.6                    | 4.3                    | 2.4               | -              |
| Financial                                        | 4.6                    | 4.3                    | 2.7               | -              |
| Business services (including real estate)        | 6.4                    | 4.9                    | 10.9              | -              |
| Government services and public admin.            | 10.5                   | 5.4                    | 1.1               | -              |
| Education                                        | 9.9                    | 8.9                    | 2.8               | -              |
| Healthcare and welfare                           | 21.2                   | 19.9                   | 16.9              | -              |
| Environment, culture, and other services         | 2.0                    | 2.7                    | 5.2               | -              |
| Other                                            | 13.4                   | 20.4                   | 25.2              | -              |
| Individuals                                      | 4,958                  | 1,154                  | 527               | 1,613          |
| N. of households                                 | 3,556                  | 728                    | 394               | 1,095          |
| N                                                | 22,747                 | 3,179                  | 2,187             | 3,753          |

Source: author's calculation from the data (LISS, 2008-2019).

Table 2.10 Summary statistics for unemployed individuals, across origin

|                                                          | <i>Dutch</i> | <i>Western<br/>Migr.</i> | <i>Non-Western<br/>Migr.</i> |
|----------------------------------------------------------|--------------|--------------------------|------------------------------|
| <i>Demographic variables</i>                             |              |                          |                              |
| Age                                                      | 46.4         | 43.9                     | 42.3                         |
| Female (%)                                               | 58.3         | 69.6                     | 68.0                         |
| Civil status: single (%)                                 | 24.6         | 21.7                     | 29.6                         |
| Civil status: unmarried partner, not living together (%) | 9.9          | 4.3                      | 9.7                          |
| Civil status: unmarried partner, living together (%)     | 10.1         | 0.138                    | 12.6                         |
| Civil status: married (%)                                | 55.5         | 60.1                     | 48.1                         |
| N. of children at home                                   | 0.8          | 0.6                      | 0.9                          |
| Urban domicile (%)                                       | 82.8         | 85.5                     | 98.1                         |
| <i>Integration variables (%)</i>                         |              |                          |                              |
| Level of education: primary education                    | 10.2         | 10.9                     | 17.5                         |
| Level of education: lower secondary education            | 30.7         | 10.9                     | 17.5                         |

|                                                      | Dutch | Western Migr. | Non-Western Migr. |
|------------------------------------------------------|-------|---------------|-------------------|
| Level of education: intermediate secondary education | 35.0  | 35.5          | 36.4              |
| Level of education: higher education                 | 24.1  | 42.8          | 28.6              |
| Language problems                                    | 15.0  | 45.7          | 51.9              |
| Active membership in social clubs                    | 29.5  | 38.4          | 39.8              |
| Individuals                                          | 1,450 | 57            | 106               |
| Households                                           | 975   | 41            | 79                |
| N                                                    | 3,409 | 138           | 206               |

*Notes:* In an urbanised area population density is above 1,500 people per square kilometre. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. *Source:* author's calculation from the data (LISS, 2008-2019).

*Table 2.11 Summary statistics for permanently employed individuals, across origin*

|                                                          | Dutch  | Western Migr. | Non-Western Migr. |
|----------------------------------------------------------|--------|---------------|-------------------|
| <i>Demographic variables</i>                             |        |               |                   |
| Age                                                      | 45.0   | 45.4          | 44.8              |
| Female (%)                                               | 51.0   | 45.8          | 41.6              |
| Civil status: single (%)                                 | 16.5   | 17.8          | 20.4              |
| Civil status: unmarried partner, not living together (%) | 6.0    | 6.3           | 8.9               |
| Civil status: unmarried partner, living together (%)     | 16.9   | 12.2          | 4.8               |
| Civil status: married (%)                                | 60.6   | 63.7          | 65.9              |
| N. of children at home                                   | 1.0    | 0.8           | 1.3               |
| Urban domicile (%)                                       | 83.0   | 86.9          | 97.2              |
| <i>Integration variables (%)</i>                         |        |               |                   |
| Level of education: primary education                    | 3.6    | 6.3           | 7.6               |
| Level of education: lower secondary education            | 18.7   | 10.0          | 20.1              |
| Level of education: intermediate secondary education     | 38.6   | 34.4          | 38.1              |
| Level of education: higher education                     | 39.0   | 49.3          | 34.3              |
| Language problems                                        | 10.6   | 39.0          | 40.5              |
| Active membership in social clubs                        | 26.5   | 26.1          | 25.8              |
| Individuals                                              | 4,624  | 138           | 196               |
| Households                                               | 3,297  | 105           | 154               |
| N                                                        | 21,320 | 590           | 817               |

*Notes:* In an urbanised area population density is above 1,500 people per square kilometre. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. *Source:* author's calculation from the data (LISS, 2008-2019).

Table 2.12 OLS estimates

| VARIABLE                                   | (1)                   | (2)                         | (3)                   | (4)                    |
|--------------------------------------------|-----------------------|-----------------------------|-----------------------|------------------------|
|                                            |                       | <i>Temporary Employment</i> |                       |                        |
| Origin: Western                            |                       |                             |                       | 0.0307<br>(0.0194)     |
| Origin: non-Western                        |                       |                             |                       | 0.108***<br>(0.0213)   |
| Migration background                       | 0.0710***<br>(0.0167) | 0.0762***<br>(0.0153)       | 0.0761***<br>(0.0152) |                        |
| Level of education: lower secondary        |                       |                             | 0.00486<br>(0.0155)   | 0.00438<br>(0.0156)    |
| Level of education: intermediate secondary |                       |                             | 0.0162<br>(0.0150)    | 0.0161<br>(0.0151)     |
| Level of education: higher                 |                       |                             | 0.00660<br>(0.0160)   | 0.00710<br>(0.0161)    |
| Language problems                          |                       |                             | 0.000203<br>(0.00850) | -7.96e-05<br>(0.00851) |
| N. active memberships in social clubs: 1   |                       |                             | -0.00201<br>(0.00534) | -0.00217<br>(0.00534)  |
| N. active memberships in social clubs: 2   |                       |                             | 0.0167<br>(0.0104)    | 0.0169<br>(0.0104)     |
| N. active memberships in social clubs: 3   |                       |                             | -0.000602<br>(0.0252) | -0.000881<br>(0.0252)  |
| Background variables                       |                       | Yes                         | Yes                   | Yes                    |
| Year-fixed effects                         |                       | Yes                         | Yes                   | Yes                    |
| Constant                                   | 0.147***<br>(0.00369) | 1.134***<br>(0.0502)        | 1.127***<br>(0.0513)  | 1.133***<br>(0.0513)   |
| Observations                               | 32,406                | 32,406                      | 32,406                | 32,406                 |
| R-squared                                  | 0.002                 | 0.196                       | 0.196                 | 0.197                  |

Notes: Robust standard errors clustered at the household level in parentheses. Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).

Table 2.13 Logit estimates, average marginal effects

| VARIABLE                                   | (1)       | (2)                         | (3)       | (4)      |
|--------------------------------------------|-----------|-----------------------------|-----------|----------|
|                                            |           | <i>Temporary Employment</i> |           |          |
| Origin: Western                            |           |                             |           | 0.0335*  |
|                                            |           |                             |           | (0.0194) |
| Origin: non-Western                        |           |                             |           | 0.108*** |
|                                            |           |                             |           | (0.0195) |
| Migration background                       | 0.0618*** | 0.0675***                   | 0.0681*** |          |
|                                            | (0.0128)  | (0.0109)                    | (0.0110)  |          |
| Level of education: lower secondary        |           |                             | 0.0134    | 0.134    |
|                                            |           |                             | (0.0126)  | (0.131)  |
| Level of education: intermediate secondary |           |                             | 0.0195*   | 0.197    |
|                                            |           |                             | (0.0117)  | (0.123)  |
| Level of education: higher                 |           |                             | 0.0128    | 0.140    |
|                                            |           |                             | (0.0132)  | (0.139)  |
| Language problems                          |           |                             | -0.000127 | -0.00478 |
|                                            |           |                             | (0.00779) | (0.0765) |
| N. active memberships in social clubs: 1   |           |                             | -0.00367  | -0.0388  |
|                                            |           |                             | (0.00527) | (0.0522) |
| N. active memberships in social clubs: 2   |           |                             | 0.0151    | 0.145    |
|                                            |           |                             | (0.0105)  | (0.0956) |
| N. active memberships in social clubs: 3   |           |                             | 0.00407   | 0.0312   |
|                                            |           |                             | (0.0223)  | (0.214)  |
| Background variables                       |           | Yes                         | Yes       | Yes      |
| Year-fixed effects                         |           | Yes                         | Yes       | Yes      |
| Observations                               | 32,406    | 32,406                      | 32,406    | 32,406   |

Notes: Robust standard errors clustered at the household level in parentheses. Background variables include: age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanised area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (LISS, 2008-2019).



## ABSTRACT

In this chapter, I calculate and compare the net fiscal positions of native-born individuals, intra-EU migrants, and extra-EU migrants in 15 EU countries from 2007 to 2018. I do so by employing repeated cross-sectional data from the EU-SILC on personal income and welfare benefits (contributory and non-contributory). I combine these with OECD information on personal income taxes and social security contributions at the national and local levels. For most countries and years, I find that all three population groups are net fiscal recipients. However, natives receive larger amounts in contributory benefits than migrants, while the opposite is true for non-contributory benefits. As a contribution to the literature, I examine trends in the net fiscal positions of three population groups over time. In earlier years (2008–2011), the net fiscal positions of all three groups are negatively affected by the global financial crisis. However, by 2017 migrants recover their pre-2008 net fiscal position while natives remain at a considerably lower level. As a result, natives have the relatively most negative net fiscal position across most countries and years, with a growing fiscal gap with migrants. This finding is more accentuated in Southern European countries, where migrants are often net fiscal contributors.

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1 This chapter is based on a study co-authored by myself, Eduard Suari-Andreu, and Olaf Van Vliet, with me as the main author. A working paper version of the study is published as Boffi et al. (2024a). I would like to thank participants at the Migration Seminars series organised by Maastricht University and the United Nations University (MGSOG/UNU-MERIT) on December 15th, 2021, participants at the Annual Conference of the Leiden-Erasmus-Delft Centre Governance of Migrations and Diversity (LDE-GMD) on May 16th, 2022, participants at the Annual Conference of the Global Transformations and Governance Challenges organised by Leiden University on June 9th, 2022, participants at New Papers Session organised by the Dutch Economists Association's on June 17th, 2022, participants at the Wetenschapsdag organised by the Dutch Ministry of Social Affairs on February 7th, 2023, participants at the 5th International Conference on European Studies organised by the Network for European Studies on June 13th, 2023, and participants at the Annual Conference of the Maastricht Centre for Citizenship, Migration and Development (MACIMIDE) on September 22nd, 2023, for useful comments on earlier versions of the study. I thank Vincent Bakker for his help with analysing tax data from the OECD. Van Vliet also thanks Institute Gak for financial support. The study upon which this chapter is based is part of the Horizon Europe project TransEuroWorkS (N. 101061198) and of Leiden University's research programme Social Citizenship & Migration. The data are from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC, 2007–2018). The responsibility for all conclusions drawn from the data lies entirely with the authors of the study.

### 3.1 INTRODUCTION

In 2023, 59.9 million foreign-born residents lived in the European Union (EU) (13.3% of its whole population): 42.2 million extra-EU migrants and 17.5 million intra-EU migrants (Eurostat, 2024d).<sup>2</sup> Within the European debate about immigration, the fiscal position of migrants is typically one of the most contentious issues. The arrival of migrants is often controversial since, on the one hand, immigration may put pressure on the welfare state by increasing competition for public services while, on the other hand, it may help sustain the welfare state by expanding the tax base (De Giorgi and Pellizzari, 2009; Preston, 2014). Especially since the large influx of asylum seekers in 2015, newspapers have been filled with debates about whether or not to grant migrants the same welfare benefits as native-born residents (Alesina et al., 2023; Reeskens and Van Der Meer, 2019). This debate is often dominated by misinformation and political interests.<sup>3</sup> In the present chapter, I intend to improve it by providing novel empirical evidence on the net fiscal position (NFP) of migrants in the EU.

In its most basic form, the NFP of migrants is typically calculated as the difference between the taxes paid in the host country and the monetary value of public services and benefits received (Vargas-Silva et al., 2022). More elaborate versions of the NFP take into account indirect effects, i.e., effects on the public finances via the potential influence of immigration on wages, unemployment, and prices, among others, and dynamic effects, which are usually calculated as the present value of the future NFP and require assumptions about labour market trajectories and stay rates (Hinte and Zimmermann, 2014). In this study, I calculate the static and direct effects of immigration on public finances and explore trends over a long period of time (2007 to 2018) for a large group of 15 EU countries.

Most previous works on the subject are single-country studies that provide mixed evidence on the direction of the net fiscal contribution of migrants.<sup>4</sup> The latter appears to be dependent on the type of welfare state of the host country, migrant background characteristics, and the method employed for its calculation (Clemens, 2021). In general, the net fiscal contribution of migrants is estimated to be around  $\pm 1\%$  of the host country's

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2 People who move within the EU are most often not categorized as migrants in official EU migration statistics. That is because the EU is a single supranational entity in which citizens of the member states do not require visas for internal cross-country movements. They are most often referred to as 'EU mobile citizens'. For the purpose of this paper, as commonly done in the literature, I categorise them as 'intra-EU migrants'.

3 Alesina et al. (2023) and Markaki and Blinder (2019a, 2019b) report on the interesting misalignments between the perceptions European residents have of the welfare usage made by migrants and their actual welfare reciprocity.

4 It is also worth noticing that migrants generally reach the host country in their most productive years (i.e., the prime working age), while the host country does not pay for the human and social capital they accumulated in their origin country, for example through education.

GDP (Hennessey and Hagen-Zanker, 2020; Rowthorn; 2008). More specifically, single-country studies show evidence that migration tends to have a relatively more negative fiscal impact in Scandinavian countries characterised by rich welfare assistance (Furlanetto and Robstad, 2019; Hansen et al., 2017; Ruist, 2014) and a relatively more positive one in Southern European countries characterised by a more restricted welfare access (Chojnicki et al., 2022; Izquierdo et al., 2010). However, Österman et al. (2024), focusing only on intra-EU migration, find no evidence supporting the idea that migrants generate a greater fiscal burden in more generous welfare states. Instead, they identify the main divide in the net fiscal impact of EU migrants to be between Western European and Eastern European countries. More in particular, they find that the net fiscal contribution of EU migrants in the Western European welfare states, especially in Mediterranean countries, is significantly higher than in Eastern European ones.

Moreover, the fiscal contribution of migrants evolves over the course of their lifetime. In a recent study using both static microsimulation modelling and a life-cycle approach, Christl et al. (2022) find that currently migrants have a less negative average NFP than natives, with differences between intra-EU and extra-EU migrants. Over time, intra-EU migrants are projected to make increasingly higher fiscal contributions due to their younger age and higher educational attainment. Extra-EU migrants, despite starting with the most negative NFP, are projected to experience a slower decline in their net fiscal impact compared to natives, eventually surpassing their NFP by 2025. Nevertheless, the authors estimate that immigration alone cannot offset the fiscal pressures of aging native populations.

Finally, the literature shows that the type of immigration matters as well: earlier evidence suggests that high-skilled migrants are most often net contributors, whereas low-skilled migrants or refugees are mostly net recipients (Boeri, 2010). More recent contributions challenge this view, showing that the burden that low-skilled migrants put on public finances is limited if any (Clemens, 2021).<sup>5</sup> For instance, Ruist (2020), using UNHCR statistics on the world refugee population, calculates that if the EU received all refugees in Asia and Africa at that time, the consequent average annual fiscal cost over the lifetime of these refugees would be at most 0.6% of the whole EU's GDP. For the United States, Colas and Sachs (2024) find that unskilled migrants generate an average individual net fiscal contribution of \$2,000 per year through indirect effects.

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5 Whether migrants are employed and how much they earn has also an important impact on their estimated net fiscal contribution. The OECD (2021) compares estimates of the net contributions across 25 member countries, from 2006 to 2018. It finds that the age of migrants (specifically, being of prime working age, i.e., 25-54) is the single most important demographic factor explaining differences in their net fiscal contributions compared to the native-born population. A key reason for this is that migrants in this age group are most likely to be working.

This study contributes to the literature in several ways. First, this is the first study to use a static, direct, and bottom-up approach entirely based on microdata at the individual level to estimate the NFP of migrants for as long as 12 years (2007-2018) and as many as 15 EU countries. While most existing studies focus on a single country or year, my study is based on a comparative approach in which I systematically analyse the trends in the NFP of migrants across countries and over time. Recent comparative works on the NFP of migrants in Europe either focus on shorter periods using microdata (e.g., Fiorio et al., 2024) or employ more complex methodologies for longer periods (e.g., OECD, 2021). In doing so, I provide an update of Boeri (2010), who uses a similar method to calculate the NFP of migrants for a rather similar group of countries for only four years of study. Furthermore, considering such a range of countries provides a good opportunity to study country-level heterogeneity. As the system of benefits and taxes can be expected to be one of the main determinants of the NFP, I examine whether the countries' different types of welfare states are related to different NFP for migrants and natives. Finally, the period I consider is especially interesting since it provides a picture of the situation before, during, and after the global financial crisis of 2008 and the subsequent sovereign debt crisis of 2011, while it also includes the peak in asylum seekers of 2015.

To conduct the empirical analysis, I employ repeated cross-sectional data at the individual level from the European Union Statistics on Income and Living Conditions (EU-SILC) for (gross) personal income and contributory (education, unemployment, retirement, sickness, survival) and non-contributory (children, housing, social exclusion) benefits. I combine these data with information from the OECD on rates, thresholds, maximum contributions, and allowances for personal income taxes and social security contributions at the national and local levels.<sup>6</sup> In doing so I estimate the NFP of natives and migrants at the individual level. I adopt a static, direct, and bottom-up approach that consists of subtracting welfare benefits received from taxes and social security contributions paid at the individual level and then calculating country- and year-specific averages.

The findings show that intra-EU migrants present the highest share of receipt and mean benefit values conditional on receipt for contributory benefits. In addition, they appear to be net fiscal contributors at the beginning and at the end of the period and net fiscal recipients in between. Extra-EU migrants present instead the lowest receipt and the lowest mean value for contributory benefits, while being net fiscal recipients for the whole period given their higher reliance on non-contributory benefits. However, the NFP of extra-EU migrants becomes relatively more positive and similar to the one of intra-EU migrants over the twelve years considered. Finally, due to their higher reliance on contributory benefits and lower fiscal contributions,

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6 The OECD groups every sub-national tax at the regional and municipal level under the 'local' label.

native-born individuals appear as the subgroup with the relatively most negative NFP throughout the whole period for most countries.

From a comparative welfare state analysis, it emerges that Continental countries (Austria, Belgium, France, Germany, Luxembourg) do not present similar trends over time in the NFPs of the three population subgroups. Instead, Southern European countries (Greece, Italy, Portugal, Spain) show very comparable trends. In most Southern European countries, migrants are net fiscal contributors for most of the period considered and present an average yearly NFP that is €1,500-2,000 higher compared to native-born individuals. In other words, Southern European countries are ones benefiting the most from the direct net fiscal contributions of migrants.

The rest of the chapter is structured as follows. Section 3.2 discusses methodological approaches to estimate the NFP. Section 3.3 provides a review of the literature on the NFP and the wider fiscal integration of migrants in Europe. Section 3.4 presents the data and the methodology employed in this study. Section 3.5 presents the results. Section 3.6 concludes.

### 3.2 METHODOLOGICAL APPROACHES

Previous studies on the NFP of migrants in Europe have adopted various methodological approaches. They can be classified in different ways. First, they can be classified as static or dynamic. The former compares the contributions of migrants to public finances with the services and benefits received at a specific point in time (generally, one or more years). The advantage of this approach is that it does not require assumptions about future lifetime-contributions. The disadvantage is that it provides only a snapshot at a particular point in time, while the fiscal effects of individuals often depend on where they are in their life cycle (e.g., young workers tend to contribute more than old retirees). The consequence is that the estimated fiscal impact of a given group in a given year will depend on factors such as age, age at arrival in the host country, and duration of stay and will not reflect neither their total nor their average lifetime fiscal contribution. The alternative is the dynamic approach, which, by making strong assumptions about stay rates, labour market participation, productivity changes, tax rates, and government spending, among others, computes the present value of contributions and costs over the entire lifetime of a given group. The limitation of this approach is that it requires assumptions that are difficult to test, vary across countries and years, and can largely affect the final results.

An additional distinction can be made between direct and indirect measurements of the NFP. The direct way to measure an individual's NFP involves calculating the taxes and subtracting the welfare benefits and public services received. This approach requires gathering specific data on the individual's welfare transactions over a certain period of time. The indirect way looks instead at the broader implications that one's fiscal behaviour

has on the national economy. For example, indirect fiscal effects may be generated by the labour market activity of migrants, their contribution to the national GDP level, and innovation, among others. Despite being further reaching, this second approach requires assumptions about the actual economic behaviours of different population groups, for example, about their participation rates, productivity levels, or consumption patterns.

A final distinction can be made between bottom-up and top-down approaches. The former makes use of microdata to calculate individual NFP that can then be aggregated for a particular country/region and time. The advantage of this method is that it relies on individual-level variation. However, its disadvantage is that, ideally, it would require complete individual data on direct taxes (personal income taxes at national and local levels, wealth taxes, social security contributions, among others) and indirect taxes (VAT), benefits received, and use of public services (like education and healthcare, wherever they are administered by the government). The top-down approach aims to solve this problem by relying on all the revenue and expenditure items recorded in the host country's public budget and apportioning them to the migrant and native-born populations accordingly. However, a key limitation of this second approach is that it requires strong assumptions on how much to apportion to the different population groups. Most studies use the share of the population represented by migrants and, at best, they assume that migrants account for the same share of the total of public benefits and services as natives with similar demographic characteristics (often based on age, health, and gender). Yet migrants have often unobserved characteristics that differentiate them from native-born individuals and as such use public benefits and services differently.

In this study, to make my estimation as rigorous as possible and adopt the least strong assumptions for the years and the countries considered, I opt for a static, direct, bottom-up approach to calculate the NFP of migrants and natives. In other words, I fully rely on individual microdata and then derive country- and year-specific averages for contributions, benefits, and NFP of the different population groups. By doing so, I voluntarily ignore dynamic and indirect aspects in the NPF calculation, so that my estimates have maximum reliability for the direct net fiscal contribution of migrants and natives, for the years and the countries considered. Direct tax revenues constitute the majority of all tax revenues in all EU countries. As shown in Table 3.1 below, direct tax revenues account for an average of 57.1% of all tax revenues across the countries in my sample in 2018, with some degree of country heterogeneity.

Table 3.1 Direct tax revenues as shares of all tax revenues (%) in 2018

| Country    | Personal Income Taxes | Social Security Contributions | Wealth Taxes | Total |
|------------|-----------------------|-------------------------------|--------------|-------|
| Austria    | 23.7                  | 35.1                          | 1.0          | 59.8  |
| Belgium    | 30.8                  | 32.0                          | 3.1          | 65.9  |
| Czechia    | 9.8                   | 44.5                          | 1.0          | 55.3  |
| Estonia    | 15.6                  | 37.1                          | 0.8          | 53.5  |
| France     | 18.8                  | 36.2                          | 4.0          | 59.0  |
| Germany    | 24.0                  | 38.1                          | 2.0          | 64.1  |
| Greece     | 14.1                  | 35.3                          | 1.3          | 50.7  |
| Ireland    | 29.5                  | 16.2                          | 0.6          | 46.3  |
| Italy      | 23.1                  | 32.8                          | 3.0          | 58.9  |
| Latvia     | 20.1                  | 30.4                          | 2.1          | 52.6  |
| Luxembourg | 23.9                  | 29.7                          | 2.3          | 55.9  |
| Portugal   | 21.4                  | 29.3                          | 3.2          | 53.9  |
| Slovenia   | 15.3                  | 35.4                          | 1.5          | 52.2  |
| Spain      | 22.7                  | 35.3                          | 2.4          | 60.4  |
| Sweden     | 30.0                  | 37.0                          | 1.0          | 68.0  |
| Average    | 21.5                  | 33.6                          | 2.0          | 57.1  |

Source: author's calculation from the data (Eurostat, 2024c).

### 3.3 PREVIOUS EVIDENCE FROM EUROPE

Among the existing studies on the NFP of migrants in Europe, the vast majority are country-specific. Recent evidence shows small but positive fiscal contributions of migrants, with different findings for intra-EU and extra-EU migrants. Generally, extra-EU migrants appear to fiscally contribute relatively less than intra-EU migrants (Bogdanov et al., 2014). This is the case for instance in Belgium, where a report from the National Bank of Belgium (2020) shows that the lower fiscal contribution of extra-EU immigrants is due to their lower employment rates. For Sweden, Ruist (2014) finds that intra-EU migrants are the only group of net fiscally contributing migrants, which did not change after the eastern enlargement of the EU in 2004. They appear to generate less public revenue than the population on average, but they also cost less. For Denmark, Hansen et al. (2017) show that intra-EU migrants are net fiscal contributors and extra-EU migrants are net fiscal recipients over the years from 2002 to 2013. For France, in the years from 1979 to 2011, Chojnicki et al. (2022) show that the net fiscal contribution of intra-EU migrants decreases over the period, due to the aging of this group. Furthermore, the study shows that the fiscal contribution of all migrants further decreased after the global financial crisis of 2008. Using

data from 1995 to 2011, Dustmann and Frattini (2014) show that migrants who arrived in the United Kingdom from 2000 onwards generate a positive net fiscal contribution over ten years, irrespective of their country of origin. More recent evidence from Vargas-Silva et al. (2022) shows that migrants from the European Economic Area (EEA) contribute more than the natives due to higher taxes and social security contributions.

Overall, the findings of these studies appear to be highly dependent on the welfare system of the host country. Generally, the more generous welfare systems of Scandinavian countries are found to be relatively fiscally worse off due to the presence of migrants, while the less generous welfare states of Southern Europe seem to benefit more. This suggests that migrants can probably play a more important role in alleviating the burden of a particularly aged population in Southern Europe (Furlanetto and Robstad, 2019; Izquierdo et al., 2010). However, comparisons are difficult to make in the current literature given that each study focuses on a different country using a different methodology and data.<sup>7</sup>

In contrast, an important advantage of multi-country studies is that they enable cross-country comparisons as they apply the same empirical approach to all countries. Yet, the available evidence from multi-country studies is substantially scarcer.<sup>8</sup> Boeri (2010) conducts the first comparative work on the fiscal impact of migrants in Europe. Using EU-SILC cross-sectional data from 2004 to 2007, he finds that migrants are over-represented among recipients of non-contributory transfers. He also shows evidence of residual dependency of migrants, meaning that they receive more transfers than natives after accounting for their educational attainments and family characteristics, notably in the countries with the most generous welfare states.

More recently, Nyman and Alshkog (2018) combine EU-SILC data with information from national accounts from 2004 to 2015 to study intra-EU migration and find that intra-EU migrant households generate net fiscal contributions of around €5,000 per year in most European countries. On average, they appear as higher net fiscal contributors than native households. Using the same data, Österman et al. (2024) expand on the previous findings by looking at the various impacts of intra-EU migrants on different welfare state regimes, showing that they fiscally contribute more than natives in all welfare regimes in Europe, with a particularly strong effect in Southern European countries. Employing the tax-benefit simulation model Euromod with EU-SILC data from 2015 only, Christl et al. (2022) find that natives, intra-EU migrants, and extra-EU migrants are all net fiscal recipi-

7 Hennessey and Hagen-Zanker (2020) conduct a state-of-the-art literature review of the available empirical evidence on the NFP of migrants based on the data, methods, and findings of each study.

8 A large part of the literature has focused exclusively on migrants' welfare reciprocity, rather than on the complete NFP. This is mostly due to data limitations. For country-specific evidence on welfare reciprocity, see Pellizzari (2013) for Italy, Suari-Andreu and Van Vliet (2023) and Zorlu (2013b) for the Netherlands, and Roman (2019) for the United Kingdom, among others. For multi-country evidence, see Barrett and Maitre (2011), Conte and Mazza (2019), Huber and Oberdabernig (2016), Jakubiak (2020), and Könings (2018).

ents, with migrants currently enjoying a less negative fiscal position. Furthermore, by adopting a dynamic approach, they estimate that the average NFP of natives will worsen in the near future, due to the ageing European population. Finally, Fiorio et al. (2024) study the net fiscal contribution of migrants in the 14 EU member countries prior to the 2004 eastern enlargement (with the exclusion of the United Kingdom) for the period from 2014 to 2018, finding that, on average, migrants make larger net fiscal contributions than natives, even when they are compared to natives in the same position of the national income distribution.

Compared to the recent works by Christl et al. (2022), Fiorio et al. (2024), and Österman et al. (2024), the present study is the first one that aims to provide comparative trends in the NFP of natives, intra-EU migrants, and extra-EU migrants for as long as twelve years and as many as 15 countries, with a static, direct, and bottom-up approach entirely built on individual microdata. This allows me to draw inferences on the evolution of the NFP for the different population groups in very different economic times (for example, before and after the global financial crisis). Moreover, the time trends allow me to see whether natives, intra-EU, and extra-EU migrants present converging trends in their fiscal positions across the main European welfare regimes or not.

### 3.4 DATA AND METHODOLOGY

For the empirical analysis, I employ data from two different sources. All the individual data on benefits and gross personal income come from the European Union Statistics on Income and Living Conditions (EU-SILC). The EU-SILC collects repeated cross-sectional and longitudinal data for all EU member countries from 2003 onwards. I select the data for the period from 2007 (when most countries became part of the dataset) to 2018. Ideally, the longitudinal data would be particularly useful to investigate how the NFP of migrants evolves over time and the years since arrival in the host country. Unfortunately, the longitudinal data report insufficient information about the migration background of the respondents. For this reason, I use the repeated cross-sections. Regarding the pool of countries, all the countries reporting full information on gross personal income and welfare benefits for the years selected are included. These are 15 EU countries: Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. Four countries do not distinguish between intra-EU and extra-EU. These are Estonia, Germany, Latvia, and Slovenia. For them, only the general ‘migrant’ category is available.<sup>9</sup> For a map of the countries included in the sample, see Figure 3.1 below.

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9 Unfortunately, the data do not provide information on the reason for migration. Therefore, it is not possible to distinguish asylum seekers, for example, from family reunification migrants. Since country residents are the population of reference of this survey, seasonal and short-stay migrants are likely to be excluded from the sample.

Figure 3.1 Countries included in the sample



Source: author's elaboration from the data (EU-SILC, 2007-2018).

For the information on income tax thresholds, tax rates, maximum contributions, surtaxes, and deductibles at the national and local levels, I follow Boeri (2010) and use the OECD database from the yearly publication *Taxing Wages*.<sup>10</sup> I combine the information from the OECD with the income data from the EU-SILC to calculate taxes and social security contributions paid for each individual and year in my sample. Different rates are applied to employees and self-employed. I only make an exception for wealth taxes, which are directly reported by the EU-SILC and thus do not require complementary information from the OECD.

Regarding welfare benefits, the EU-SILC divides cash transfers in two categories: contributory and non-contributory. Contributory benefits are cash transfers the individual receives in an amount corresponding in part or totally to payments previously made to the government. For example, old-age benefits and unemployment benefits depend in part on the amount of social security contributions the individual paid in their career. Non-contributory benefits instead do not depend on previous contributions but may still depend on other variables. For example, in multiple countries,

10 Some countries apply different personal income tax rates and thresholds depending on demographic characteristics (e.g., age, civil status) and labour market parameters (e.g., hours of work). I distinguish between self-employed and employees. Further distinctions are not possible.

child benefits depend on the number of children in the household (the higher the number of children, the higher the amount received). In the EU-SILC, contributory benefits are measured at the individual level and include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Non-contributory benefits are instead measured at the household level and include child benefits, housing benefits, and social assistance benefits. Given that my analysis is at the individual level, as previously done by Christl et al. (2022) who also use the EU-SILC to estimate the NFP of migrants in Europe but for fewer countries and years, individual non-contributory benefits are calculated by dividing the amount received at the household level by the number of adults in the household. Finally, I employ Eurostat databases on price levels and price increases to adjust benefits and contributions for inflation and differences in purchasing power across countries.

After dropping observations for individuals younger than eighteen (-94,862) and for those not reporting information on migration background or gross disposable income (-7,822), my final sample consists of 3,158,262 observations corresponding to adult individuals in 15 EU countries, from 2007 to 2018. Migrants, who I define as foreign-born residents, make up 10.7% (3.6% intra-EU and 7.1% extra-EU) of the observations (337,534).<sup>11</sup>

### 3.5 RESULTS

#### 3.5.1 Contributions

Table 3.2 below shows on the left side the average yearly direct fiscal contribution (in euros) to the public balance for native-born individuals, intra-EU migrants, and extra-EU migrants, conditional on having contributions above zero, across countries.<sup>12</sup>

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11 The alternative would be to define migrants as all foreign nationals resident in a country. However, citizenship rules differ greatly among the countries considered.

12 To avoid that years with more observations weigh more than others in the calculation of the average yearly values, I calculate them by first determining the average value per year and then calculating the mean of those values. The same approach is applied to derive country averages.

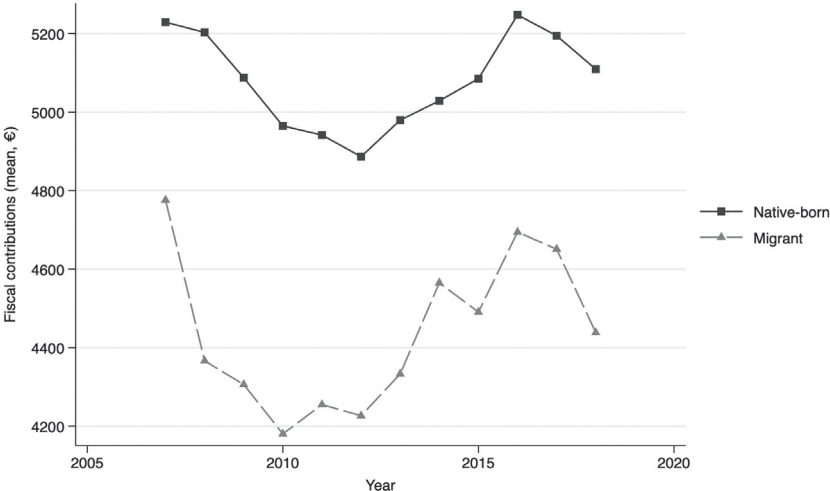
Table 3.2 Individual fiscal contributions, mean values (€) and shares of contributors (2007-2018)

|            | Mean values |          |          | Shares of contributors |          |          |
|------------|-------------|----------|----------|------------------------|----------|----------|
|            | Natives     | Intra-EU | Extra-EU | Natives                | Intra-EU | Extra-EU |
| Austria    | 8,908       | 9,496    | 5,428    | 0.45                   | 0.38     | 0.46     |
| Belgium    | 16,758      | 20,515   | 12,655   | 0.48                   | 0.47     | 0.42     |
| Czechia    | 560         | 546      | 577      | 0.87                   | 0.76     | 0.75     |
| Estonia*   | 1,273       | -        | 938      | 0.84                   | -        | 0.71     |
| France     | 5,002       | 5,444    | 4,548    | 0.57                   | 0.51     | 0.51     |
| Germany*   | 5,913       | -        | 5,375    | 0.53                   | -        | 0.36     |
| Greece     | 1,475       | 1,832    | 1,693    | 0.81                   | 0.75     | 0.68     |
| Ireland    | 6,541       | 5,166    | 6,918    | 0.38                   | 0.52     | 0.48     |
| Italy      | 3,662       | 3,164    | 2,974    | 0.80                   | 0.81     | 0.77     |
| Latvia*    | 1,382       | -        | 973      | 0.90                   | -        | 0.84     |
| Luxembourg | 9,833       | 7,930    | 5,375    | 0.49                   | 0.65     | 0.61     |
| Portugal   | 2,309       | 3,283    | 3,512    | 0.78                   | 0.84     | 0.81     |
| Slovenia*  | 3,048       | -        | 2,585    | 0.95                   | -        | 0.92     |
| Spain      | 4,505       | 3,393    | 2,304    | 0.40                   | 0.48     | 0.47     |
| Sweden     | 4,350       | 4,128    | 3,816    | 0.86                   | 0.75     | 0.65     |
| Average    | 5,809       | 5,900    | 4,527    | 0.63                   | 0.63     | 0.60     |

*Notes:* Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. \*The country does not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. *Source:* author's calculation from the data (EU-SILC and OECD, 2007-2018).

On the right side, it shows the share of contributors in each of the three population groups. In line with similar findings in the literature (Nyman and Alshkog, 2018; Österman et al., 2024; Ruist, 2014), intra-EU migrants are the population group with the highest average yearly contribution to the public balance (€5,900, with a 63% share of contributors), native-born individuals are the second (€5,809, also with a 63% share of contributors), and extra-EU migrants are the last (€4,527, with a share 60% of non-zero contributors), also in line with the literature (Bogdanov, 2014; Hansen, 2017). To complement Table 3.2, Figure 3.2 below depicts the average fiscal contributions of migrants and native-born individuals over time.

Figure 3.2 Mean fiscal contributions over time by general migration background

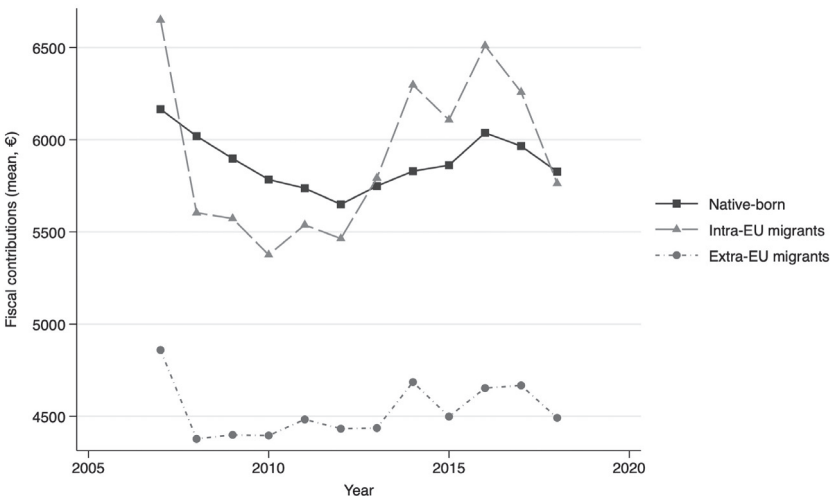


Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

The average values for both groups considerably decrease during the Great Recession reaching low points in the sample in 2010 and 2012, probably due to high unemployment rates, before increasing again and hitting the highest point in the sample in 2016. After 2016, the values slightly decrease again, probably due to the higher influx of asylum seekers who arrived in 2015, reaching in 2018 values similar to the ones in 2008.<sup>13</sup> Figure 3.3 below shows, for the subsample of countries that make a distinction between intra- and extra-EU migrants, that the fluctuations in the mean fiscal contributions of migrants are largely driven by intra-EU migrants, while extra-EU migrants show more stable and considerably lower fiscal contributions throughout the whole period.

13 Unfortunately, the EU-SILC does not provide information on the reasons for migration. So, it is not possible to distinguish between asylum seekers and other types of migrants.

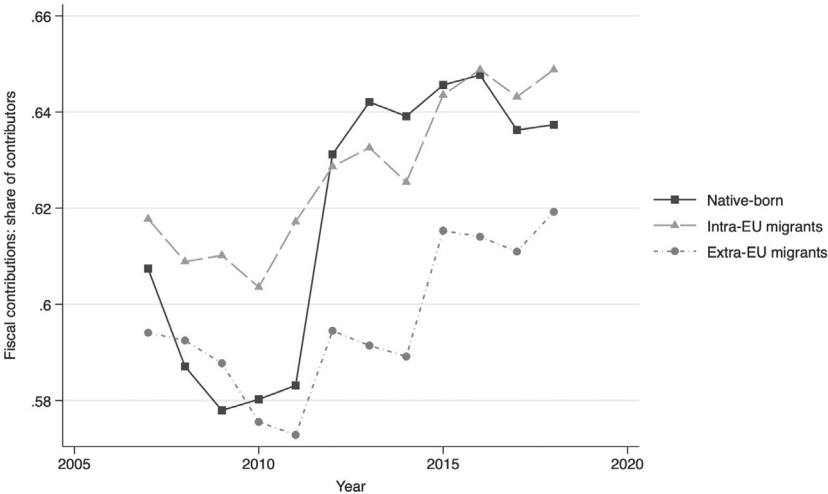
Figure 3.3 Mean fiscal contributions over time by specific migration background



Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

However, as displayed in Figure 3.4 below, the share of non-zero taxpayers follows similar trends for all three population groups, with more marked up-and-downs for intra-EU migrants. These are consistent with the automatic stabilizer mechanism built within the more progressive European fiscal systems. In other terms, given that on average, across years and countries, intra-EU migrants are the population group with the highest average yearly direct fiscal contribution, it follows that their taxes significantly decrease in times of economic downturn and increase in times of economic prosperity. This dynamic reflects the responsiveness of fiscal systems to economic conditions, ensuring a degree of stability by adjusting the tax burden based on individuals’ ability to pay.

Figure 3.4 Share of contributors over time by specific migration background



Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

Even though all mean values in Table 3.2 have been adjusted for purchasing power parity and inflation, absolute values are not easily comparable across countries because of different economic and demographic characteristics (e.g., GDP level, welfare state typology, age structure, etc.). Therefore, similarly to other studies such as Huber and Oberdabernig (2016), Jakubiak (2020), and OECD (2021), I present the numbers also as within-country ratios in Table 3.3 below.<sup>14</sup> This table reports the migrants-to-native ratios of the direct average fiscal contributions in four periods, 2007-2009, 2010-2012, 2013-2015, and 2016-2018.<sup>15</sup> A coefficient below one indicates that migrants contribute less than native-born individuals

14 Zero values are excluded from the calculation of the ratios. This is because ratios do not work when zero values are included. Also, given that the ratios are derived from the absolute values discussed in Table 3.2 (and in the corresponding figures), where zero values are excluded from the means, it is logical to follow the same rule.

15 I use three-year averages to get more meaningful comparisons.

Table 3.3 Migrant-to-native ratios of individual fiscal contributions over time

| Country    | Intra-EU migrants |           |           |           |                  | Extra-EU migrants |           |           |           |                  |
|------------|-------------------|-----------|-----------|-----------|------------------|-------------------|-----------|-----------|-----------|------------------|
|            | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
| Austria    | 1.01              | 0.99      | 1.16      | 1.10      | 0.09             | 0.58              | 0.68      | 0.61      | 0.56      | -0.02            |
| Belgium    | 1.16              | 1.09      | 1.29      | 1.33      | 0.17             | 0.75              | 0.78      | 0.76      | 0.72      | -0.03            |
| Czechia    | 0.85              | 0.94      | 1.12      | 1.17      | 0.32             | 0.84              | 1.12      | 1.59      | 1.23      | 0.39             |
| Estonia*   | -                 | -         | -         | -         | -                | 0.71              | 0.69      | 0.79      | 0.83      | 0.12             |
| France     | 1.22              | 1.07      | 1.09      | 0.99      | -0.23            | 0.98              | 0.89      | 0.90      | 0.87      | -0.11            |
| Germany*   | -                 | -         | -         | -         | -                | 0.93              | 0.87      | 0.91      | 0.91      | -0.02            |
| Greece     | 0.67              | 1.11      | 1.36      | 1.30      | 0.63             | 0.51              | 0.81      | 1.26      | 1.30      | 0.79             |
| Ireland    | 0.81              | 0.75      | 0.80      | 0.81      | 0.00             | 0.94              | 1.01      | 1.09      | 1.14      | 0.20             |
| Italy      | 0.90              | 0.87      | 0.86      | 0.77      | -0.13            | 0.88              | 0.78      | 0.80      | 0.74      | -0.14            |
| Latvia*    |                   |           |           |           |                  | 0.76              | 0.75      | 0.66      | 0.67      | -0.09            |
| Luxembourg | 0.86              | 0.77      | 0.74      | 0.82      | -0.04            | 0.59              | 0.50      | 0.50      | 0.60      | 0.01             |
| Portugal   | 1.23              | 1.29      | 1.44      | 1.50      | 0.27             | 1.41              | 1.73      | 1.57      | 1.46      | 0.05             |
| Slovenia*  | -                 | -         | -         | -         | -                | 0.88              | 0.86      | 0.82      | 0.82      | -0.06            |
| Spain      | 0.79              | 0.77      | 0.75      | 0.71      | -0.08            | 0.53              | 0.49      | 0.53      | 0.50      | -0.03            |
| Sweden     | 0.90              | 1.00      | 0.95      | 0.92      | 0.02             | 0.85              | 0.89      | 0.90      | 0.85      | 0.00             |
| Average    | 0.95              | 0.97      | 1.05      | 1.04      | 0.09             | 0.81              | 0.88      | 0.96      | 0.91      | 0.10             |
| St. dev.   | 0.19              | 0.17      | 0.25      | 0.26      | 0.08             | 0.26              | 0.34      | 0.38      | 0.33      | 0.06             |

Notes: Individual fiscal contributions include personal income taxes, social security contributions, and wealth taxes. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author's calculation from the data (EU-SILC and OECD, 2007-2018).

Across countries, intra-EU migrants show an average fiscal contribution amounting to 0.95 the one of natives in 2007-2009, which increases to 1.04 in 2016-2018. In other words, in more recent years, intra-EU migrants pay more direct taxes and social security contributions than natives. This could be attributed to personal characteristics of intra-EU migrants, such as a higher share of them being in their prime working age (25-54) compared to natives (Eurostat, 2024d), and to successful integration policies. The average fiscal contribution of extra-EU migrants instead amounts to 0.81 the one of natives in 2007-2009, increasing to 0.91 in 2016-2018. In addition, the standard deviation and the coefficient of variation indicate that the dispersion of the fiscal contributions across countries has increased over time.

When considering the general migrant category, migrants present an average fiscal contribution higher than native-born individuals at the beginning of the study period in only two out of the 15 countries included in the sample (France, Portugal), and in four at the end of the period (Belgium, Czechia, Greece, Portugal). In seven countries the direct fiscal contribution of migrants with respect to natives increases from 2007 to 2018 (Austria, Belgium, Czechia, Estonia, Greece, Ireland, Portugal), in one it remains constant (Sweden), and in seven it decreases (France, Germany, Italy, Latvia, Luxembourg, Slovenia, Spain).

### 3.5.2 Benefits

Table 3.4 below shows the average mean values, conditional on receipt, and the share of receipt for contributory benefits, across countries.

*Table 3.4 Contributory benefits, mean values (€) and shares of receipt (2007-2018)*

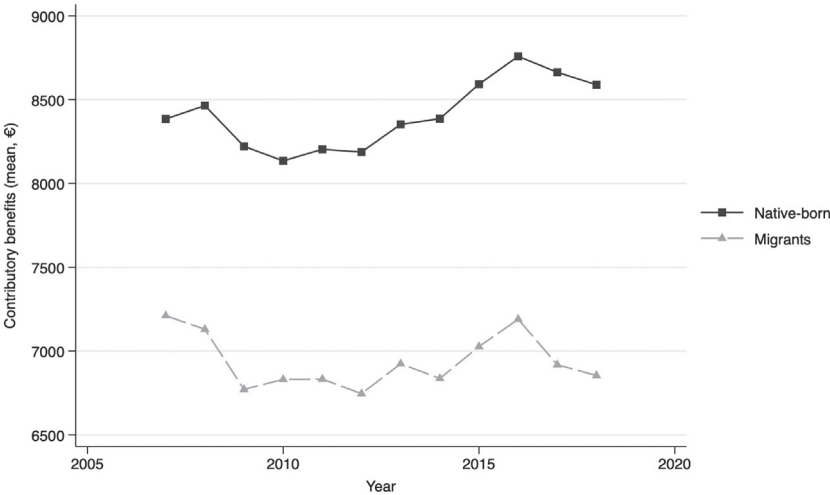
|            | Mean values |          |          | Shares of receipt |          |          |
|------------|-------------|----------|----------|-------------------|----------|----------|
|            | Natives     | Intra-EU | Extra-EU | Natives           | Intra-EU | Extra-EU |
| Austria    | 11,564      | 10,959   | 6,005    | 0.44              | 0.42     | 0.38     |
| Belgium    | 9,843       | 9,933    | 7,088    | 0.42              | 0.39     | 0.33     |
| Czechia    | 5,397       | 5,656    | 5,027    | 0.48              | 0.61     | 0.32     |
| Estonia*   | 2,596       | -        | 3,190    | 0.50              | -        | 0.70     |
| France     | 12,137      | 11,729   | 10,794   | 0.44              | 0.50     | 0.44     |
| Germany*   | 11,360      | -        | 12,698   | 0.43              | -        | 0.60     |
| Greece     | 7,869       | 7,790    | 5,074    | 0.39              | 0.18     | 0.17     |
| Ireland    | 9,442       | 7,221    | 7,170    | 0.51              | 0.42     | 0.28     |
| Italy      | 9,782       | 5,479    | 4,338    | 0.46              | 0.33     | 0.29     |
| Latvia*    | 2,137       | -        | 2,553    | 0.51              | -        | 0.72     |
| Luxembourg | 17,415      | 12,716   | 8,971    | 0.37              | 0.25     | 0.18     |
| Portugal   | 7,220       | 7,595    | 7,533    | 0.42              | 0.18     | 0.24     |
| Slovenia*  | 4,966       | -        | 5,215    | 0.51              | -        | 0.54     |

|         | Mean values |          |          | Shares of receipt |          |          |
|---------|-------------|----------|----------|-------------------|----------|----------|
|         | Natives     | Intra-EU | Extra-EU | Natives           | Intra-EU | Extra-EU |
| Spain   | 8,140       | 5,461    | 3,815    | 0.43              | 0.32     | 0.28     |
| Sweden  | 6,156       | 7,252    | 3,895    | 0.61              | 0.61     | 0.55     |
| Average | 9,542       | 8,345    | 6,337    | 0.45              | 0.38     | 0.31     |

Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author’s calculation from the data (EU-SILC, 2007-2018).

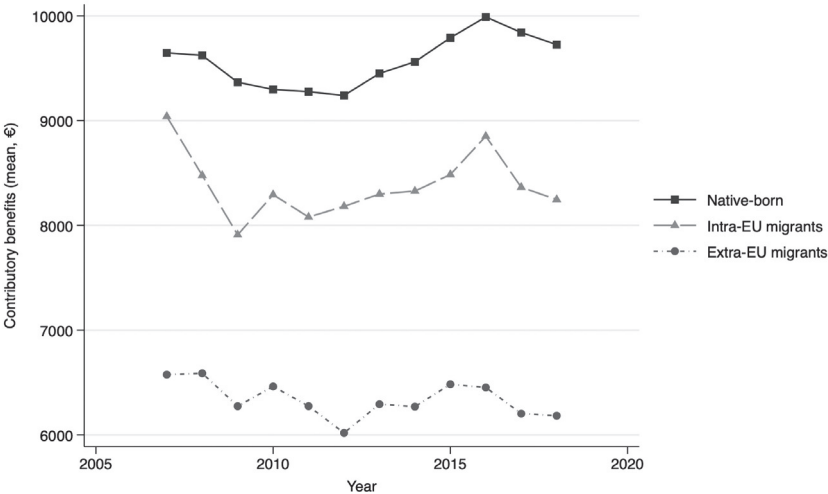
Regarding contributory benefits, natives present the higher average amount (€9,542) and share of receipt (45%), intra-EU migrants are the second population group by average amount and receipt (€8,345 and 38%), and extra-EU migrants the last (€6,337 and 31%). Furthermore, Figure 3.5 below illustrates that the average amount in contributory benefits received by native-born individuals slightly increases during the sample period, while the one for migrants decreases. Figure 3.6 shows that this happens also for the subsample of countries that allow to separate between intra- and extra-EU migrants.

Figure 3.5 Contributory benefits over time by general migration background



Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

Figure 3.6 Mean contributory benefits over time by specific migration background



Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

The primacy of native-born individuals is explained by their higher average take-up (33%) and higher average amount in old-age benefits (€11,702) compared to migrants, as previously also found by Conte and Mazza (2019), Huber and Oberdabernig (2016), and Jakubiak (2020). Native-born individuals are also the only one of the three population groups whose average amount in old-age benefits received is higher at the end of the period than at the beginning, probably due to the increasing average age of the native European population (Eurostat, 2024d). Regarding non-contributory benefits (Table 3.5 below), the rankings of native-born individuals and extra-EU migrants are inverted.

Table 3.5 Non-contributory benefits, mean values (€) and shares of receipt (2007-2018)

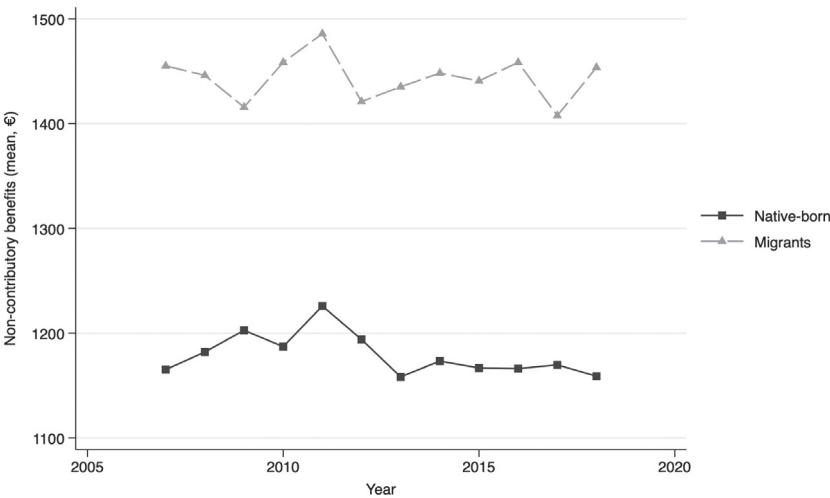
|          | Mean values |          |          | Shares of receipt |          |          |
|----------|-------------|----------|----------|-------------------|----------|----------|
|          | Natives     | Intra-EU | Extra-EU | Natives           | Intra-EU | Extra-EU |
| Austria  | 1,831       | 2,122    | 2,425    | 0.40              | 0.35     | 0.62     |
| Belgium  | 1,242       | 1,371    | 1,547    | 0.40              | 0.40     | 0.60     |
| Czechia  | 1,194       | 1,520    | 1,417    | 0.18              | 0.17     | 0.17     |
| Estonia* | 622         | -        | 490      | 0.47              | -        | 0.27     |
| France   | 1,706       | 1,619    | 2,472    | 0.44              | 0.37     | 0.59     |
| Germany* | 1,773       | -        | 2,133    | 0.38              | -        | 0.32     |
| Greece   | 556         | 532      | 567      | 0.23              | 0.26     | 0.37     |
| Ireland  | 1,647       | 2,080    | 2,909    | 0.70              | 0.71     | 0.77     |

|            | Mean values |          |          | Shares of receipt |          |          |
|------------|-------------|----------|----------|-------------------|----------|----------|
|            | Natives     | Intra-EU | Extra-EU | Natives           | Intra-EU | Extra-EU |
| Italy      | 414         | 580      | 669      | 0.29              | 0.33     | 0.41     |
| Latvia*    | 377         | -        | 274      | 0.44              | -        | 0.29     |
| Luxembourg | 2,149       | 2,667    | 2,907    | 0.43              | 0.58     | 0.71     |
| Portugal   | 426         | 434      | 455      | 0.26              | 0.34     | 0.32     |
| Slovenia*  | 745         | -        | 845      | 0.48              | -        | 0.50     |
| Spain      | 1,304       | 1,221    | 1,335    | 0.06              | 0.08     | 0.13     |
| Sweden     | 1,458       | 1,444    | 2,350    | 0.37              | 0.33     | 0.64     |
| Average    | 1,266       | 1,417    | 1,732    | 0.34              | 0.36     | 0.48     |

Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Native-born individuals present the lowest mean value (€1,266) and share of receipt (34%), intra-EU migrants are the second population group by average amount (€1,417) and receipt (36%), while extra-EU migrants show the highest levels of both (€1,732 and 48%). Figure 3.7 below shows that the average amount received in non-contributory benefits remains fairly constant both for natives and migrants from 2007 to 2018, with a spike in 2011 which is likely linked to the sovereign debt crisis that hit Southern European countries in that year.

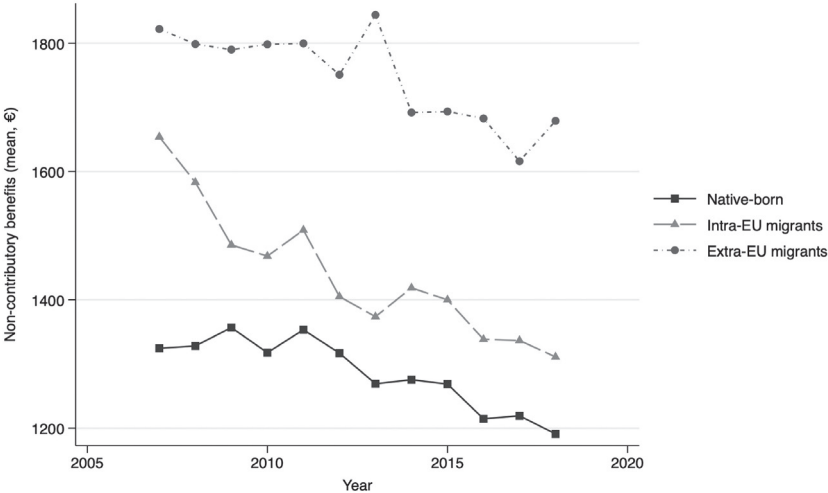
Figure 3.7 Mean non-contributory benefits over time by general migration background



Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

In Figure 3.8 below, when considering only the eleven countries that allow the distinction between intra- and extra-EU migrants, the three population groups show more marked decreases from 2007 to 2018. It is worth noticing that the average contributory transfer is often five or six times bigger than the average non-contributory one, across all countries and population groups. I can expect this to have a large impact on the NFP calculation. In other words, assuming similar levels of direct fiscal contributions, an individual relying more often and for higher amounts on contributory benefits will have a more negative NFP than an individual relying for the most part on non-contributory benefits. Examining the countries in the sample more in detail, the gap between the average amounts of the two types of benefits is particularly wide in Greece, Italy, Portugal, and Slovenia. This indicates that the welfare systems in these countries are relatively more oriented towards contributory transfers.

Figure 3.8 Mean non-contributory benefits over time by specific migration background.



Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC, 2007-2018).

Table 3.6 Migrant-to-native ratios of mean contributory benefits received over time

| Country    | Intra-EU migrants |           |           |           |                  | Extra-EU migrants |           |           |           |                  |
|------------|-------------------|-----------|-----------|-----------|------------------|-------------------|-----------|-----------|-----------|------------------|
|            | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
| Austria    | 1.04              | 0.99      | 0.95      | 0.84      | -0.20            | 0.52              | 0.52      | 0.55      | 0.49      | -0.03            |
| Belgium    | 0.99              | 0.98      | 1.03      | 1.02      | 0.03             | 0.72              | 0.74      | 0.71      | 0.70      | -0.02            |
| Czechia    | 1.12              | 1.04      | 1.05      | 1.01      | -0.11            | 1.09              | 0.93      | 0.85      | 0.81      | -0.28            |
| Estonia*   | -                 | -         | -         | -         | -                | 1.22              | 1.25      | 1.23      | 1.24      | 0.02             |
| France     | 1.00              | 1.01      | 0.93      | 0.94      | -0.06            | 0.89              | 0.91      | 0.89      | 0.87      | -0.02            |
| Germany*   | -                 | -         | -         | -         | -                | 1.14              | 1.16      | 1.13      | 1.05      | -0.09            |
| Greece     | 0.76              | 0.92      | 1.04      | 1.06      | 0.30             | 0.68              | 0.67      | 0.64      | 0.62      | -0.06            |
| Ireland    | 0.84              | 0.74      | 0.77      | 0.75      | -0.09            | 0.78              | 0.79      | 0.81      | 0.66      | -0.12            |
| Italy      | 0.64              | 0.55      | 0.57      | 0.51      | -0.13            | 0.48              | 0.44      | 0.43      | 0.42      | -0.06            |
| Latvia*    | -                 | -         | -         | -         | -                | 1.16              | 1.19      | 1.25      | 1.18      | 0.02             |
| Luxembourg | 0.66              | 0.71      | 0.71      | 0.85      | 0.19             | 0.47              | 0.53      | 0.53      | 0.54      | 0.07             |
| Portugal   | 0.96              | 1.24      | 1.05      | 1.02      | 0.06             | 1.04              | 1.00      | 1.00      | 1.06      | 0.02             |
| Slovenia*  | -                 | -         | -         | -         | -                | 1.07              | 1.07      | 1.03      | 1.02      | -0.05            |
| Spain      | 0.83              | 0.68      | 0.67      | 0.59      | -0.24            | 0.53              | 0.49      | 0.47      | 0.43      | -0.10            |
| Sweden     | 1.29              | 1.22      | 1.11      | 1.08      | -0.21            | 0.74              | 0.66      | 0.56      | 0.57      | -0.17            |
| Average    | 0.92              | 0.92      | 0.90      | 0.88      | -0.04            | 0.72              | 0.70      | 0.68      | 0.65      | -0.07            |
| St. dev.   | 0.20              | 0.22      | 0.19      | 0.19      | 0.01             | 0.22              | 0.19      | 0.19      | 0.20      | -0.02            |

Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author's calculation from the data (EU-SILC, 2007-2018).

Table 3.7 Migrant-to-native ratios of mean non-contributory benefits received over time

| Country    | Intra-EU migrants |           |           |           |                  | Extra-EU migrants |           |           |           |                  |
|------------|-------------------|-----------|-----------|-----------|------------------|-------------------|-----------|-----------|-----------|------------------|
|            | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
| Austria    | 1.17              | 1.26      | 1.17      | 1.06      | -0.11            | 1.34              | 1.35      | 1.31      | 1.31      | -0.03            |
| Belgium    | 1.06              | 1.16      | 1.13      | 1.09      | 0.03             | 1.24              | 1.18      | 1.28      | 1.30      | 0.06             |
| Czechia    | 1.27              | 1.15      | 1.35      | 1.11      | -0.16            | 1.14              | 1.10      | 0.97      | 1.16      | 0.02             |
| Estonia*   | -                 | -         | -         | -         | -                | 0.75              | 0.74      | 0.86      | 0.88      | 0.13             |
| France     | 0.93              | 0.88      | 1.00      | 1.00      | 0.07             | 1.37              | 1.34      | 1.46      | 1.61      | 0.24             |
| Germany*   | -                 | -         | -         | -         | -                | 1.19              | 1.21      | 1.17      | 1.20      | 0.01             |
| Greece     | 0.95              | 0.80      | 0.77      | 1.04      | 0.09             | 0.80              | 0.87      | 0.97      | 1.15      | 0.35             |
| Ireland    | 1.32              | 1.25      | 1.22      | 1.29      | -0.03            | 1.96              | 1.77      | 1.70      | 1.62      | -0.34            |
| Italy      | 1.72              | 1.29      | 1.34      | 1.48      | -0.24            | 1.59              | 1.55      | 1.74      | 1.70      | 0.11             |
| Latvia*    | -                 | -         | -         | -         | -                | 0.73              | 0.76      | 0.70      | 0.73      | 0.00             |
| Luxembourg | 1.23              | 1.29      | 1.16      | 1.18      | -0.05            | 1.35              | 1.39      | 1.45      | 1.28      | -0.07            |
| Portugal   | 1.20              | 1.07      | 1.01      | 0.92      | -0.28            | 1.28              | 1.12      | 1.26      | 0.87      | -0.41            |
| Slovenia*  | -                 | -         | -         | -         | -                | 0.98              | 1.09      | 1.21      | 1.23      | 0.25             |
| Spain      | 1.45              | 0.80      | 0.78      | 0.93      | -0.52            | 0.75              | 1.12      | 1.07      | 1.04      | 0.29             |
| Sweden     | 0.96              | 0.91      | 1.00      | 1.14      | 0.18             | 1.50              | 1.49      | 1.68      | 1.82      | 0.32             |
| Average    | 1.21              | 1.08      | 1.08      | 1.11      | -0.10            | 1.30              | 1.30      | 1.35      | 1.35      | 0.05             |
| St. dev.   | 0.24              | 0.20      | 0.20      | 0.16      | -0.08            | 0.34              | 0.25      | 0.28      | 0.30      | -0.04            |

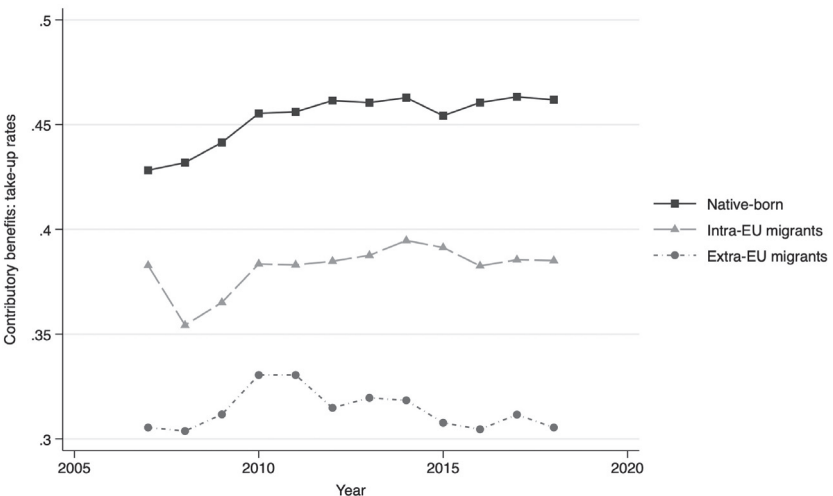
Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author's calculation from the data (EU-SILC, 2007-2018).

As done for the contributions, Table 3.6 and Table 3.7 above report the migrant-to-native ratios for average contributory and non-contributory benefits received in 2007-2009, 2010-2012, 2013-2015, and 2016-2018. A ratio under one means that migrants receive fewer benefits than native-born individuals. For contributory benefits, the two migrant groups present similar trends. Across countries, in 2007-2009 intra-EU migrants received on average 0.92 times the amount in contributory benefits of natives, while in 2016-2018 the amount reduces to 0.88. For extra-EU migrants, the amount in contributory benefits decreases from 0.72 the one of natives to 0.65. Regarding non-contributory benefits, the two migrant groups present opposite trends. For intra-EU migrants, the ratio in the amount in transfers received compared to natives decreases from 1.21 in 2007-2009 to 1.11 in 2016-2018, on average when pooling all countries together. For extra-EU migrants, the ratio in the amount in benefits received compared to natives increases from 1.30 in 2007-2009 to 1.35 in 2016-2018.

In sum, from 2007 to 2018, intra-EU migrants relatively decrease their amount of both contributory and non-contributory benefits received compared to natives. Similarly, extra-EU migrants relatively decrease their amount in (more costly, but partially self-financed) contributory benefits received compared to natives, but instead relatively increase their amount in (less costly, but partially not self-financed) non-contributory benefits received.

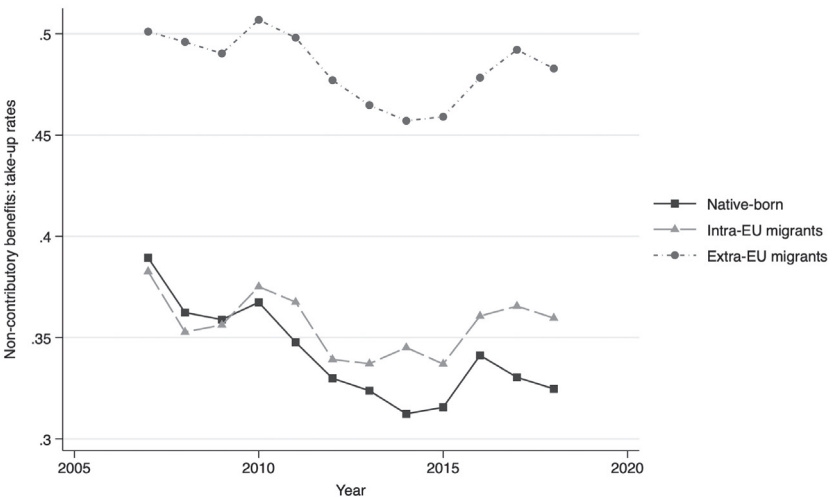
These different trends can be explained by several factors. First, they hint at internal changes in the composition of the pool of migrants (in particular of those extra-EU), and their skill level, over the period considered. For instance, from 2007 to 2018, the share of asylum seekers among non-EU migrants has increased (Eurostat, 2024b). Second, as Figure 3.9 below shows, while the share of receipt for contributory benefits remains relatively constant over time for both migrant groups (around 38% and 31% for intra-EU and extra-EU migrants respectively), it increases from around 42% to 46% for native-born individuals. This is consistent with the rapid ageing of native-born Europeans in most EU countries.

Figure 3.9 Receipt of contributory benefits over time by specific migration background



Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, and education benefits. Source: author's elaboration from the data (EU-SILC, 2007-2018).

Figure 3.10 Receipt of non-contributory benefits over time by specific migration background



Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Source: author's elaboration from the data (EU-SILC, 2007-2018).

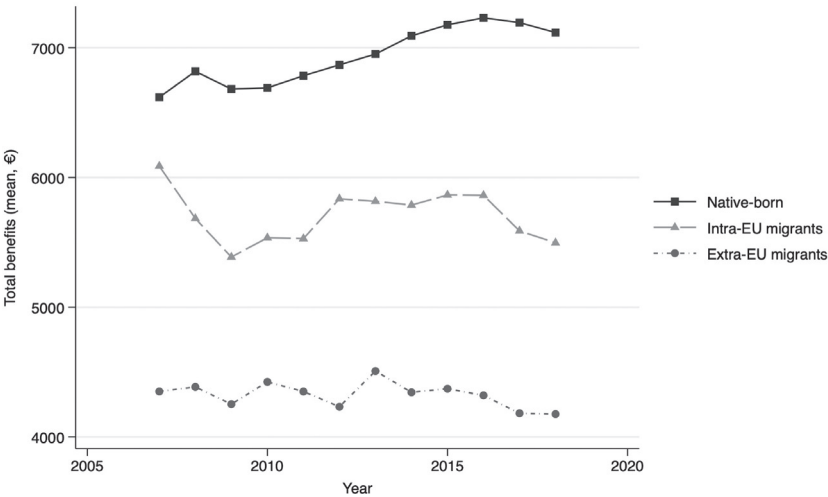
Table 3.8 Migrant-to-native ratios of mean total benefits received over time

| Country    | Intra-EU migrants |           |           |           |                  | Extra-EU migrants |           |           |           |                  |
|------------|-------------------|-----------|-----------|-----------|------------------|-------------------|-----------|-----------|-----------|------------------|
|            | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 | 2007-2009         | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
| Austria    | 1.15              | 1.05      | 1.02      | 0.87      | -0.28            | 0.62              | 0.62      | 0.64      | 0.59      | -0.03            |
| Belgium    | 0.99              | 1.02      | 1.06      | 0.98      | -0.01            | 0.71              | 0.70      | 0.70      | 0.67      | -0.04            |
| Czechia    | 1.28              | 1.09      | 1.07      | 1.02      | -0.26            | 1.12              | 0.87      | 0.71      | 0.75      | -0.37            |
| Estonia*   | -                 | -         | -         | -         | -                | 1.48              | 1.46      | 1.46      | 1.36      | -0.12            |
| France     | 1.11              | 1.11      | 1.04      | 1.06      | -0.05            | 0.94              | 0.95      | 0.93      | 0.92      | -0.02            |
| Germany*   | -                 | -         | -         | -         | -                | 1.44              | 1.39      | 1.24      | 1.10      | -0.34            |
| Greece     | 0.51              | 0.70      | 0.75      | 0.67      | 0.16             | 0.43              | 0.50      | 0.44      | 0.32      | -0.11            |
| Ireland    | 0.81              | 0.75      | 0.78      | 0.75      | -0.06            | 0.75              | 0.76      | 0.77      | 0.61      | -0.14            |
| Italy      | 0.57              | 0.45      | 0.49      | 0.45      | -0.12            | 0.40              | 0.35      | 0.35      | 0.34      | -0.06            |
| Latvia*    | -                 | -         | -         | -         | -                | 1.39              | 1.40      | 1.49      | 1.36      | -0.03            |
| Luxembourg | 0.56              | 0.65      | 0.65      | 0.67      | 0.11             | 0.44              | 0.49      | 0.48      | 0.43      | -0.01            |
| Portugal   | 0.55              | 0.70      | 0.59      | 0.64      | 0.09             | 0.65              | 0.69      | 0.77      | 0.79      | 0.14             |
| Slovenia*  | -                 | -         | -         | -         | -                | 1.12              | 1.10      | 1.02      | 1.00      | -0.12            |
| Spain      | 0.79              | 0.65      | 0.62      | 0.57      | -0.22            | 0.46              | 0.48      | 0.44      | 0.40      | -0.06            |
| Sweden     | 1.24              | 1.16      | 1.09      | 1.06      | -0.18            | 0.88              | 0.79      | 0.72      | 0.74      | -0.14            |
| Average    | 0.87              | 0.85      | 0.83      | 0.79      | -0.08            | 0.67              | 0.65      | 0.63      | 0.60      | -0.07            |
| St. dev.   | 0.30              | 0.24      | 0.23      | 0.21      | -0.09            | 0.24              | 0.18      | 0.18      | 0.20      | -0.04            |

Notes: Total benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, education benefits, child benefits, housing benefits, and social exclusion benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author's calculation from the data (EU-SILC, 2007-2018).

As an overall picture, Table 3.8 above presents the migrant-to-native ratios for average total benefits received. Both groups of migrants witness decreasing ratios in the amounts of total benefits received compared to natives from 2007 to 2018, intra-EU migrants from 0.87 to 0.79 and extra-EU migrants from 0.67 to 0.60. In other words, migrants in recent years rely on welfare benefits for lower amounts than what they did in 2007, compared to natives. These downward-sloping trends in the migrant-to-native total benefits ratios are confirmed in Figure 3.11 below and can be explained by the growing reliance of natives on contributory benefits discussed above, which make up most of the total benefits because of their large monetary values. To give the exact numbers, the data show that the average amount received in total welfare benefits by migrants decreases from around €3,865 in 2007 to €3,398 in 2018, while it increases from € 3,845 to €4,211 for native-born individuals over the same period, across countries. Furthermore, the standard deviation and the coefficient of variation show that migrant-to-native ratios for average total benefits received have somewhat converged across European countries over time.

Figure 3.11 Mean total benefits over time by specific migration background



Notes: Total benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, education benefits, child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

### 3.5.3 Net Fiscal Positions: Trends across Countries and Years

After studying trends in contributions and benefits separately, now I proceed to the results of the NFP calculation. Table 3.9 below aggregates individual country averages across all years.

Table 3.9 Net fiscal position, mean values (€, 2007-2018)

| Country    | Native-born | Intra-EU migrants | Extra-EU migrants |
|------------|-------------|-------------------|-------------------|
| Austria    | -1,811      | -1,723            | -1,298            |
| Belgium    | 3,424       | 5,282             | 2,029             |
| Czechia    | -2,337      | -3,325            | -1,404            |
| Estonia*   | -520        | -                 | -1,716            |
| France     | -3,283      | -3,680            | -3,893            |
| Germany*   | -2,433      | -                 | -6,376            |
| Greece     | -2,028      | -159              | 88                |
| Ireland    | -3,434      | -1,851            | -902              |
| Italy      | -1,672      | 580               | 767               |
| Latvia*    | -6          | -                 | -1,091            |
| Luxembourg | -2,658      | 475               | -428              |
| Portugal   | -1,349      | 1,243             | 907               |
| Slovenia*  | -2          | -                 | -835              |
| Spain      | -1,756      | -242              | -161              |
| Sweden     | -528        | -1,767            | -1,127            |
| Average    | -1,585      | -469              | -493              |

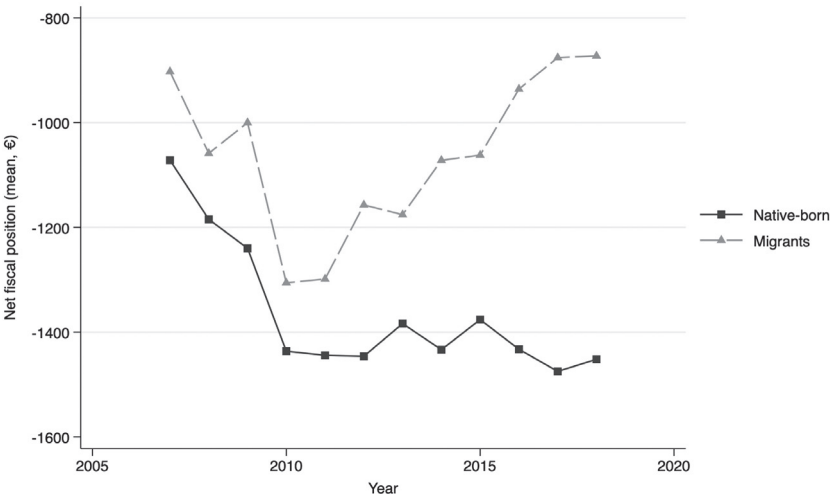
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. Source: author’s calculation from the data (EU-SILC and OECD, 2007-2018).

On average, all three population groups appear as net fiscal recipients, to different degrees. Native-born individuals exhibit the most negative NFP (-€1,545), while intra-EU migrants and extra-EU migrants show relatively similar values (-€469 and -€493, respectively). In other terms, migrants display a relatively less negative NFP compared to natives by an average of around €1,000 per year, across countries. This result is in line with recent findings remarking the relatively more positive average NFP of migrants compared to natives in Europe and debunks the ungrounded argument that migrants are a more expensive direct fiscal drain than natives (Christl et al., 2022; Fiorio et al., 2024).<sup>16</sup>

16 It is important to note once more that, while the individual fiscal balance of migrants in the years prior to migration is often ignored in the literature and in the general debate on the fiscal impact of immigration, host countries do not pay for the human and social capital accumulated by migrants in their origin country, for example through education, while they have to partly do so for their native resident population. Including this in the calculation would make the fiscal balance of natives even more negative.

As a contribution to this, my analysis shows that the gap in the NFP between migrants and natives has widened in recent years. As depicted in Figure 3.12 below, the NFP of both native-born individuals and migrants reach low points in 2010, reflecting the aftermath of the Great Recession. However, similarly to what displayed in Table 3.9 above, there is as a key difference between the trends of the two groups. The NFP of migrants starts recovering from 2011, reaching a new peak in 2017. Instead, the NFP of natives does not recover and reaches its lowest point in 2017.

Figure 3.12 Net fiscal position over time by general migration background

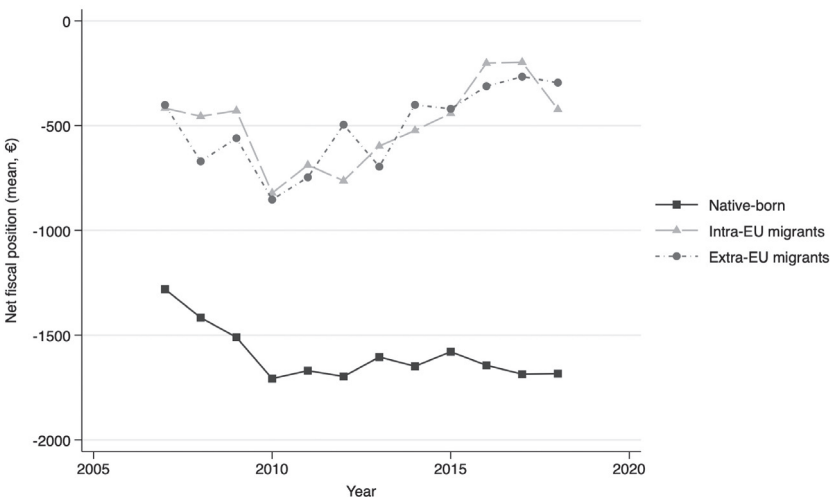


Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

The resurgence of migrants’ NFP could be linked to several economic dynamics, including improved employment opportunities resulting from the broader economic restart, country-specific factors and policies, and compositional changes within the pool of migrants themselves. Conversely, the NFP of native-born individuals failed to rebound after 2010, hitting its lowest point in 2017. This stagnation could be influenced by challenges in adapting to evolving labour markets, demographic shifts, as the native population is ageing fast, and potentially less responsive social welfare policies. To further explore these trends, Figure 3.13 below differentiates between intra-EU and extra-EU migrants, focusing on the eleven countries that allow such a distinction. Interestingly, both groups start with similar NFP in 2007 and follow parallel trajectories until 2018. In 2018, extra-EU migrants demonstrate a slightly less negative NFP than intra-EU migrants. As discussed in Sections 3.5.1 and 3.5.2, these parallel trends are not the result of similar fiscal behaviours. Intra-EU migrants appear to pay higher

taxes and social security contributions while receiving more contributory benefits. Conversely, extra-EU migrants contribute less via taxes and social security, relying much less on contributory benefits and more on non-contributory transfers.

Figure 3.13 Net fiscal position over time by specific migration background



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

Table 3.10 below introduces the NFP as contributions-to-benefits ratios, showing their evolution over time. These ratios, presented in Panel A, Panel B, and Panel C, offer a more comparable metric across countries by controlling for country-specific effects affecting both contributions and benefits simultaneously. A coefficient under one means that the average individual receives more benefits than what this person contributes, and vice-versa. The three population groups present different trends over time. For native-born individuals, at the start of the period, contributions cover 0.74 of the benefits and 0.68 at the end. For both groups of migrants, contributions cover instead the entirety of benefits by the end of the period. For intra-EU migrants, the ratio between benefits and contributions grows from 0.99 in 2007-2009 to 1.03 in 2016-2018, while for extra-EU migrants it grows from 0.95 to 1.00.<sup>17</sup>

17 The pooled country averages in the last row of Table 3.10 exclude the countries for which it is not possible to distinguish between intra-EU and extra-EU migrants. If included, the value for the contributions-to-benefits ratio for the overall migrant category would hover around 0.80, reflecting the more negative NFP of migrants in these countries.

Table 3.10 Net fiscal position as a ratio (contributions/benefits) over time

| <i>Panel A: native-born individuals</i> |                  |                  |                  |                  |                         |
|-----------------------------------------|------------------|------------------|------------------|------------------|-------------------------|
| <i>Country</i>                          | <i>2007-2009</i> | <i>2010-2012</i> | <i>2013-2015</i> | <i>2016-2018</i> | <i>Change 2007-2018</i> |
| Austria                                 | 0.72             | 0.70             | 0.70             | 0.64             | -0.08                   |
| Belgium                                 | 1.83             | 1.78             | 1.70             | 1.65             | -0.18                   |
| Czechia                                 | 0.28             | 0.19             | 0.10             | 0.11             | -0.17                   |
| Estonia                                 | 0.81             | 0.64             | 0.69             | 0.60             | -0.21                   |
| France                                  | 0.50             | 0.48             | 0.45             | 0.43             | -0.07                   |
| Germany                                 | 0.56             | 0.58             | 0.56             | 0.55             | -0.01                   |
| Greece                                  | 0.31             | 0.25             | 0.39             | 0.41             | 0.10                    |
| Ireland                                 | 0.41             | 0.38             | 0.44             | 0.47             | 0.06                    |
| Italy                                   | 0.64             | 0.62             | 0.67             | 0.63             | -0.01                   |
| Latvia                                  | 1.18             | 0.81             | 0.97             | 1.09             | -0.09                   |
| Luxembourg                              | 0.62             | 0.58             | 0.69             | 0.72             | 0.10                    |
| Portugal                                | 0.54             | 0.49             | 0.55             | 0.63             | 0.09                    |
| Slovenia                                | 1.09             | 1.01             | 0.91             | 0.98             | -0.11                   |
| Spain                                   | 0.65             | 0.53             | 0.44             | 0.44             | -0.21                   |
| Sweden                                  | 0.89             | 0.85             | 0.85             | 0.91             | 0.02                    |
| Average                                 | 0.74             | 0.66             | 0.67             | 0.68             | -0.06                   |
| St. dev.                                | 0.42             | 0.43             | 0.41             | 0.39             | -0.03                   |
| C.V.                                    | 0.57             | 0.65             | 0.61             | 0.58             | 0.01                    |
| <i>Panel B: intra-EU migrants</i>       |                  |                  |                  |                  |                         |
| <i>Country</i>                          | <i>2007-2009</i> | <i>2010-2012</i> | <i>2013-2015</i> | <i>2016-2018</i> | <i>Change 2007-2018</i> |
| Austria                                 | 0.55             | 0.62             | 0.73             | 0.81             | 0.26                    |
| Belgium                                 | 2.23             | 1.94             | 2.19             | 2.45             | 0.22                    |
| Czechia                                 | 0.13             | 0.12             | 0.08             | 0.09             | -0.04                   |
| Estonia                                 | -                | -                | -                | -                | -                       |
| France                                  | 0.52             | 0.44             | 0.42             | 0.35             | -0.17                   |
| Germany                                 | -                | -                | -                | -                | -                       |
| Greece                                  | 0.93             | 0.89             | 1.06             | 0.83             | -0.10                   |
| Ireland                                 | 0.59             | 0.53             | 0.59             | 0.66             | 0.07                    |
| Italy                                   | 1.17             | 1.35             | 1.31             | 1.28             | 0.11                    |
| Latvia                                  | -                | -                | -                | -                | -                       |
| Luxembourg                              | 1.44             | 0.93             | 0.94             | 1.13             | -0.31                   |
| Portugal                                | 1.83             | 1.31             | 1.72             | 2.07             | 0.24                    |
| Slovenia                                | -                | -                | -                | -                | -                       |
| Spain                                   | 0.9              | 0.87             | 0.76             | 0.91             | 0.01                    |
| Sweden                                  | 0.58             | 0.64             | 0.63             | 0.72             | 0.14                    |

| Country  | 2007-2009 | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
|----------|-----------|-----------|-----------|-----------|------------------|
| Average  | 0.99      | 0.88      | 0.95      | 1.03      | 0.04             |
| St. dev. | 0.63      | 0.51      | 0.60      | 0.70      | 0.07             |
| C.V.     | 0.64      | 0.57      | 0.63      | 0.68      | 0.04             |

*Panel C: extra-EU migrants*

| Country    | 2007-2009 | 2010-2012 | 2013-2015 | 2016-2018 | Change 2007-2018 |
|------------|-----------|-----------|-----------|-----------|------------------|
| Austria    | 0.70      | 0.72      | 0.63      | 0.58      | -0.12            |
| Belgium    | 1.64      | 1.66      | 1.63      | 1.55      | -0.09            |
| Czechia    | 0.18      | 0.25      | 0.29      | 0.28      | 0.10             |
| Estonia*   | 0.35      | 0.27      | 0.26      | 0.25      | -0.10            |
| France     | 0.41      | 0.38      | 0.37      | 0.34      | -0.07            |
| Germany*   | 0.17      | 0.19      | 0.25      | 0.32      | 0.15             |
| Greece     | 0.74      | 0.59      | 1.33      | 1.32      | 0.58             |
| Ireland    | 0.69      | 0.61      | 0.73      | 1.16      | 0.47             |
| Italy      | 1.5       | 1.39      | 1.44      | 1.62      | 0.12             |
| Latvia*    | 0.54      | 0.38      | 0.37      | 0.47      | -0.07            |
| Luxembourg | 1.01      | 0.66      | 0.81      | 1.18      | 0.17             |
| Portugal   | 1.53      | 1.59      | 1.42      | 1.46      | -0.07            |
| Slovenia*  | 0.81      | 0.76      | 0.68      | 0.70      | -0.11            |
| Spain      | 1.47      | 0.75      | 0.71      | 0.78      | -0.69            |
| Sweden     | 0.59      | 0.68      | 0.77      | 0.74      | 0.15             |
| Average    | 0.95      | 0.84      | 0.92      | 1.00      | 0.05             |
| St. dev.   | 0.51      | 0.48      | 0.46      | 0.48      | -0.03            |
| C.V.       | 0.53      | 0.57      | 0.50      | 0.48      | -0.05            |

*Notes:* The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. The last row in the table reports the average values across countries. \*The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row. *Source:* author's calculation from the data (EU-SILC and OECD, 2007-2018).

It is noteworthy that in the three-year period between 2016 and 2018, the contributions-to-benefits ratios for migrants resurge and surpass pre-Great Recession levels, while this never happens for native-born individuals. The more negative NFP of native-born individuals relative to migrants and its deterioration over the years can be attributed to their growing reliance on contributory benefits (especially pensions), coupled with a decrease in total benefits for migrants. In addition, this is also influenced by the raising tax and social security contributions paid by migrants over the whole period, as

discussed in Sections 3.5.1 and 3.5.2. In only five countries (Greece, Ireland, Luxembourg, Portugal, Sweden) natives pay more contributions than what they receive in benefits in 2018 compared to 2007; for intra-EU migrants, this happens in seven countries (Austria, Belgium, Ireland, Italy, Portugal, Spain, Sweden), and for extra-EU migrants in six (Czechia, Greece, Ireland, Italy, Luxembourg, Sweden). For the last three years of the period, from 2016 to 2018, in only two countries native-born individuals directly contribute to the fiscal balance more than what they receive in benefits (Belgium, Latvia); for intra-EU migrants, the number is four (Belgium, Italy, Luxembourg, Portugal) and for extra-EU migrants, it is six (Belgium, Greece, Ireland, Italy, Luxembourg, Portugal).

### 3.5.4 Net Fiscal Positions: Trends across Welfare State Types

Previous studies have extensively documented that an individual's NFP is influenced by the welfare state type of their residing country (Chojnicki et al., 2022; Furlanetto and Robstad, 2019; Hansen et al., 2017; Österman et al., 2024; Ruist, 2014). To some extent, the welfare states of European countries can be clustered into welfare state types; groups of countries whose welfare states have – at a certain level of abstraction – a number of characteristics in common (Arts and Gelissen, 2002; Esping-Andersen, 1990; Lauzadyte-Tutliene et al., 2018). Sapir et al. (2004) propose four main models: the Nordic model (Denmark, Finland, the Netherlands, Sweden), which features a high level of social protection and tax progressivity (high degree of income redistribution); the Continental model (Austria, Belgium, France, Germany, Luxembourg), which relies on strong social protection mostly of contributory nature; the Anglo-Saxon model (Ireland, the UK), which is focused on low non-contributory social protection; the Southern European model (Greece, Italy, Portugal, Spain), which is characterized by lower social expenditure (greatly devoted to pensions).<sup>18</sup> Out of the 15 countries in my sample, all countries from the Continental and Southern European models are included, whereas only one each from the Anglo-Saxon and Nordic models are represented.<sup>19</sup> For this reason, I restrict the analysis of welfare state typologies to the differences within and between the Continental and Southern European models.

Regarding fiscal contributions in Continental countries, Table 3.2 shows that, across years, intra-EU migrants appear as the average top contributors in Austria, Belgium, and France, while natives do so in Germany (for

18 Although more recent classifications also include Central European, Eastern European, and Baltic countries in two or three additional welfare models (Draxler and Van Vliet, 2010; Ellwardt et al., 2014; Fenger, 2007; Lauzadyte-Tutliene et al., 2018), the one made by Sapir et al. (2004) remains the main point of reference for comparative welfare scholars and EU policymakers. See a critical review by Lafuente-Lechuga et al. (2018).

19 As stated in Section 3.3, the selection of the countries is based on data availability for contributions and benefits.

which it is not possible to distinguish between the two groups of migrants) and Luxembourg. Extra-EU migrants appear to have the lowest average contributions in all Continental countries. In Southern European countries, natives are the top average contributors in Italy and Spain, while in Greece intra-EU migrants are at the top and in Portugal it is extra-EU migrants.

For contributory benefits, Table 3.4 shows that natives and intra-EU migrants are the two population groups with the highest average amount of contributory transfers in all countries in both welfare models, often with very little gap between them. Extra-EU migrants lag behind in all countries, except for Portugal, where they have a mean value almost comparable to the one of intra-EU migrants. For non-contributory benefits, I see the opposite picture. Table 3.5 shows that extra-EU migrants receive the highest average non-contributory transfers in all countries in both welfare state models.

I find even more interesting results when comparing the NFP of the three population groups across the two welfare state regimes. Figures 3.14, 3.15, 3.18, 3.19, and 3.24 at the end of this chapter show that in Continental countries the NFP of native-born individuals, intra-EU migrants, and extra-EU migrants have no common trends over time. All three population groups experience various ups and downs in their NFP in all Continental countries from 2007 to 2018. Instead, in Southern European countries, as shown in Figures 3.20, 3.22, 3.25, and 3.27 at the end of this chapter, migrants (both intra-EU and extra-EU) appear as net fiscal contributors for most of the period (except for Spain from 2010 onwards). In Italy and Portugal, migrants are net fiscal contributors for the whole period considered. In Italy, a migrant directly contributes around net €700 on average per year to the public balance. In Portugal, this contribution is around €1,000. In Greece and Spain, the values of their average NFP are closer to zero. Conversely, native-born individuals appear as net fiscal recipients in all Southern European countries. This is due to their higher reliance on contributory benefits, like pensions, which constitute the largest part of Southern European welfare spending.<sup>20</sup> Also, as captured by Table 3.8, migrants, no matter whether intra-or extra-EU, receive a lower amount in total benefits compared to natives in all Southern European countries.

In summary, in all Southern European countries, the average migrant has a yearly NFP that is between €1,500 and €2,000 higher than the average native-born individual. This is the case for all years between 2007 and 2018. This finding points to the Southern European welfare model as a welfare type where migrants, no matter the origin, tend to alleviate the burden of the local ageing population, while not receiving generous direct fiscal benefits in return. This is in line with previous findings by Furlanetto and Robstad (2019), Hansen

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20 Despite native-born individuals pay a higher average amount in fiscal contributions relative to migrants across most countries and years, they also receive a disproportionately higher amount in contributory benefits, which in turn makes their NFP more negative. This is because of the pay-as-you-go nature of contributory benefits, where younger generations finance the benefits of older ones through their contributions. In this sense, inter-generational transfers are a key aspect of pay-as-you-go systems.

et al. (2017), and Izquierdo et al. (2010). In Continental countries, partially due to different demographic (for example, France's population is older than Germany's (Eurostat, 2024d)) and labour market (for example, employment in Luxembourg is different from employment in France) characteristics, I do not observe results similar to the ones of Southern European countries.

### 3.6 CONCLUSION

This study contributes to the literature on the fiscal integration of migrants in Europe by looking at trends in the NFP of native-born individuals, intra-EU migrants, and extra-EU migrants for 15 EU countries from 2007 to 2018. I use repeated cross-sectional individual data on income and benefits from the EU-SILC and combine it with information on personal income taxes and social security contributions from the OECD to have reliable estimates of the direct fiscal impact of the three population groups. My methodology is built upon a static, direct, and bottom-up approach that voluntarily ignores indirect taxes, usage of public services (like education and healthcare), and indirect and dynamic fiscal effects to strictly focus on direct fiscal effects for the countries and years considered. While acknowledging the fact that these missing elements may influence the NFP of the different population groups differently, the empirical evidence from this study refutes the common misconception that migrants are a direct net drain on public finances across most countries and years.

As found by Christl et al. (2022), and Fiorio et al. (2024) in recent studies on the NFP of migrants in Europe for shorter periods of time or fewer countries, when migrants result as net fiscal recipients, they most often do it to a lesser degree than native-born individuals. More specifically, the findings show that migrants present a relatively less negative average NFP than native-born individuals in 8 countries out of 15, across years. In five countries, migrants are average net fiscal contributors over the whole period (Belgium, Greece, Italy, Luxembourg, Portugal). Native-born individuals are the population group that relies the most on and receives the highest amounts in contributory benefits. In addition, the net fiscal contribution made by migrants presents a constant increase over the twelve-year period considered, while the contribution from natives remains rather constant. This results in a growing gap between the NFP of natives and migrants.

The plausible mechanisms behind these trends are multiple. First, the composition of the migrant pool has deeply changed from 2007 to 2018, both within the intra- and extra-EU groups and at the overall level. For example, (lower-skilled) migrants from Central and Eastern Europe who joined the EU after the 2004 enlargement had often to wait years before being allowed to draw benefits from the host country's welfare state, as Western European governments often implemented policies to prevent welfare tourism (Jakubiak, 2020; Österman et al., 2024). Second, my results show that the average NFP of native-born individuals deteriorates following the global financial crisis of 2008-2009 and the sovereign debt crisis of 2010-2011 without ever recovering,

while the average NFP of migrants reaches its pre-crisis level in 2017. Third, the structures and the typologies of welfare states matter as well. For example, the findings of this study confirm previous evidence that Southern European countries, where the access to the welfare state is more restricted and the welfare spending is oriented mostly towards pensions, are the ones where migrants have the relatively most positive average NFP, while native-born individuals have the relatively most negative one (Furlanetto and Robstad, 2019; Hansen et al., 2017; Izquierdo et al., 2010; Österman et al., 2024).

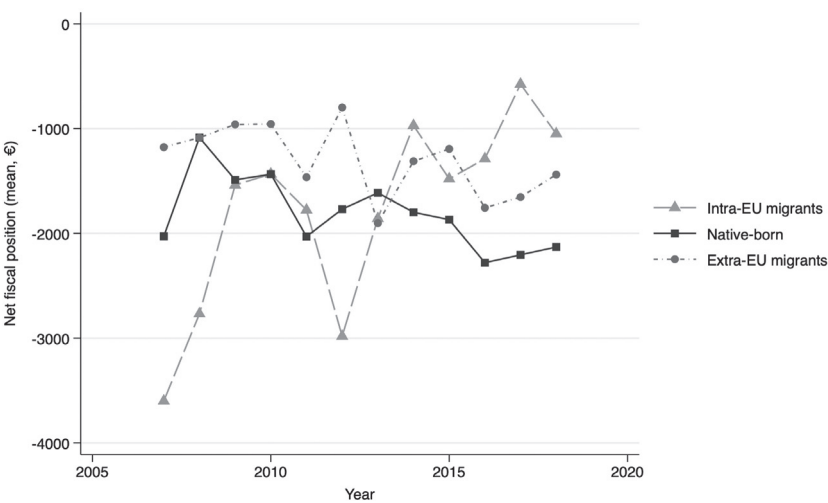
My findings offer insights for the migration policies implemented both at the national and the EU levels. First, although it appears that migrants are making direct fiscal contributions to several EU countries, the implications for their integration in the host countries are complex. In fact, their NFP originates from a lower reliance on (generous) contributory benefits and a higher reliance on (scarcer) non-contributory benefits. A lower reliance on contributory benefits combined with a higher reliance on non-contributory benefits, points to little social-economic inclusion, especially in Southern European countries. Migrants may receive fewer unemployment benefits, lower retirement benefits, and lower sickness benefits because they are less often entitled to them. This also explains a higher reciprocity of non-contributory benefits aimed at mitigating social exclusion. The causes for this trend may be related to the aforementioned compositional shifts in the pool of migrants from 2007 to 2018. These could include more low-skilled migration from Eastern Europe after the 2004 enlargement, as well as a greater share of refugees after 2015 (Dustmann and Frattini, 2014; Suari-Andreu and Van Vliet, 2023).

Second, the differences in the NFP of migrants in various welfare typologies are in line with the well-known variation in social expenditure across European countries (De Giorgi and Pellizzari, 2009). Despite the available evidence on the welfare magnet hypothesis is mixed, my results may suggest that different migrants are being attracted to different EU countries, which in turn can make it difficult to achieve uniform retention and integration practices across Europe (Razin and Wahba, 2015).

A promising avenue for future research is to analyse in a comparative way across various European countries and welfare states how the NFP of migrants evolves as their economic integration improves. If longitudinal data with complete information on the migration background of the respondents were to become available for longer periods of time, it would be particularly interesting to see the evolution of the NFP of the same pool of migrants since their arrival in the host country. This could provide European policymakers with further evidence on the effectiveness of their integration practices. Finally, despite investigating the compositional aspects of the NFP of various population groups is out of the scope of the present study, it is important to acknowledge that personal characteristics like age, education, and health may play a crucial role in shaping the NFP of migrants. For this reason, I would like to end with a reference to Chapter 4, where the contributions of several background characteristics to the gap between the NFP of migrants and natives are examined.

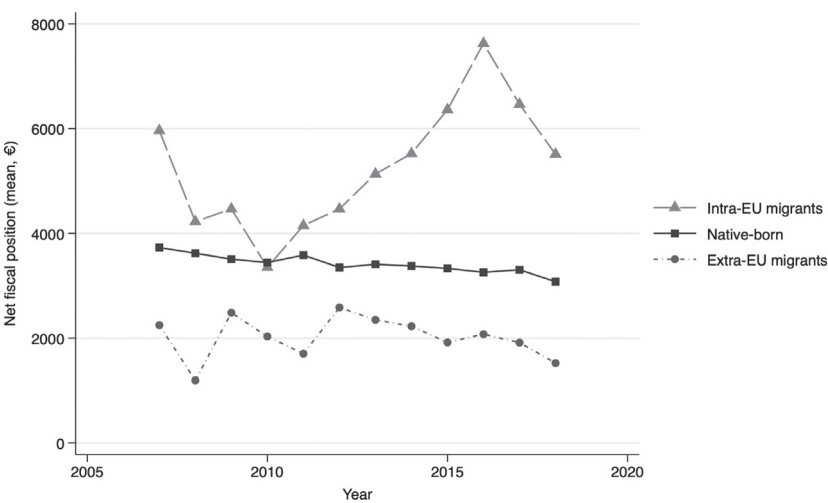
3.A ADDITIONAL FIGURES

Figure 3.14 Country-specific NFP: Austria



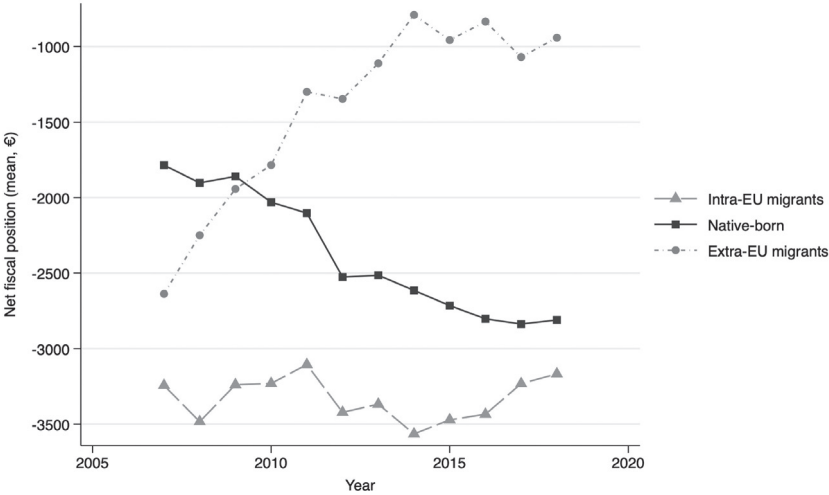
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.15 Country-specific NFP: Belgium



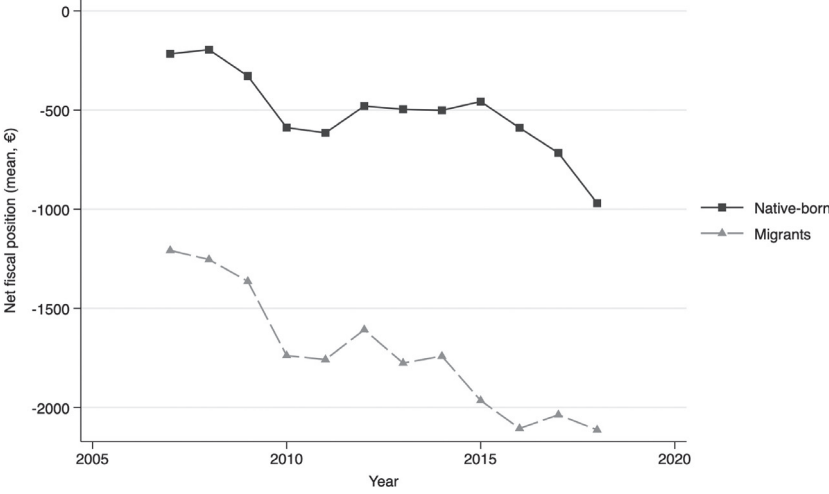
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.16 Country-specific NFP: Czechia



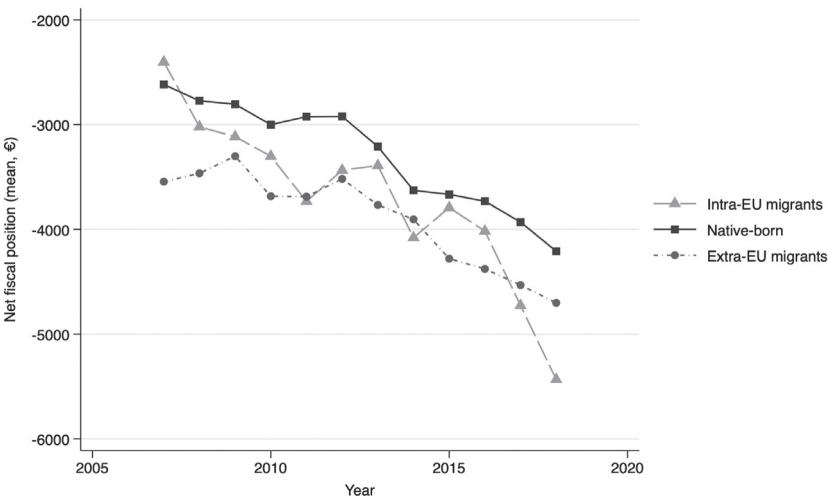
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.17 Country-specific NFP: Estonia



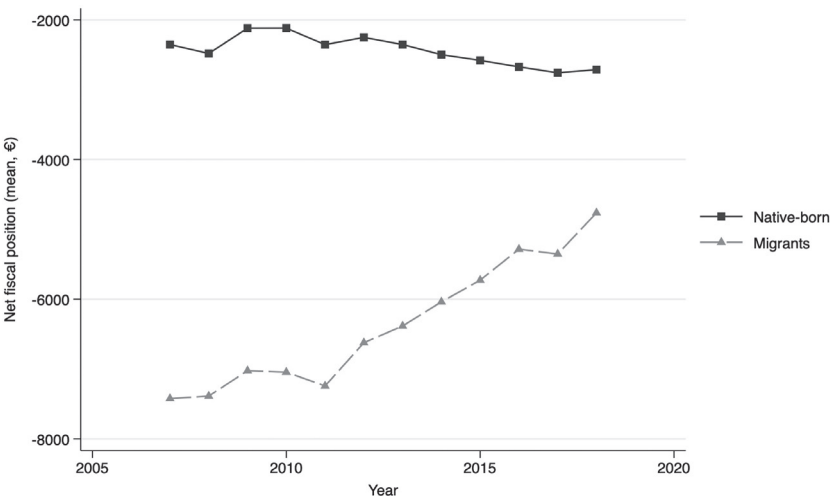
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.18 Country-specific NFP: France



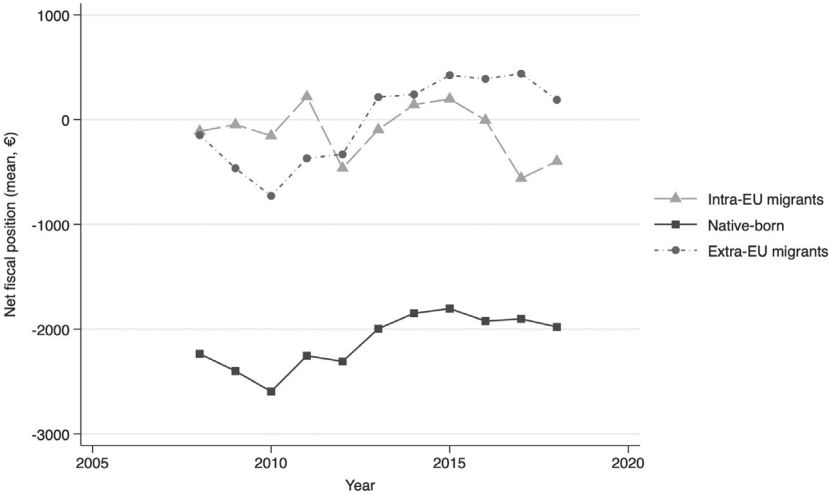
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.19 Country-specific NFP: Germany



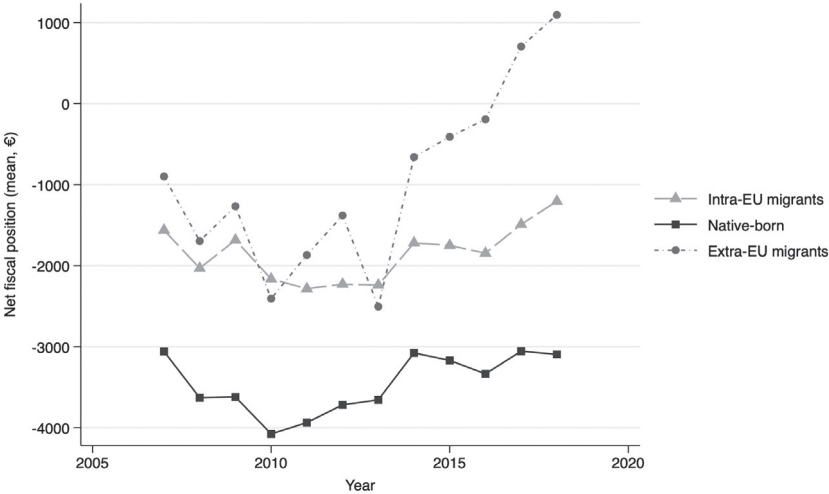
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.20 Country-specific NFP: Greece



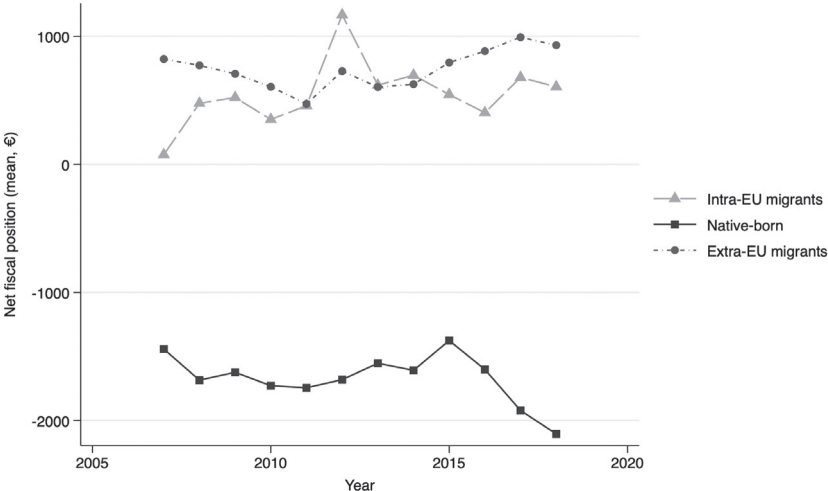
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.21 Country-specific NFP: Ireland



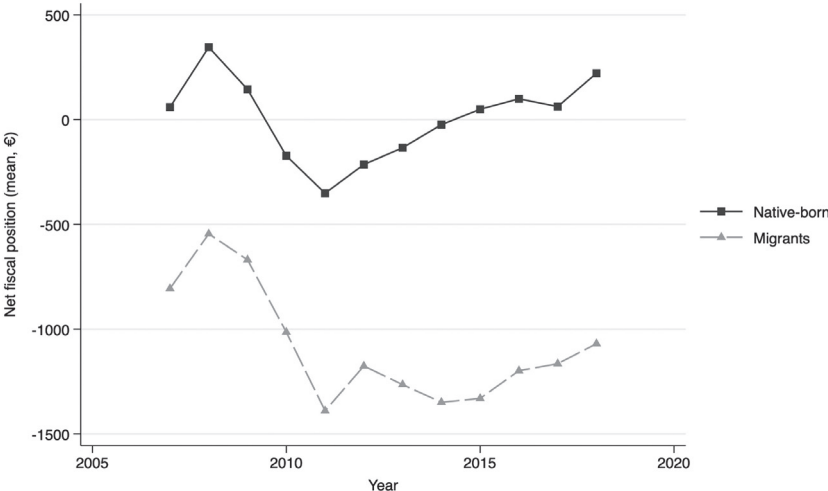
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.22 Country-specific NFP: Italy



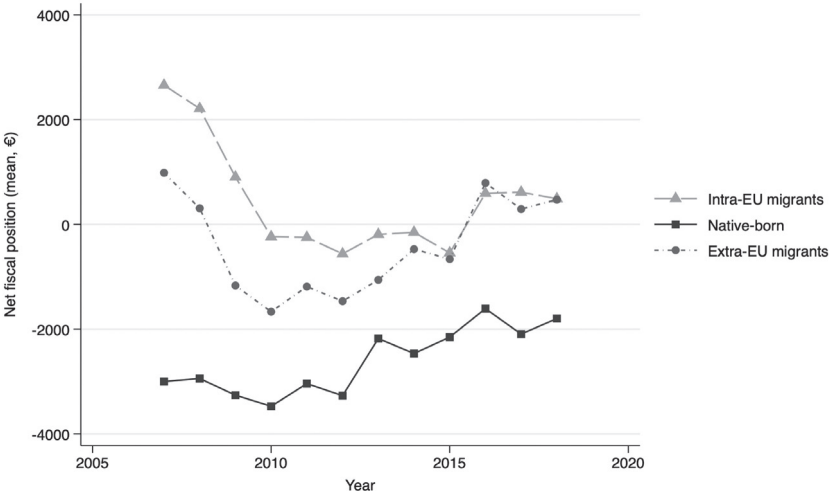
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.23 Country-specific NFP: Latvia



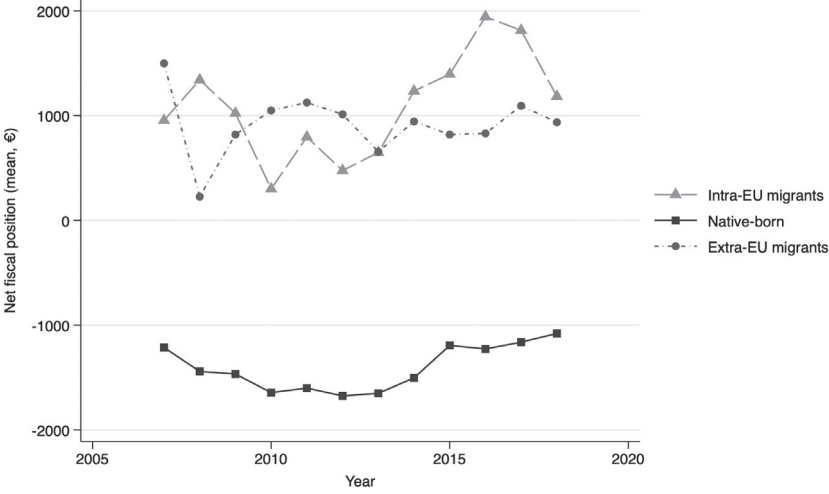
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.24 Country-specific NFP: Luxembourg



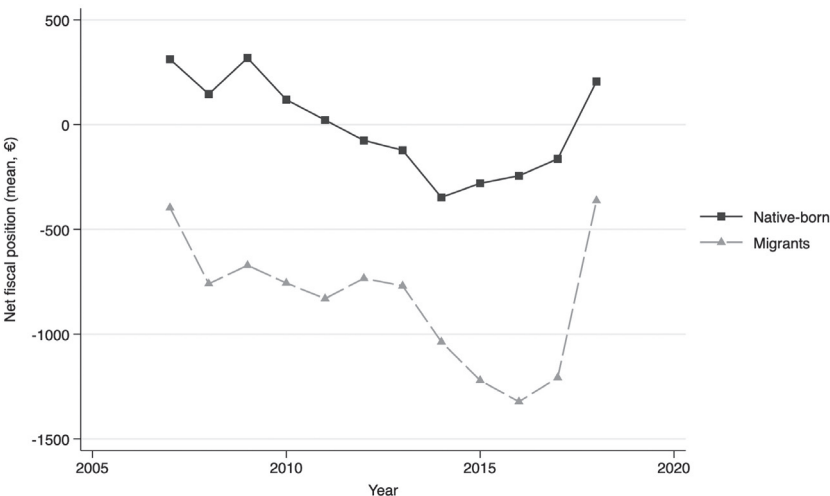
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.25 Country-specific NFP: Portugal



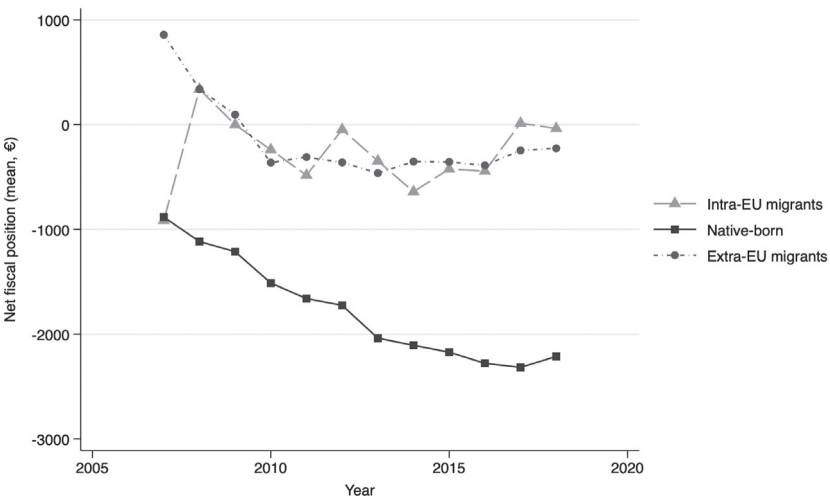
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.26 Country-specific NFP: Slovenia



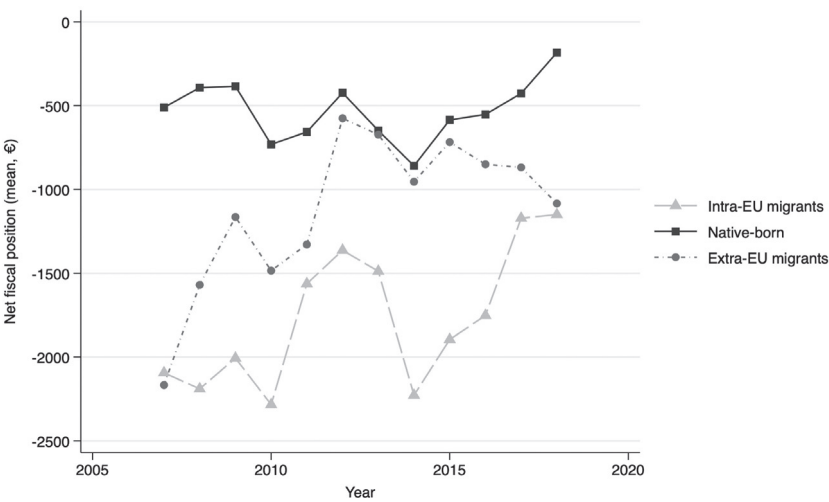
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.27 Country-specific NFP: Spain



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 3.28 Country-specific NFP: Sweden



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

## ABSTRACT

In this chapter, I am the first to employ the Oaxaca-Blinder decomposition to analyse the difference between the net fiscal positions of migrants and native-born individuals in 15 EU countries from 2007 to 2018. I combine EU-SILC cross-sectional data on individual background characteristics, personal income, and welfare benefits with OECD information on personal income taxes and social security contributions. The findings reveal crucial determinants of the direct fiscal gap between migrants and natives. To varying degrees, age, education, and country effects are the largest contributors to the observed differential between the net fiscal positions of natives (more negative) and migrants (more positive). I observe important differences between intra-EU and extra-EU migrants. More specifically, education has a significant positive effect on the net fiscal position of intra-EU migrants, while it is nearly irrelevant for extra-EU migrants. By shedding light on the factors explaining differences in the net fiscal impact, this chapter offers valuable insights for policymakers aiming to design interventions to foster inclusivity and reduce inequality between migrants and natives in Europe.

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1 This chapter is based on a study co-authored by myself, Eduard Suari-Andreu, and Olaf Van Vliet, with me as the main author. A working paper version of the study is published as Boffi et al. (2024b). I would like to thank participants at the 64th Annual Conference of the Italian Economic Association on October 20th, 2023, participants at the Annual State of the Art Conference organised by the Directorate General for Migration of the Dutch Ministry of Justice on November 14th, 2023, participants at the Annual Social Citizenship and Migration Symposium organised by Leiden University on January 17th, 2024, participants at the 8th Workshop of Immigration, Health, and Wellbeing organised by Oxford University on June 14th, 2024, and participants at the Workshop on the Fiscal Effects of Immigration organised by ZEW Mannheim on December 9th, 2024, for the useful comments on earlier versions of the study. I also thank Vincent Bakker for his help with analysing tax data from the OECD. Van Vliet thanks Institute Gak for financial support. The study upon which this chapter is based is part of the Horizon Europe project TransEuroWorkS (N. 101061198) and of Leiden University's research programme Social Citizenship & Migration. The data are from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC, 2007-2018). The responsibility for all conclusions drawn from the data lies entirely with the authors of the study.

#### 4.1 INTRODUCTION

As extensively discussed in Chapter 3, migration to and within the European Union (EU) and its impact on the welfare systems of the host countries are topics of intense debate, both among policymakers and the general public (Ruist, 2020). As globalisation and international mobility continue to reshape the demographics of many countries, understanding differences between migrants and natives and the assimilation of the former into host societies is of paramount importance for governments and researchers (Fiorio et al., 2024; OECD and European Commission, 2023). In this chapter, I contribute to the existing literature by analysing the net fiscal position (NFP) of migrants and natives in 15 EU countries from 2007 to 2018. I do so by employing the Oaxaca-Blinder decomposition, which allows me to assess the underlying factors contributing to differences in NFP between migrants and natives.

Free movement of people within the EU and immigration from extra-EU countries have significant implications for both the economies and societies of the member states. As a result of push and pull factors that ultimately determine who migrates (and who stays after migration), migrants arrive in host societies with diverse sets of skills, education levels, and socio-economic backgrounds. These differences affect their economic integration and their potential reliance on welfare programs. Importantly, since the early 2000s, intra- and extra-EU migration flows have considerably changed in magnitude, composition, and countries of origin (Ruist, 2020). Therefore, it is important to consider a long-term perspective and possible future developments. Furthermore, European welfare systems vary widely in their design, generosity, and accessibility, making it relevant to conduct multi-country analyses when studying the fiscal impact of immigration.

The existing literature on the NFP of migrants in Europe primarily consists of country-specific studies yielding somewhat mixed results. Generally, intra-EU migrants tend to make more positive fiscal contributions compared to extra-EU migrants, often due to higher employment rates among the former (Bogdanov et al., 2014; Dustman and Frattini, 2014; Hansen et al., 2017; Ruist, 2014).<sup>2</sup> The results in the literature often demonstrate that the NFP also depends on the generosity of the welfare system of the host country. For instance, Scandinavian countries with more generous welfare states often show a relatively negative fiscal impact of immigrants compared to less generous Southern European countries, where migrants with a more

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2 As discussed in Chapter 3, people who move within the EU are most often not categorised as migrants in official EU migration statistics. That is because the EU is a single supranational entity in which citizens of the member states do not require visas for internal cross-country movements. They are most often referred to as 'EU mobile citizens'. For the purpose of the present study, as commonly done in the literature, I refer to them as 'intra-EU migrants'.

positive NFP help alleviate the fiscal burden of the ageing native population (Chojnicki et al., 2022; Furlanetto and Robstad, 2019; Izquierdo et al., 2010).

Differences in empirical results between country-specific studies are related to variation in migrant populations and tax and benefit systems on the one hand, and to differences in methodologies and data sources on the other hand (Clemens, 2021). International comparative studies would solve methodological and data-related inconsistencies, but large cross-country surveys of the resident European population have become available only relatively recently. For this reason, the available comparative evidence is scarce (Boeri, 2010; Boffi et al., 2024a; Christl et al., 2022; Fiorio et al., 2024; Nyman and Alshkog, 2018; Österman et al., 2024).

In this present chapter, I contribute to the literature on the fiscal impact of immigration by being the first to provide a rigorous assessment of the factors explaining the differences between the NFP of migrants and natives for as many as 15 EU countries and as long as 12 years. This contribution is significant for both academics and policymakers. For academics, by employing the Oaxaca-Blinder decomposition, my study advances the methodological approaches used in the literature on the fiscal impact of immigration, offering a nuanced understanding of the endowment and coefficient effects that drive fiscal disparities. This allows me to isolate the impact of specific background characteristics, such as age and education, on the NFP of different migrant groups.

For policymakers, this study offers three main contributions. First, it provides important insights for informed migration policy design, enabling integration strategies to address the specific factors driving fiscal disparities between migrants and natives. Second, it allows for the assessment of the adequacy of social safety nets and long-term fiscal planning with a better understanding of the net fiscal impact of immigration. Third, it helps ground the public perception of the direct fiscal effects of immigration in robust empirical evidence. In other words, it aids in understanding who the migrants contributing to the European welfare states are and how they differ from natives and among themselves.

Similarly to selection made for the more descriptive analysis in Chapter 3, the 15 EU countries selected for this chapter represent a diverse range of economic, demographic, and migration profiles. These include both traditional destination countries for migrants, such as Germany and France, as well as countries with a more recent history of emigration patterns, such as Czechia, Estonia, Latvia, and Slovenia. By examining a geographically and economically diverse set of EU member states, I provide a comprehensive overview of the welfare disparities experienced by migrants and natives across the EU. The timeframe of the analysis, spanning from 2007 to 2018, captures the impact of the global financial crisis which started in 2008, the European sovereign debt crisis of 2011, and the peak in asylum seekers of 2015. This period has seen significant changes in the economy and demography of the EU, which in turn have influenced the welfare dynamics among migrants and natives differently in each country.

To conduct the analysis, I employ repeated cross-sectional data at the individual level from the European Union Statistics on Income and Living Conditions (EU-SILC) for (gross) personal income and reciprocity of contributory (education, unemployment, retirement, sickness, survival) and non-contributory benefits (children, housing, social exclusion). I combine them with information from the OECD on rates, thresholds, maximum contributions, and allowances for personal income taxes and social security contributions at the national and local levels. I use these data to calculate the NFP of natives and migrants at the individual level. I adopt a static, direct, and bottom-up approach that consists of subtracting welfare benefits received from taxes and social security contributions paid at the individual level. In doing so I adopt the same approach as in Chapter 3, where I present the evolution of the NFP of migrants and natives in Europe extensively across countries, welfare state types, and over time, but without a decomposition analysis of the driving factors.

I start the empirical analysis by running an OLS regression of the individual NFP on migration background. First, I consider migration background without controls. Second, I include country and year effects (and their interactions), and finally I also add background characteristics (age, gender, civil status, household size, number of children at home, education, and health). Initially I study the general group of migrants and then I run separate regressions for intra-EU and extra-EU migrants. The findings show that an intra-EU migration background always has a statistically significant positive effect on the individual NFP, whether including country and year effects and background characteristics or not. Instead, an extra-EU migration background has a significant positive effect when excluding controls but turns negative and statistically significant when including background characteristics.

Furthermore, I apply an Oaxaca-Blinder decomposition to assess the contributions of the background characteristics to the differences between the NFP of natives and migrants. This method enables me to dissect the NFP disparities between migrants and natives into two main components: the 'endowment effect' and the 'coefficient effect'. The endowment effect (or explained part) captures the part of the gap that is explained by differences in endowments of background characteristics between migrants and natives, such as age, education, and family structure. The coefficient effect (or unexplained part) captures the part of the gap explained by differences in the returns or coefficients associated with these characteristics and differences in unobservables. Because it is impossible to disentangle coefficient effects and returns to unobservables, the unexplained part of the difference is harder to interpret (Blinder, 1973; Jann, 2008; Oaxaca, 1973).

The findings of the decomposition reveal that age and education are the personal characteristics contributing the most to the explained part of the difference between the NFP of migrants and natives. However, I observe important differences between intra- and extra-EU migrants. For instance, both age and education show large and statistically significant contributions

to the gap between intra-EU migrants and natives. Instead, for extra-EU migrants, while the contribution of age becomes even more substantial, the effect of education becomes close to zero and statistically insignificant. This latter finding indicates that there is little positive impact of extra-EU education and training on the economic integration of migrants in Europe. This is in line with previous findings in the literature on skill mismatches and employment gaps between intra-EU and extra-EU migrants (Bevelander and Pendakur, 2014; Montt, 2017; OECD and European Commission, 2023; Visintin et al., 2015).

The rest of the chapter is structured as follows. Section 4.2 discusses the available evidence on the NFP of migrants in Europe. It also pays special attention to previous contributions using the Oaxaca-Blinder decomposition in migration studies. Section 4.3 presents the data and summary statistics. Section 4.4 discusses the methodology employed in the analysis. Section 4.5 presents the results. Section 4.6 concludes.

## 4.2 LITERATURE REVIEW

### 4.2.1 The Net Fiscal Position of Migrants in Europe

Mostly due to reasons of data availability, the empirical evidence on the NFP of migrants from a European-wide perspective is relatively recent. Based on EU-SILC data, Boeri (2010) conducts the first multi-country work on the fiscal impact of migrants in Europe. Using repeated cross-sections from 2004 to 2007, he finds that migrants are over-represented among recipients of non-contributory transfers, with indications that education and family structure affect the individual fiscal balance. Nyman and Alshkog (2018) extend the use of EU-SILC data from 2004 to 2015, combining them with information from national accounts and focusing exclusively on intra-EU migration. They show that intra-EU migrant households, on average, are higher net fiscal contributors than native households across most European countries, generating net fiscal contributions of around €5,000 per year. Using the same data, Österman et al. (2024) build on previous results by studying the net fiscal contributions of intra-EU migrants in different welfare state regimes. Their evidence suggests that migrants fiscally contribute more than natives in all welfare regimes in Europe, with a particularly strong effect in Southern European countries, where social expenditure is relatively lower and more oriented towards retirement benefits for the ageing native population.

Relying on the tax-benefit simulation model Euromod and EU-SILC data for 2015, Christl et al. (2022) examine present and future contributions of natives, intra-EU, and extra-EU migrants. In their analysis, all population groups appear as net fiscal recipients, but the NFP of migrants is less negative than that of natives. Furthermore, when estimating lifetime net fiscal contributions, they foresee that the average NFP of natives will worsen in

the coming years due to the rapid ageing of the native European population. Fiorio et al. (2024) focus on the period immediately before and after the large influx of asylum seekers in 2015-2016. They select the 14 EU member countries prior to the eastern enlargement (excluding the United Kingdom) for the period 2014 to 2018 and find that, on average, migrants make larger net fiscal contributions than natives across most countries and years, even when compared to natives in the same position of the national income distribution.

Finally, using EU-SILC cross-sectional data for 15 EU countries for the period 2007 to 2018, Boffi et al. (2024a) corroborate the finding that intra-EU migrants are the population group with the relatively most positive NFP across most EU countries and years. Furthermore, they illustrate how the gap between the NFP of migrants and natives has been widening since the 2008 global financial crisis. Finally, they show that migrants tend to make relatively higher fiscal contributions in Southern European countries, where the welfare state model is characterized by lower social expenditure and is greatly devoted to pensions.

Overall, these results highlight the complex relationship between immigration and fiscal outcomes, influenced by various factors including the duration of stay in the host country and its welfare state model, year effects, and the migration background of individuals (whether intra-EU or extra-EU).<sup>3</sup> Most of the aforementioned studies in Chapter 3 provide extensive descriptive evidence on the NFP of different groups of migrants and natives in various European countries and years (Boffi et al., 2024a; Hennessey and Hagen-Zanker, 2020; OECD, 2021). Some include empirical evidence by regressing the NFP of migrants on variables like the years since migration, the individual skill level, and the welfare state type (Boeri, 2010; Fiorio et al., 2024; Österman et al., 2024). However, there is a substantial knowledge gap in the analysis of the factors determining the difference between the NFP of migrants and natives across countries and over time. What factors determine the generally more positive NFP of migrants in Europe? Are these country and year characteristics or personal characteristics? What variations can I observe across countries and over time? To answer these questions, I employ an Oaxaca-Blinder decomposition.

#### 4.2.2 The Oaxaca-Blinder Decomposition

The Oaxaca-Blinder decomposition, originally developed by Oaxaca (1973) and extended by Blinder (1973), is a widely employed analytical tool in

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3 For more, Hennessey and Hagen-Zanker (2020) provide a recent state-of-the-art literature review of most empirical evidence on the NFP of migrants and natives based on the data, methods, and findings of each study. OECD (2021) is another good starting point for an overview of the literature.

labour economics and discrimination studies.<sup>4</sup> It is often used to disentangle the sources of wage or income gaps between two groups, such as migrants and natives. To do so, it calculates estimates of the contributions of two main components to the wage or income gap: differences in endowments and differences in coefficients. Endowments refer to observable characteristics such as education, labour market experience, and civil status, while coefficients refer to the unexplained portion of the gap attributed to the returns to such characteristics and to unobservables, like discrimination and/or labour market segmentation. The features of the decomposition make it a particularly relevant tool for assessing the socio-economic position of migrants compared to native-born individuals.

Several studies have applied the Oaxaca-Blinder decomposition to analyse various gaps between migrants and natives. These works have often revealed substantial wage or income gaps in favour of native-born individuals. Among the earliest adopters of this method in migration studies, Chiswick (1978) analyses the earnings gap among immigrants in the United States, finding a considerable portion of the gap attributable to differences in endowments, particularly education. Borjas (1993) reaches a similar finding on the critical importance of education for migrants in the United States. Within this literature, it has become clearer over time that it is important to consider diversity within migrant populations, such as differences in the country of origin, migration status, and skill level (Altonji and Card, 1991; Borjas, 1993).

In Europe, most studies employing the decomposition are country-specific and have looked at wage disparities between migrants and natives. For Sweden, Hammarstedt and Palme (2012) find that migrants experience less intergenerational mobility than natives and that their earnings remain lower in the following generations, based on their analysis of detailed administrative data. Employing EU-SILC data for 2005, Kahanec and Zaiceva (2009) find that foreign origin is of key importance in determining wage levels in Western EU states. They also find that both foreign origin and citizenship matter more in Eastern EU member states, their roles depending on gender.

Using EU-SILC cross-sectional data for 2009, Huber and Oberdabernig (2016) are the first to employ the Oaxaca-Blinder decomposition to study the reciprocity of welfare benefits, in the form of cash transfers, by migrants in Europe. Their findings show that differences in benefit receipt between migrants and natives diminish or disappear altogether after controlling for differences in observable characteristics. The largest part of this gap is

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4 There is a debate in the social sciences regarding the origin of the decomposition technique. Kitagawa (1955) proposed an earlier method to decompose differentials in outcome variables for two demographic groups by controlling for differences in selected characteristics between these groups. Consequently, some scholars refer to the decomposition as the Kitagawa-Oaxaca-Blinder (KOB) decomposition. While the Kitagawa decomposition is mostly applied in sociology, the Oaxaca-Blinder decomposition remains widely used in economics. Therefore, I refer to it as the Oaxaca-Blinder decomposition. For more on this debate, see Oaxaca and Sierminska (2023).

explained by differences in benefit receipt rather than benefit levels conditional on receipt. For contributory benefits, age is the personal characteristic contributing the most to native-immigrant differences. For non-contributory benefits, differences in household size and composition appear to be the most important. Using the EU-SILC cross-sections from 2010 to 2015, Jakubiak (2020) finds that migrants rely on social assistance less often and receive lower amounts than natives. Those conclusions are reversed, however, when old-age benefits are not considered, especially in the case of extra-EU migrants. Using administrative data for the Netherlands from 2004 to 2014, with a special focus on Central and Eastern European migrants (CEE), Suari-Andreu and Van Vliet (2023) find in their decomposition that the factors contributing the most to the differences in benefit receipt between migrants and natives are age and family structure. Furthermore, they conclude that the gap between the two groups gradually closes the longer the migrants stay in the host country.

In the present study, I contribute to the literature by being the first to employ an Oaxaca-Blinder decomposition to analyse the factors contributing to the differences in NFP between migrants and natives in Europe, thus not focusing exclusively on benefit receipt, for as many as 15 EU countries and as long as 12 years.

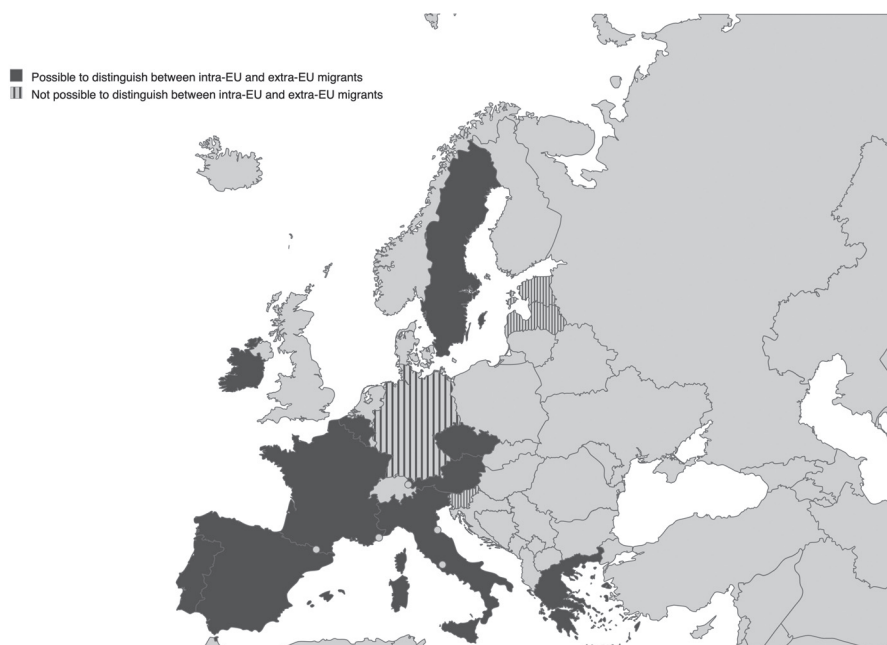
### 4.3 DATA

As done in Chapter 3, all the individual-level data on benefits and gross personal income come from the European Union Statistics on Income and Living Conditions (EU-SILC). The EU-SILC collects individual-level survey data from all EU member countries from 2003 onwards, and I select those for the period from 2007 (when most countries joined the dataset) to 2018. All the countries reporting full information on gross personal income and welfare benefits for the years selected are included. These are Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. Four countries do not allow the distinction between intra-EU and extra-EU. These are Estonia, Germany, Latvia, and Slovenia. For them, only the overall ‘migrant’ category is available.<sup>5</sup> For a map of the countries included in the sample, see Figure 4.1 below.

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5 Unfortunately, the data do not provide information on the reason for migration. Therefore, it is not possible to distinguish asylum seekers, for example, from family reunification migrants. Since country residents are the population of reference of this survey, seasonal and short-stay migrants are excluded from the sample.

Figure 4.1 Countries included in the sample



Source: author's elaboration from the data (EU-SILC, 2007-2018).

Income tax-related information, including thresholds, rates, contributions, surtaxes, and deductibles at the national and local levels, is drawn from the OECD database *Taxing Wages*.<sup>6</sup> All these are combined with EU-SILC gross income data to calculate the yearly taxes and social security contributions paid by each individual. Different rates are applied to employees and self-employed. I only make an exception for wealth taxes, which are directly reported by the EU-SILC and thus do not require complementary information from the OECD.

Regarding benefits, the EU-SILC categorizes cash transfers as contributory or non-contributory. Contributory benefits are linked to individuals' previous payments to the government, such as old-age or unemployment benefits. Non-contributory benefits, like child or housing benefits, are not dependent on prior contributions but may consider other variables like household size. In the EU-SILC, contributory benefits are measured at the individual level and include benefits for unemployment, disability, old-age, sickness, survival, and education. Non-contributory benefits are instead measured at the household level and include benefits for child support, housing, and social assistance. Given that my analysis is at the individual

6 Some countries apply different personal income tax rates and thresholds depending on demographic characteristics (e.g., age, civil status) and labour market parameters (e.g., hours of work). I distinguish between self-employed and employees. Further distinctions are not possible.

level, as is common practice in the literature, individual non-contributory benefits are calculated by dividing the amount received at the household level by the number of adults in the household (Christl et al., 2022). Finally, I use Eurostat databases on price levels to adjust benefits and contributions for inflation and differences in purchasing power across countries.

After dropping observations for individuals younger than eighteen (-94,862) and for those not reporting information on migration background, gross disposable income, and personal characteristics (age, female, civil status, number of children at home, household size, education, and health) (-380,840), my final sample consists of 2,785,244 individual observations from 15 EU countries from 2007 to 2018. Migrants, which I define as foreign-born residents, make up 10.7% (3.8% intra-EU and 6.9% extra-EU) of the observations (299,040).<sup>7</sup> Table 4.1 below presents the summary statistics for the selected sample.

*Table 4.1 Summary statistics by migration background, across countries and years (2007-2018)*

|                                 | <i>Native-born</i> | <i>Intra-EU migrant</i> | <i>Extra-EU migrant*</i> |
|---------------------------------|--------------------|-------------------------|--------------------------|
| Net fiscal position (€, mean)** | -1619.7            | -70.4                   | -1411.6                  |
| Age: 18-25 (%)                  | 12.7               | 18.3                    | 15.6                     |
| Age: 25-34 (%)                  | 16.6               | 23.8                    | 20.8                     |
| Age: 35-44 (%)                  | 18.3               | 20.5                    | 19.8                     |
| Age: 45-54 (%)                  | 17.5               | 15.0                    | 15.5                     |
| Age: 55-64 (%)                  | 25.7               | 15.9                    | 21.8                     |
| Age: 65 and older (%)           | 9.2                | 6.5                     | 6.5                      |
| Female (%)                      | 52.8               | 54.6                    | 55.8                     |
| Civil status: never married (%) | 27.6               | 23.4                    | 19.1                     |
| Civil status: married (%)       | 55.7               | 60.1                    | 62.0                     |
| Civil status: separated (%)     | 1.4                | 1.8                     | 1.9                      |
| Civil status: widowed (%)       | 8.9                | 5.7                     | 8.4                      |
| Civil status: divorced (%)      | 6.5                | 8.9                     | 8.6                      |
| N. of children at home (mean)   | 0.4                | 0.7                     | 0.7                      |
| Household size (mean)           | 2.8                | 2.9                     | 3.0                      |
| Health: very good (%)           | 19.7               | 25.8                    | 18.5                     |
| Health: good (%)                | 45.1               | 46.4                    | 41.6                     |
| Health: fair (%)                | 24.8               | 19.1                    | 26.8                     |
| Health: bad (%)                 | 8.4                | 7.0                     | 10.5                     |
| Health: very bad (%)            | 2.1                | 1.6                     | 2.5                      |

7 The alternative approach would be to define as migrants all foreign nationals resident in a country. However, citizenship laws and naturalisation procedures differ greatly among the countries in the sample.

|                          | Native-born | Intra-EU migrant | Extra-EU migrant* |
|--------------------------|-------------|------------------|-------------------|
| Education: primary (%)   | 17.8        | 19.4             | 12.7              |
| Education: secondary (%) | 59.4        | 50.5             | 61.3              |
| Education: higher (%)    | 22.9        | 30.0             | 26.1              |
| N                        | 2,486,204   | 106,020          | 193,020           |

Notes: \*Estonia, Germany, Latvia, and Slovenia do not distinguish between intra-EU and extra-EU migrants. In these cases, the value for extra-EU migrants refers to the whole group of migrants. For this reason, the differences in the values between intra-EU and extra-EU migrants would be more marked if these countries would be excluded from the sample. \*\*The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author’s calculation from the data (EU-SILC and OECD, 2007-2018).

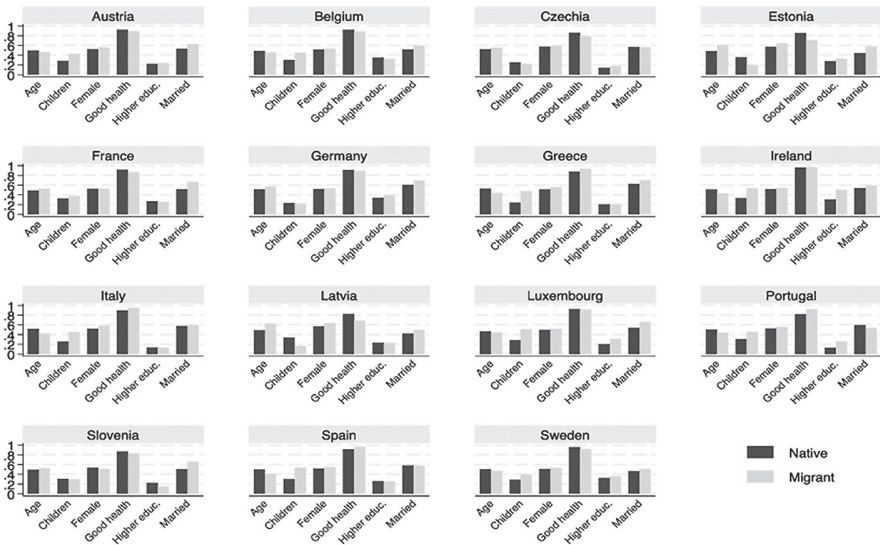
Regarding the personal characteristics, on average, both intra-EU and extra-EU migrants are younger than natives, less likely to have been never married, with more children at home and bigger households, and more likely to have higher education. Interestingly, intra-EU and extra-EU migrants are only different with regard to health. A lower percentage of intra-EU migrants defines their health as ‘very bad’ than natives and a higher percentage defines it as ‘very good’. The opposite is true for extra-EU migrants. It is important to remind that Estonia, Germany, Latvia, and Slovenia do not distinguish between intra-EU and extra-EU migrants. In these cases, the values for extra-EU migrants refer to the whole group of migrants. For this reason, the differences between the average values for intra-EU and extra-EU migrants would be more marked were these countries excluded from the sample.<sup>8</sup>

The summary statistics vary greatly across countries. Migrants may self-select into specific destination countries (and decide whether to stay or migrate again) based on historical ties, previously-established migrant communities, linguistic closeness, geographical proximity, labour market opportunities, and cultural heritage, among other factors. Figure 4.2 below shows that in Estonia, France, Germany, Ireland, and Sweden, migrants tend to be older, more educated, and more likely to be married than in Greece, Italy, and Spain. In Figure 4.3 below I do not observe major difference between migrants in different years. However, the later years in the sample show more marked differences between migrants and natives. In 2018, migrants tend to be younger, with more children, and healthier than natives compared to 2007. This descriptive evidence is line with the reported rapid ageing of the native European population (Eurostat, 2024d).<sup>9</sup>

8 If Estonia, Germany, Latvia, and Slovenia were excluded from the sample for the summary statistics, extra-EU migrants would then appear to be even younger, with a higher average number of children at home, with bigger households, more likely to be in bad health conditions, and less likely to have higher education.

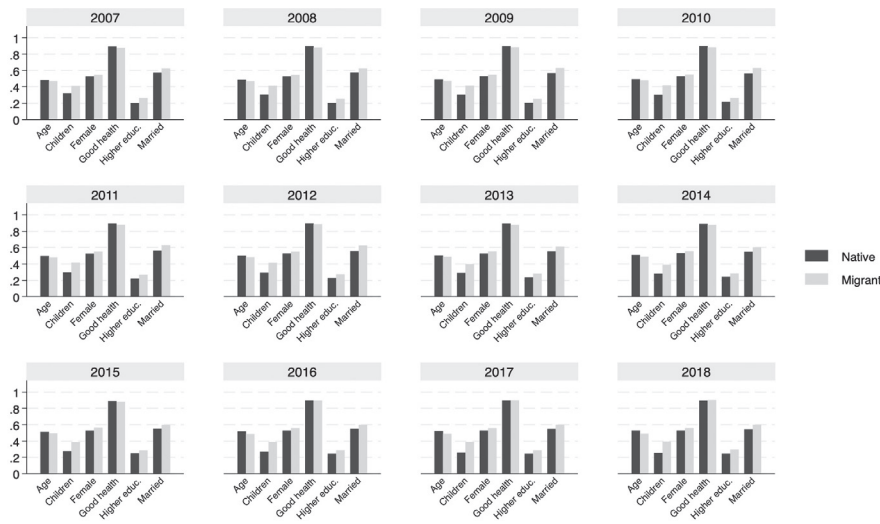
9 Summary statistics across countries and years have also been estimated for intra-EU and extra-EU migrants separately for the 11 countries that allow to do so. For concision, they are not discussed in the main text. They are presented in Figures 4.4 and 4.5 below.

Figure 4.2 Country-specific summary statistics for the general pool of migrants (2007-2018).



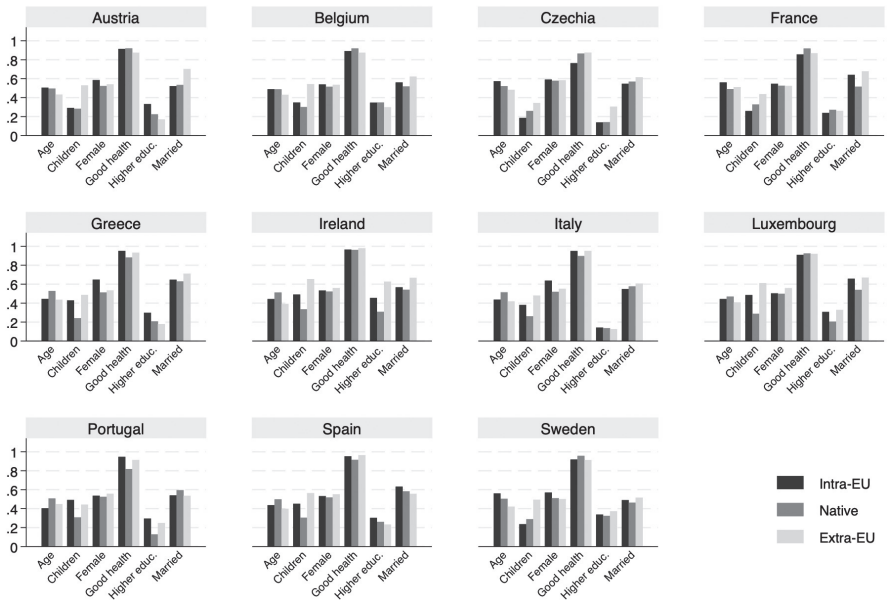
Notes: age is reported as age/100 to not disrupt the readability of the other variables displayed. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

Figure 4.3 Year-specific summary statistics for the general pool of migrants across countries



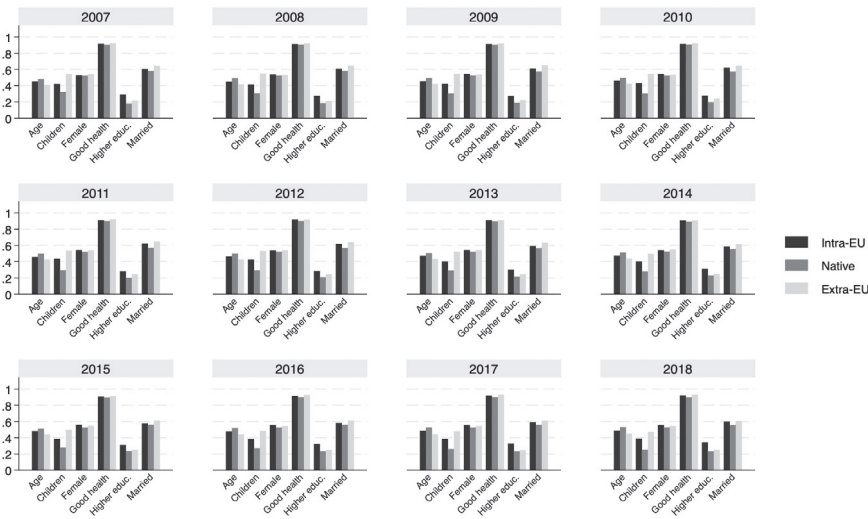
Notes: age is reported as age/100 to not disrupt the readability of the other variables displayed. Source: author’s elaboration from the data (EU-SILC, 2007-2018).

Figure 4.4 Country-specific summary statistics across migration backgrounds (2007-2018)



Notes: age is reported as age/100 to not disrupt the readability of the other variables displayed. Source: author's elaboration from the data (EU-SILC, 2007-2018).

Figure 4.5 Year-specific summary statistics across migration backgrounds and countries



Notes: age is reported as age/100 to not disrupt the readability of the other variables displayed. Source: author's elaboration from the data (EU-SILC, 2007-2018).

#### 4.4 METHODOLOGY

As discussed in Chapter 3, the individual NFP is generally defined as the difference between the taxes paid to the government and the monetary value of public services and benefits received. The most elaborate calculations of this parameter include indirect effects (i.e., fiscal effects via the influence of the individual's behaviour on national economic activity, unemployment, and prices, among others) and dynamic effects (i.e., present value of future fiscal effects based on assumptions about future labour market participation and outmigration, among others) (Clemens, 2021; Hinte and Zimmermann, 2014).<sup>10</sup> Estimating indirect and dynamic effects requires strong assumptions on demographics, labour market participation, and economic activity for migrants and natives, which are hardly testable across the large number of countries and years in my dataset. For this reason, in the present study, I choose to adopt a static, direct, and bottom-up approach (i.e., starting from individual data) that consists of subtracting welfare benefits received in the form of cash transfers from taxes and social security contributions paid at the individual level. Even if I leave out dynamic effects, I do employ a dataset covering a long period of time. This feature is not common in the literature, and it allows me to gauge important changes in the NFP over time. For a more detailed overview of all the methods available for the calculation of the NFP, see Chapter 3 and Boffi et al. (2024a).

Summary statistics for the average individual NFP of migrants and natives across countries and years are included in Table 4.1 above. In line with previous evidence, all three population groups appear as net fiscal recipients, to different degrees. On average, natives have the relatively most negative NFP, while intra-EU migrants have the relatively most positive NFP. Extra-EU migrants have a NFP more negative than intra-EU ones, but less so than natives. To calculate the impact of having a migration background on the individual NFP, I estimate by means of OLS regression the following equation:

$$NFP_i = \beta_0 + \beta_1 MB_i + X_i' \beta_2 + \varepsilon_i \quad (4.1)$$

where  $NFP_i$  is the net fiscal position of individual  $i$ ,  $MB_i$  is a dummy variable for the individual migration background (migrant or native),  $X_i$  is a vector of control variables including personal characteristics (age in categories, gender, civil status, household size, number of children in the household, education level, and health condition) and year and country effects for individual  $i$ , and  $\varepsilon_i$  is the individual error term.

As a baseline, I estimate Equation (4.1) for the general pool of migrants compared to natives, and then estimate the effect for intra-EU and extra-EU

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10 Direct tax revenues constitute the majority of total tax revenues in all EU countries. To compare the different shares that direct tax revenues make up of total tax revenues across the countries in the sample, see Table 3.1 in Chapter 3.

migrants separately. I do so by using the OLS estimator with the standard errors clustered at the household level to avoid collinearity between the results of individuals from the same household. I expand on the baseline analysis by employing the Oaxaca-Blinder decomposition to disentangle the contributions of all the controls included in  $X_i$  to the differentials between the NFP of native-born individuals and migrants. The Oaxaca-Blinder decomposition consists of two steps. First, the estimation of the baseline equations separately for migrants ( $m$ ) and natives ( $n$ ), second, the subtraction of the expected value of the latter from the former. In their simplest form, these two steps can be written as:

$$NFP_{mi} = \beta_{0m} + X'_{mi}\beta_m + \mu_{mi} \quad (4.2)$$

$$NFP_{ni} = \beta_{0n} + X'_{ni}\beta_n + \mu_{ni} \quad (4.3)$$

and

$$E(NFP_{mi}) - E(NFP_{ni}) = E(X_{mi})'\beta_m - E(X_{ni})'\beta_n, \quad (4.4)$$

where  $NFP_i$  is the individual net fiscal position for either migrants ( $m$ ) or natives ( $n$ ),  $X_i$  is the vector of controls for each of the two groups, and  $\beta$  is a vector containing all parameter estimates for each of the two groups. By adding and subtracting  $E(X_{mi})'\beta_n$ , Equation (4.4) can be rewritten as:

$$E(NFP_{mi}) - E(NFP_{ni}) = [E(X_{mi}) - E(X_{ni})]'\beta_n + E(X_{mi})'(\beta_m - \beta_n). \quad (4.5)$$

The first summand on the right-hand side of Equation (4.5) captures the difference in the expected outcome corresponding to the differences in observables weighted by the coefficients of the equation for natives. The second summand captures the part of the difference in the expected outcome that corresponds to the differences in coefficients weighted by the expected value of the observables for migrants. The first summand is interpreted as the explained part of the difference, since it captures the part that is explained by differences in endowments of the observables between migrants and natives. The second summand can be interpreted as the unexplained part of the difference, since it captures the part that is explained by differences in the returns or coefficients associated with the observables and other possible differences in unobservables. In its current formulation, Equation (4.5) uses the vector of coefficients for natives as a weight for the effect of the differences in observables, assuming that the coefficients are the same for both groups.

However, it is possible, if not likely, that the two groups present different returns or coefficients. For this reason, I use a variation of the decomposition proposed by Oaxaca and Ransom (1994) and applied by Fortin (2008) and Suari-Andreu and Van Vliet (2023), among others. Therefore, instead of adding and subtracting  $E(X_{mi})'\beta_n$  to Equation (4.4), I add and subtract

$[E(X_{mit}) - E(X_{nit})]' \beta_p$ , where  $\beta_p$  is a vector of coefficients from the pooled model in Equation (4.1), where the dummy variable  $MB_i$  for the migration background of the individual is included. In this way, I obtain Equation (4.6) below:

$$E(NFP_{mi}) - E(NFP_{ni}) = [E(X_{mi}) - E(X_{ni})]' \beta_p + E(X_{mi})'(\beta_m - \beta_p) - E(X_{ni})'(\beta_n - \beta_p) \quad (4.6)$$

where the unexplained part is divided into two further components, the first capturing the impact of differences in the coefficients associated with observable characteristics for migrants compared to the pooled group, and the second doing the same but for natives. Equation (4.6) has the additional advantage of drawing a direct connection between the OLS model used to perform the baseline analysis and the one used to estimate the Oaxaca-Blinder decomposition.

## 4.5 RESULTS

### 4.5.1 Baseline

Tables 4.2 below presents the baseline results estimated by OLS for the general migrant group. That is, not separating between intra-EU and extra-EU.

Table 4.2 Baseline analysis (OLS) for the general pool of migrants

| VARIABLES               | (1)<br>NFP          | (2)<br>NFP          | (3)<br>NFP            |
|-------------------------|---------------------|---------------------|-----------------------|
| Migrant                 | 683.6***<br>(23.76) | 481.5***<br>(23.80) | -207.8***<br>(21.30)  |
| Age: 25-35              |                     |                     | 1,365***<br>(15.91)   |
| Age: 35-45              |                     |                     | 1,682***<br>(19.73)   |
| Age: 45-55              |                     |                     | -3,541***<br>(27.24)  |
| Age: 55-65              |                     |                     | -10,621***<br>(24.73) |
| Age: over 65            |                     |                     | -1,534***<br>(13.91)  |
| Female                  |                     |                     | 185.0***<br>(11.14)   |
| Civil status: married   |                     |                     | 393.0***<br>(16.47)   |
| Civil status: separated |                     |                     | -513.0***<br>(45.24)  |
| Civil status: widowed   |                     |                     | -831.9***<br>(25.58)  |

| VARIABLES                                         | (1)<br>NFP           | (2)<br>NFP           | (3)<br>NFP           |
|---------------------------------------------------|----------------------|----------------------|----------------------|
| Civil status: divorced                            |                      |                      | -282.9***<br>(27.96) |
| N. children in the household                      |                      |                      | -362.1***<br>(9.776) |
| Household size                                    |                      |                      | 46.84***<br>(5.437)  |
| Education: secondary                              |                      |                      | -1,040***<br>(15.05) |
| Education: higher                                 |                      |                      | 980.7***<br>(24.09)  |
| Health: good                                      |                      |                      | -962.3***<br>(16.83) |
| Health: fair                                      |                      |                      | -1,831***<br>(19.92) |
| Health: bad                                       |                      |                      | -2,102***<br>(24.01) |
| Health: very bad                                  |                      |                      | -2,343***<br>(35.77) |
| Country, year, and country-and-year fixed-effects | No                   | Yes                  | Yes                  |
| Constant                                          | -1,620***<br>(7.514) | -2,089***<br>(116.3) | 1,746***<br>(94.65)  |
| Observations                                      | 2,785,244            | 2,785,244            | 2,785,244            |
| R-squared                                         | 0.000                | 0.021                | 0.289                |

*Notes:* Robust standard errors clustered at the household level in parentheses. The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Country effects include Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. *Source:* author's calculation from the data (EU-SILC and OECD, 2007-2018).

In Column 1 the individual NFP is regressed on the individual migration background without controls. In this case, across countries and years, migrants present a more positive NFP than natives of €683.6, significant at 1%. This is consistent with recent findings in the literature on the more positive NFP of migrants in Europe (Boffi et al., 2024a; Christl et al., 2022) and with the descriptive evidence from Table 4.1, where the general migrant group presents a relatively more positive average individual NFP to the same amount. In Column 2, country and year effects and their interactions are included. Notably, the effect size of having a migration background decreases to €481.5. This gives preliminary evidence that differences across countries and years contribute positively to the observed difference between the NFP of natives and migrants. Column 3 shows that, once I include the controls, the effect of having a migration background becomes negative, indicating that migrants have a more negative NFP of -€207.8 on average

compared to natives, significant at 1%. In other words, personal characteristics are able to fully explain most of the more positive NFP of migrants and there are remaining unobserved factors leading to a more negative NFP.<sup>11</sup>

In the last specification, the effects of all background characteristics are statistically significant at 1%. Among these, age categories appear to have the largest impact on the NFP. The effect peaks for the age group between 35 and 45 years. Being in that group has a positive effect of €1,682 on the NFP relative to individuals under 25. The estimate is the lowest for the age group between 55 and 65, with an effect of -€10,621 compared to individuals under 25. Being in the prime working age (25-54) is known in the literature as being an important determinant of the NFP of an individual (OECD, 2021; Suari-Andreu and Van Vliet, 2023).

Regarding gender, females appear to have a more positive NFP of €185 compared to males. Being married is also associated with a more positive NFP of €393 compared to single individuals, while being divorced, separated, or widowed is associated with a more negative NFP. While the presence of an additional child in the household decreases the NFP by €362, a larger household size (i.e., also including spouses and other relatives) increases it by €46.8. Regarding education, individuals with higher education have a more positive NFP of €980 compared to those with just primary education. Finally, as expected, the NFP progressively declines with the deterioration of health. Individuals self-reporting 'very bad' health present a lower NFP of -€2,343 compared to those self-reporting 'very good' health.<sup>12</sup>

It is important to note that background characteristics likely influence an individual's labour market position, which in turn affects their NFP. For example, younger and more educated individuals typically have higher employment probabilities, leading to higher earnings and consequently to a more positive NFP. Conversely, older individuals or those with poorer health may face lower employment probabilities, reducing their earnings and increasing their reliance on welfare benefits, resulting in a more negative NFP (Boeri, 2010; Brell et al., 2020; Fiorio et al., 2024; OECD, 2021).

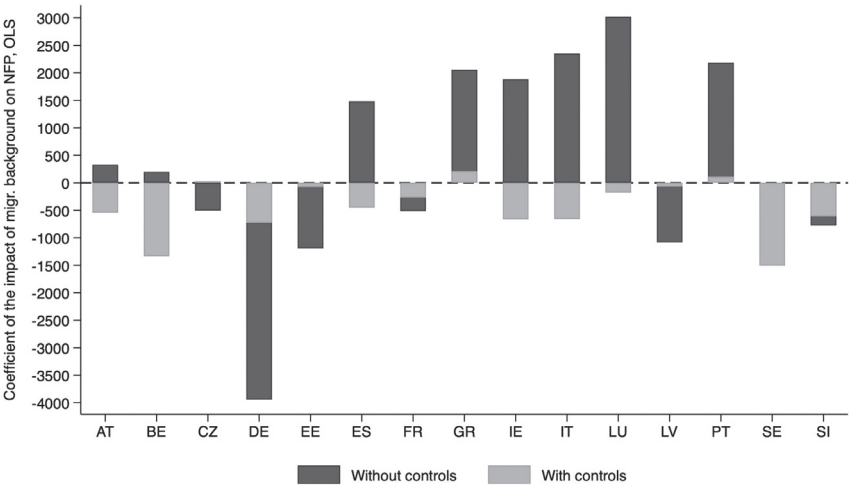
As pictured in Figure 4.6 below, these findings vary by country. When excluding controls, having a migration background shows a significant positive impact on the individual NFP in Austria, Belgium, Greece, Ireland, Italy, Luxembourg, Portugal, and Spain. It is noteworthy that, as found in

11 OLS baseline results have been estimated also for every country and year in the sample. For concision, not all countries and years are discussed in the main text. They are available upon request.

12 As an additional specification (not reported), the baseline results have been estimated also by including all background variables except for country, year, and country-and-year effects (the opposite of what I do in Column 2 of Table 4.2). The estimates from this additional specification do not present major differences from the ones in Column 3 of Table 4.2. This can be interpreted as a further indication that individual background characteristics play a bigger role than country and year effects in explaining the NFP of migrants.

studies on the fiscal impact of immigration in various European welfare state regimes, Southern European countries appear as those where having a migration background has the most positive impact on the individual NFP (Boffi et al., 2024a; Nyman and Ahlskog, 2018; Österman et al., 2024). When including controls, the effect turns negative everywhere, except for Greece and Portugal. In addition to the aforementioned primary role of background characteristics in explaining the more positive NFP of migrants, this also suggests that my findings are considerably influenced by the country-specific composition of the migrant population, as visible in Figure 4.2, and by differences in tax and benefit systems across countries, as discussed in Chapter 3 and recently shown by Boffi et al. (2024a) and Österman et al. (2024).

Figure 4.6 Country-specific impact of a general migration background on the NFP, OLS (2007-2018)

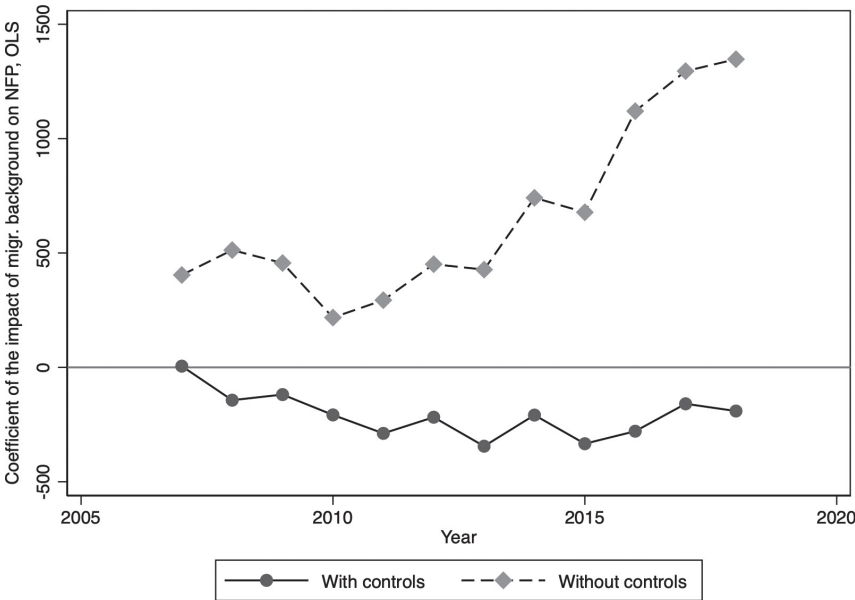


Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

The impact of having a migration background on the individual NFP evolves through the years as well. Figure 4.7 below shows that across countries, when excluding controls, the impact of migration background on the NFP is more positive in more recent years, with a marked increase from 2016 onwards. This is in line with the descriptive evidence from Chapter 3 pointing at a widening fiscal gap between migrants and natives (Boffi et al., 2024a). Instead, when including controls, the effect turns negative and progressively more so from 2007 until 2015 (after 2015, it becomes slightly less negative).

Among all the controls included, this effect is largely driven by age, which seems to explain a large part of the more positive NFP of migrants. Also, the widening gap between migrants and natives is driven by the increasing average age of natives, while the age of migrants remains rather constant. As visible in Figure 4.3 above, the average age of natives in the sample is 48 in 2007 and gradually increases to 53 by 2018.

Figure 4.7 Year-specific impact of a general migration background on the NFP, across countries



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

To examine the effects of different migration backgrounds, Tables 4.3 and 4.4 replicate the baseline analysis for intra-EU and extra-EU migrants separately. That is, for only the eleven countries that allow making such distinction. Table 4.3 below shows that having an intra-EU migration background leads to a more positive NFP regardless of the specification considered. The estimate is €1,590 when including just year and country effects and their interactions, and €329.8 when also including personal characteristics, all significant at 1%. The estimates of the effects of the background variables show signs, effects sizes, and significance levels similar to the ones in Table 4.2.

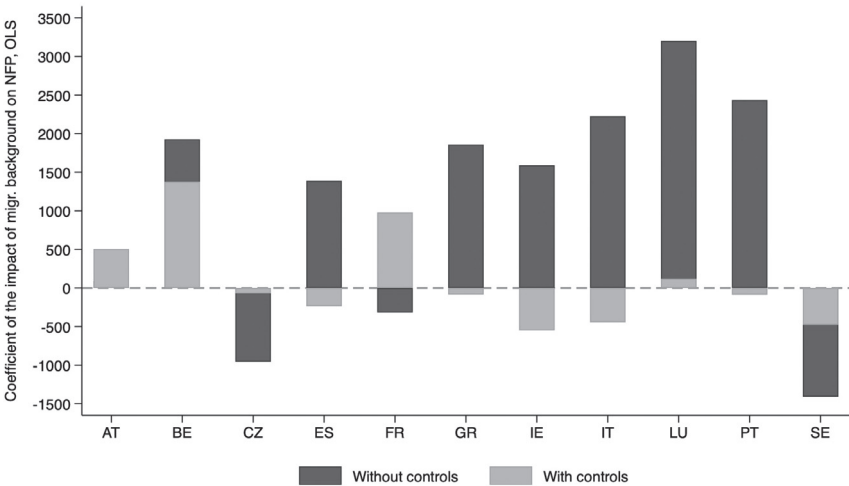
Table 4.3 Baseline analysis (OLS) for intra-EU migrants

| VARIABLES                                         | (1)<br>NFP           | (2)<br>NFP           | (3)<br>NFP            |
|---------------------------------------------------|----------------------|----------------------|-----------------------|
| Migrant                                           | 1,638***<br>(51.65)  | 1,590***<br>(54.70)  | 329.8***<br>(49.28)   |
| Age: 25-35                                        |                      |                      | 1,324***<br>(19.62)   |
| Age: 35-45                                        |                      |                      | 1,719***<br>(24.61)   |
| Age: 45-55                                        |                      |                      | -4,116***<br>(34.52)  |
| Age: 55-65                                        |                      |                      | -11,119***<br>(31.52) |
| Age: over 65                                      |                      |                      | -1,466***<br>(17.03)  |
| Female                                            |                      |                      | 163.4***<br>(13.73)   |
| Civil status: married                             |                      |                      | 441.5***<br>(20.71)   |
| Civil status: separated                           |                      |                      | -371.3***<br>(60.37)  |
| Civil status: widowed                             |                      |                      | -1,208***<br>(31.68)  |
| Civil status: divorced                            |                      |                      | -294.7***<br>(37.39)  |
| N. children in the household                      |                      |                      | -212.6***<br>(12.38)  |
| Household size                                    |                      |                      | 27.63***<br>(6.797)   |
| Education: secondary                              |                      |                      | -1,541***<br>(17.24)  |
| Education: higher                                 |                      |                      | 930.0***<br>(30.08)   |
| Health: good                                      |                      |                      | -757.1***<br>(19.64)  |
| Health: fair                                      |                      |                      | -1,617***<br>(23.78)  |
| Health: bad                                       |                      |                      | -2,021***<br>(29.14)  |
| Health: very bad                                  |                      |                      | -2,342***<br>(42.88)  |
| Country, year, and country-and-year fixed-effects |                      | Yes                  | Yes                   |
| Constant                                          | -1,708***<br>(8.840) | -2,185***<br>(125.6) | 2,242***<br>(102.7)   |
| Observations                                      | 2,043,185            | 2,043,185            | 2,043,185             |
| R-squared                                         | 0.001                | 0.022                | 0.293                 |

Notes: Robust standard errors clustered at the household level in parentheses. The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (EU-SILC and OECD, 2007-2018).

Figure 4.8 below shows that, when excluding controls, Czechia, France, and Sweden are the only countries where the impact of an intra-EU migration background on the NFP is negative. Instead, when including controls, the number of such countries increases to eight. I can interpret this as an additional sign that background characteristics and compositional effects are fundamental for the more positive NFP of migrants in most countries.

Figure 4.8 Country-specific impact of an intra-EU migration background on the NFP, 2007-2018



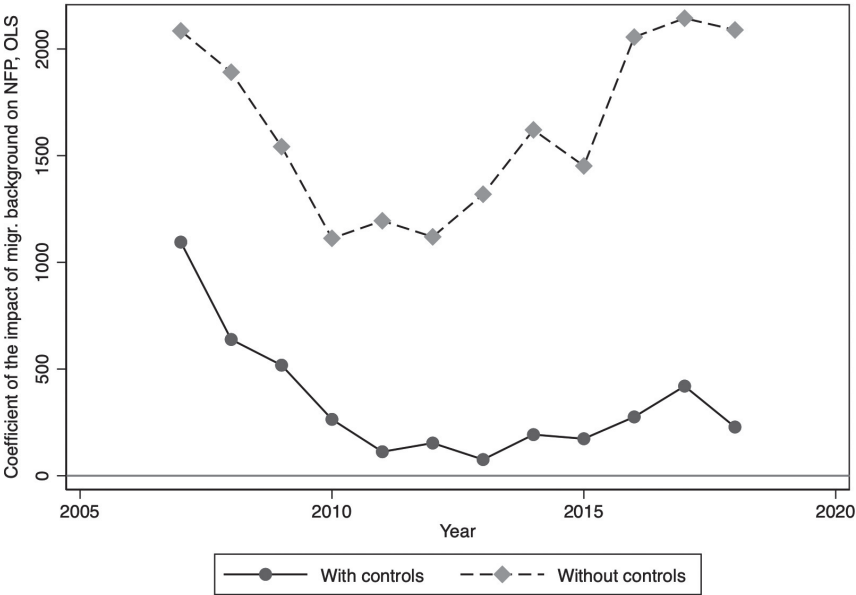
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Furthermore, Figure 4.9 below reveals that, when excluding controls, the value for the estimated impact of an intra-EU migration background on the NFP greatly fluctuates in the years considered. When including controls instead, it exhibits a rapid deterioration from 2007 to 2013, even though it always remains positive, and then shows a partial recovery. There are multiple possible explanations behind these fluctuations.

First, time effects may play a role as the impact of having an intra-EU migration background declines during the global financial crisis of 2008-2009 and remains at low levels during the European sovereign debt crisis of 2011-2012. Second, intra-EU migration flows changed significantly in the years considered. Increased mobility, particularly from Eastern to Western Europe, and to a lesser extent from Southern to Northern Europe, the global financial crisis, and Brexit significantly influenced migration patterns. Finally, more specifically, after the entry of their countries in the EU, CEE migrants often had to wait for a transitional period of up to seven years before gaining full access to the welfare benefits in older member states. This may explain why they appear as net fiscal contributions to a higher degree in the years before

enjoying full access to welfare benefits. For an extensive discussion of the time trends of contributions, benefits, and the NFP of migrants and natives in Europe, see Chapter 3 and Boffi et al. (2024a).

Figure 4.9 Year-specific impact of an intra-EU migration background on the NFP, across countries



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author’s elaboration from the data (EU-SILC and OECD, 2007-2018).

Extra-EU migrants present several differences compared to intra-EU migrants regarding their NFP and the factors influencing it. Column 2 of Table 4.4 below shows that, when including only year and country effects and their interactions, the impact of having an extra-EU migration background on the individual NFP is similar to that of having an intra-EU one. However, when background characteristics are included (Column 3 of Table 4.4), the estimate of the effect becomes strongly negative, -€992.3, significant at 1%. The changes in the sign and the estimated effect size suggest that background characteristics are crucial in determining the positive NFP of extra-EU migrants. It also suggests that there are unobserved factors, possibly discrimination, leading to their more negative NFP. Regarding the background characteristics in the last specification, most of them appear with similar effect sizes and statistical significance as they do for intra-EU migrants. Only the impact of having higher education shows a lower estimated effect size compared to the same variable in the intra-EU migrant specification, €810.2 versus €980.7, both significant at 1%.

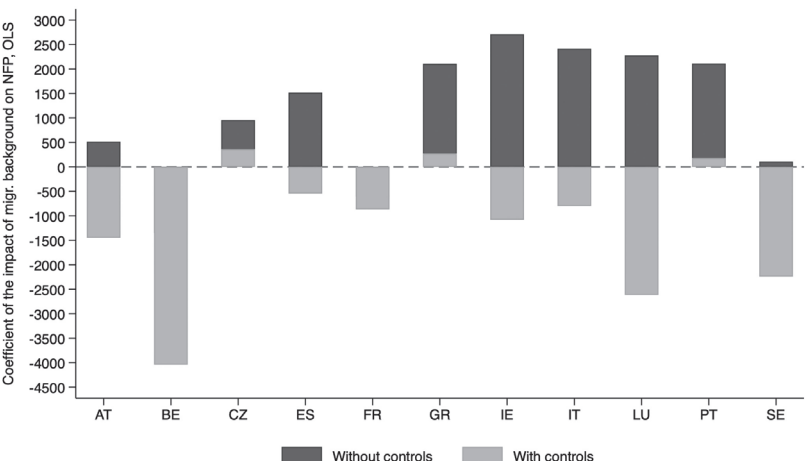
Table 4.4 Baseline analysis (OLS) for extra-EU migrants

| VARIABLES                                         | (1)<br>NFP           | (2)<br>NFP           | (3)<br>NFP            |
|---------------------------------------------------|----------------------|----------------------|-----------------------|
| Migrant                                           | 1,358***<br>(28.53)  | 1,226***<br>(28.71)  | -992.3***<br>(26.08)  |
| Age: 25-35                                        |                      |                      | 1,283***<br>(18.79)   |
| Age: 35-45                                        |                      |                      | 1,612***<br>(22.78)   |
| Age: 45-55                                        |                      |                      | -4,068***<br>(31.69)  |
| Age: 55-65                                        |                      |                      | -11,047***<br>(28.77) |
| Age: over 65                                      |                      |                      | -1,449***<br>(16.30)  |
| Female                                            |                      |                      | 187.0***<br>(13.07)   |
| Civil status: married                             |                      |                      | 408.0***<br>(19.30)   |
| Civil status: separated                           |                      |                      | -401.4***<br>(56.98)  |
| Civil status: widowed                             |                      |                      | -1,196***<br>(30.23)  |
| Civil status: divorced                            |                      |                      | -278.6***<br>(35.79)  |
| N. children in the household                      |                      |                      | -274.6***<br>(11.66)  |
| Household size                                    |                      |                      | 57.27***<br>(6.496)   |
| Education: secondary                              |                      |                      | -1,490***<br>(16.55)  |
| Education: higher                                 |                      |                      | 810.2***<br>(28.79)   |
| Health: good                                      |                      |                      | -698.9***<br>(18.06)  |
| Health: fair                                      |                      |                      | -1,565***<br>(22.14)  |
| Health: bad                                       |                      |                      | -1,974***<br>(27.55)  |
| Health: very bad                                  |                      |                      | -2,294***<br>(41.47)  |
| Country, year, and country-and-year fixed-effects |                      | Yes                  | Yes                   |
| Constant                                          | -1,708***<br>(8.840) | -2,062***<br>(116.5) | 2,215***<br>(95.80)   |
| Observations                                      | 2,057,687            | 2,057,687            | 2,057,687             |
| R-squared                                         | 0.001                | 0.022                | 0.302                 |

Notes: Robust standard errors clustered at the household level in parentheses. The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (EU-SILC and OECD, 2007-2018).

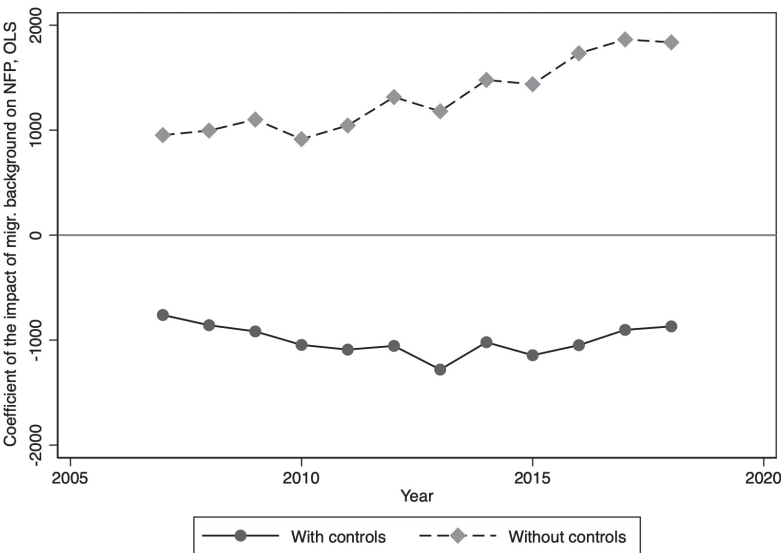
As pictured in Figure 4.10 below, including controls makes the effect of having an extra-EU migration background on the average individual NFP more negative in all countries in the sample. Czechia, Greece, and Portugal are the only three countries where the effect remains positive, though to a lesser degree, after including controls.

Figure 4.10 Country-specific impact of an extra-EU migration background on the NFP, 2007-2018



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Figure 4.11 Year-specific impact of an extra-EU migration background on the NFP, across countries



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual, in the form of direct cash transfers, from the total amount of direct fiscal contributions paid. Source: author's elaboration from the data (EU-SILC and OECD, 2007-2018).

Finally, Figure 4.11 above illustrates how, when excluding controls, the effect of having an extra-EU migration background on the NFP is continuously increasing for all the years from 2011 onwards, across countries. Once included, the estimated effect becomes negative for all years and remains rather constant over time, suggesting that personal characteristics of extra-EU migrants, and in particular their younger age, are able to explain their more positive net fiscal position (compared to natives) regardless of the years considered.

To summarise, even though Table 4.1 shows that both migrants and natives have an average negative NFP, I consistently find that the NFP of migrants is more positive (less negative) than that of natives. However, Tables 4.2 to 4.4 show strong compositional effects in terms of the background characteristics that I observe. These explain most of the positive effect of having an intra-EU migration background, and fully explain the positive effect of having an extra-EU migration background. In the latter case, once I control for background characteristics I am left with a negative effect, indicating the presence of unobserved variables that are driving this difference. Importantly, Tables 4.2 to 4.4 show sizeable effects of variables such as age, gender, civil status, family structure, education, and health on the NFP. Given the relevant differences between migrants and natives in terms of these variables (shown in Table 4.1 and Figures 4.2 and 4.3), they are likely to be important drivers of the aforementioned composition effects. To further investigate their contributions, I delve into the decomposition analysis in the next section.

#### 4.5.2 Oaxaca-Blinder Decomposition

To have a precise idea of which background characteristics contribute to the more positive NFP of migrants compared to natives, Tables 4.5, 4.6, and 4.7 show the results of the Oaxaca-Blinder decomposition of the difference between NFP of the two groups, across countries and years. First, for the general group of migrants, and then for intra-EU and extra-EU migrants separately.<sup>13</sup> Column 1 of Table 4.5 below shows that the raw difference between the NFP of migrants and natives equals €683, consistently with the result reported in Column 1 of Table 4.2.

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13 The Oaxaca-Blinder decomposition has been estimated also for every country and year in the sample. For concision, the specific findings for every year and country are not discussed in the main text. They are available upon request.

Table 4.5 Oaxaca-Blinder decomposition for the general pool of migrants

| VARIABLES           | (1)<br>Overall       | (2)<br>Explained     | (3)<br>Unexplained   |
|---------------------|----------------------|----------------------|----------------------|
| Age                 |                      | 857.0***<br>(10.66)  | 505.2***<br>(1.413)  |
| Female              |                      | 4.817***<br>(0.157)  | -412.8***<br>(0.522) |
| Civil status        |                      | 25.29***<br>(0.819)  | -198.8***<br>(0.413) |
| N. children at home |                      | -89.30***<br>(1.015) | -332.4***<br>(1.146) |
| Household size      |                      | 9.144***<br>(0.203)  | 171.1***<br>(0.253)  |
| Health              |                      | 8.247***<br>(1.637)  | -406.0***<br>(0.554) |
| Education           |                      | 64.49***<br>(2.007)  | 2,056***<br>(1.881)  |
| Country             |                      | 68.53***<br>(4.032)  | 1,147***<br>(3.442)  |
| Year                |                      | -3.556*<br>(1.880)   | -831.3***<br>(3.461) |
| Country × Year      |                      | -53.28***<br>(2.184) | 436.2***<br>(3.432)  |
| Migrant             | -936.1***<br>(10.95) |                      |                      |
| Native              | -1,620***<br>(4.577) |                      |                      |
| Difference          | 683.6***<br>(11.58)  |                      |                      |
| Explained           | 891.4***<br>(11.77)  |                      |                      |
| Unexplained         | -207.8***<br>(3.621) |                      |                      |
| Constant            |                      |                      | -2,342<br>(0)        |
| Observations        | 2,785,244            | 2,785,244            | 2,785,244            |

Notes: Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (EU-SILC and OECD, 2007-2018).

The explained part of this difference, i.e., the part explained by differences in endowments of background characteristics, adds up to €891.4, significant at 1% (Columns 1 and 2 of Table 4.5). Age, civil status, education, year, and country of residence positively contribute to the explained part of the difference, all significant at 1%. More specifically, age plays the main role in explaining the more positive NFP of migrants compared to natives, with a positive contribution of €857. Country of residence and education are the second and third variables with the highest positive contributions to the

observed fiscal gap. This finding is consistent not only with previous findings in the literature, as individuals tend to migrate in their most productive years (Huber and Oberdabernig, 2016; OECD, 2021; Suari-Andreu and Van Vliet, 2023), but also with the summary statistics discussed in Section 4.3; the migrants in my sample are younger and more educated than natives in most of the countries and the years that I study (Figures 4.2 and 4.3). The number of children at home and country and year effects are the only background variables that negatively contribute to the explained part of the difference between the NFP of migrants and natives, aligning with findings from Boeri (2010) and Jakubiak (2020).

Regarding the unexplained part, it is negative and equals -€207.8 (Columns 1 and 3 of Table 4.5).<sup>14</sup> The unexplained part of the difference is of hard interpretation because it captures the differences in the coefficients associated with the observed background characteristics of migrants and natives. In addition, it may also capture the effect of differences in any relevant variable that I do not observe. These could be for instance differences in language skills, social capital, and/or discrimination. Among the background characteristics that I do observe, age, household size, education, country effects, and country-and-year effects positively contribute to the unexplained part of the difference between the NFP of migrants and natives (thus, improving the NFP of migrants). The returns to education and country effects are particularly large, €2,056 and €1,147 respectively, significant at 1%. On the contrary, being a female, civil status, number of children at home, and year effects show large negative contributions, all significant at 1%.

Table 4.6 Oaxaca-Blinder decomposition for intra-EU migrants

| VARIABLES           | (1)<br>Overall | (2)<br>Explained     | (3)<br>Unexplained   |
|---------------------|----------------|----------------------|----------------------|
| Age                 |                | 1,397***<br>(17.29)  | 584.6***<br>(2.713)  |
| Female              |                | 3.676***<br>(0.223)  | -855.0***<br>(1.950) |
| Civil status        |                | 43.40***<br>(1.567)  | 82.29***<br>(0.480)  |
| N. children at home |                | -50.31***<br>(0.888) | -289.7***<br>(1.634) |
| Household size      |                | 2.405***<br>(0.170)  | -419.1***<br>(0.794) |
| Health              |                | 83.47***<br>(2.402)  | -669.8***<br>(2.047) |

14 As explained in Section 4.4, Equation 4.6 divides the unexplained part of the difference into two components. The first captures the impact of differences in the coefficients associated with observable characteristics for migrants compared to the pooled group, while the second does the same but for natives. For simplicity, in Tables 4.5, 4.6, and 4.7, the two components of the unexplained part are reported together and are not separately displayed.

| VARIABLES      | (1)<br>Overall       | (2)<br>Explained     | (3)<br>Unexplained   |
|----------------|----------------------|----------------------|----------------------|
| Education      |                      | 174.7***<br>(4.065)  | 3,034***<br>(6.946)  |
| Country        |                      | -228.7***<br>(6.606) | 2,579***<br>(6.253)  |
| Year           |                      | -40.32***<br>(2.864) | -500.1***<br>(3.584) |
| Country × Year |                      | -77.13***<br>(2.981) | -168.9***<br>(5.216) |
| Migrant        | -70.45***<br>(23.92) |                      |                      |
| Native         | -1,708***<br>(5.395) |                      |                      |
| Difference     | 1,638***<br>(24.36)  |                      |                      |
| Explained      | 1,308***<br>(19.89)  |                      |                      |
| Unexplained    | 329.8***<br>(9.130)  |                      |                      |
| Constant       |                      |                      | -3,047<br>(0)        |
| Observations   | 2,043,185            | 2,043,185            | 2,043,185            |

Notes: Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. Source: author's calculation from the data (EU-SILC and OECD, 2007-2018).

Focusing on the eleven countries that allow to separate intra-EU and extra-EU migrants, Column 1 of Table 4.6 above shows that the difference between the NFP of intra-EU migrants and natives equals €1,638, significant at 1%. Contrary to the findings of the decomposition for the general pool of migrants (Table 4.5), both the explained and the unexplained parts of the difference between the NFP of intra-EU migrants and natives report positive values, €1,308 and €329.8 respectively, significant at 1%. All background characteristics are significant at 1%. Regarding the explained part, age and education are the ones making the largest positive contributions, €1,397 and €174.7 respectively. Country effects report instead the largest negative contribution, -€228.7. The negative sign does not tell me much about the cause of such country effects, but it indicates that there are large and significant. They could possibly include two complementary mechanisms. First, different EU countries might attract different types of intra-EU migrants; for example, some countries might attract lower-skilled or lower-wage workers, impacting the overall NFP negatively. Second, there may be strong variation in the tax and benefits systems across EU countries.

Regarding the unexplained part, education and country effects show very large positive contributions, €3,034 and €2,579. Unfortunately, as discussed above, the interpretation of the unexplained part is not straight-

forward as it involves making hypotheses on the different coefficients associated with the background characteristics of migrants and natives and possible unobservables.

*Table 4.7 Oaxaca-Blinder decomposition for extra-EU migrants*

| VARIABLES           | (1)<br>Overall       | (2)<br>Explained     | (3)<br>Unexplained   |
|---------------------|----------------------|----------------------|----------------------|
| Age                 |                      | 2,281***<br>(13.75)  | 500.2***<br>(4.384)  |
| Female              |                      | 3.593***<br>(0.240)  | -586.0***<br>(1.256) |
| Civil status        |                      | 77.88***<br>(1.321)  | -99.21***<br>(0.378) |
| N. children at home |                      | -133.8***<br>(1.395) | -672.6***<br>(3.362) |
| Household size      |                      | 33.05***<br>(0.436)  | 752.4***<br>(1.571)  |
| Health              |                      | 91.77***<br>(2.280)  | -39.87***<br>(1.340) |
| Education           |                      | -5.610<br>(3.619)    | 1,584***<br>(2.484)  |
| Country             |                      | -8.348<br>(6.669)    | 588.8***<br>(4.357)  |
| Year                |                      | 24.43***<br>(2.920)  | -272.1***<br>(4.059) |
| Country × Year      |                      | -13.37***<br>(3.626) | -331.8***<br>(4.948) |
| Migrant             | -350.2***<br>(13.75) |                      |                      |
| Native              | -1,708***<br>(5.395) |                      |                      |
| Difference          | 1,358***<br>(14.66)  |                      |                      |
| Explained           | 2,350***<br>(16.55)  |                      |                      |
| Unexplained         | -992.3***<br>(6.988) |                      |                      |
| Constant            |                      |                      | -2,416<br>(0)        |
| Observations        | 2,057,687            | 2,057,687            | 2,057,687            |

*Notes:* Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. \*significant at the 10% level, \*\*significant at the 5% level, \*\*\*significant at the 1% level. *Source:* author's calculation from the data (EU-SILC and OECD, 2007-2018).

For extra-EU migrants, Column 1 of Table 4.7 above shows that the difference between their NFP and the one of natives equals €1,358. Unlike intra-EU migrants, while the explained part of this difference is strongly positive and equals €2,350, the unexplained part is negative and equals -€992.3, significant at 1%. As shown in Column 2, age appears to matter

even more for the explained part of the difference between the NFP of extra-EU migrants and natives, compared to what is found for intra-EU migrants (Table 4.6); its positive contribution tops €2,281, significant at 1%. This may originate from the fact that extra-EU migrants are generally younger than intra-EU migrants and natives (Eurostat, 2024d). In my sample, considering only the eleven countries that allow distinction between intra-EU and extra-EU migrants, 48% of extra-EU migrants are under 35, compared to 42% of intra-EU migrants.

The contribution of education to the explained part of the difference equals -€5.6 and is statistically insignificant. In other words, despite the summary statistics showing that extra-EU migrants are on average more educated than natives for most countries and years in the sample (Table 4.1 and Figures 4.10 and 4.11 at the end of this chapter), education does not seem to increase their NFP. This interesting finding is in line with previous evidence demonstrating that extra-EU educational degrees, qualifications, and training have little positive impact on the economic integration of migrants in Europe (Bevelander and Pendakur, 2014; Montt, 2017; OECD and European Commission, 2023; Visintin et al., 2015). Similarly, the contribution of country effects to the NFP of extra-EU migrants is also very small in effect size (-€8.3) and statistically insignificant, suggesting that extra-EU migrants are a rather homogenous group of migrants across the countries in the sample.

Regarding the unexplained part of the difference (Column 3 of Table 4.7), most variables appear with the same sign and significance level as for intra-EU migrants. One notable exception is household size, which for intra-EU migrants has a large negative contribution (-€419.1), while for extra-EU migrants it holds a large positive contribution (€752.4). Given the nature of the unexplained part of the difference, it is impossible to provide a univocal interpretation of this asymmetry in the effect of household size for the two migrant groups. For instance, intra-EU migrants might have easier access to family benefits due to EU regulations compared to extra-EU migrants, which can result in higher benefit claims per household, particularly in larger households, leading to a negative fiscal impact.

#### 4.6 CONCLUSION

In this chapter, I examine the differences between the NFP of migrants and natives in 15 EU countries from 2007 to 2018. To do so, I use repeated cross-sectional individual data on income and welfare benefits from the EU-SILC and combine these with information on personal income taxes and social security contributions from the OECD. I employ an Oaxaca-Blinder decomposition to dissect the factors which drive the differences between the NFP of intra-EU migrants, extra-EU migrants and natives. My results provide a contribution to the understanding of the specific factors determining the different NFP of migrants and natives in Europe.

Overall, migrants tend to have a relatively more positive average individual NFP compared to natives, with the effect being dependent on the migration background considered and the personal characteristics included in the specification. When excluding controls, migrants exhibit a more positive NFP by €683.6. This is consistent with recent evidence indicating that migrants often make net fiscal contributions to the host countries (Boffi et al., 2024a; Christl et al., 2022; Fiorio et al., 2024). However, when controlling for country and year effects and personal characteristics, the effect becomes negative (-€207.8). Separating between intra-EU and extra-EU migrants, I find that having an intra-EU migration background has always a positive and statistically significant effect on the average individual NFP (€339.8, when including controls). Instead, having an extra-EU migration background has a negative and statistically significant effect (-€992.3, when including controls). The different effects for intra-EU and extra-EU migrants are a common finding in various single-country studies in the literature. They reflect not only the importance of investigating personal characteristics and the welfare state typology of the host country, but also that the countries and the years of selection matter as well (Bogdanov et al., 2014; Chojnicki et al., 2022; Dustman and Frattini, 2014; Furlanetto and Robstad, 2019; Hansen et al., 2017; Izquierdo et al., 2010; Österman et al., 2024; Ruist, 2014).

For this reason, I apply an Oaxaca-Blinder decomposition to dissect the differences between the NFP of migrants and natives into the factors contributing to its explained and unexplained parts. The findings reveal that age, education, and country effects are the largest contributors to the difference between the NFP of migrants and natives. Among these, age is identified as the biggest contributor to the explained part of the difference. This is in line with previous evidence highlighting age as a key determinant for migrants' welfare receipt (Huber and Oberdabernig, 2016; Jakubiak, 2020; OECD, 2021; Suari-Andreu and Van Vliet, 2023). Education plays an important role as well, but only for intra-EU migrants (€174.5). The contribution of education to the explained part of the difference between the NFP of extra-EU migrants and natives is close to zero and statistically insignificant. Other personal characteristics such as gender, health, civil status, household size, and the number of children at home contribute to the explained and unexplained parts, with varying effect sizes. Overall, the personal characteristics of intra-EU migrants show more positive contributions to both the explained and unexplained parts of the difference. In contrast, extra-EU migrants exhibit a blurrier picture, with no common pattern among their personal characteristics.

The findings suggest that disentangling the specific variables influencing the relationship between immigration, welfare integration, and personal characteristics is of paramount importance for governments and researchers. For example, European policymakers should consider that, over a long period of time and across a large number of countries, migrants are (mostly) young individuals who do not represent a fiscal burden to the host

country, especially if coming from another EU member state. Additionally, large country-effects suggest that certain mechanisms may be at work. One mechanism could be that different countries attract different types of migrants, which calls for more equitable and clearer attraction and retention policies. A second mechanism could be that there are significant differences between the tax and benefits systems of EU countries, which calls for a careful scrutiny of the imbalances between different fiscal regimes.

Another important result from a policy perspective is the divergence between the contribution of education to the NFP of intra-EU and extra-EU migrants. Education positively contributes to the NFP of intra-EU migrants, while it is nearly irrelevant for extra-EU migrants. Better coordination between European and extra-European educational institutions could potentially reduce inefficiency in the allocation of human capital. At the macro level, the European labour market and the welfare states of the EU member states could benefit from this coordination. At the micro level, migrants would be better integrated into society and suffer less from skill mismatches between their jobs and their previous study and work experience.

A promising avenue for future research is to employ the increasing amount of longitudinal data becoming available to study how migrants with different personal characteristics integrate at different speeds in different European welfare state regimes. In conclusion, by analysing the personal characteristics of migrants and their fiscal differences from natives over time, it would be possible to develop effective integration strategies to address the challenges and opportunities that various population groups present to the welfare systems of the host countries and to the EU as a whole.



## 5 | The Economic Impact of International Students in OECD Countries: a Review of the Literature and New Empirical Evidence<sup>1</sup>

### ABSTRACT

In this chapter, I review the available empirical evidence on the economic impact of international students in receiving OECD countries. To start, I survey the existing literature and evaluate the three main approaches used to calculate the income gains for the host country: the export approach, the input-output approach, and the general equilibrium approach. Moreover, I also include literature addressing broader economic effects, such as the impact on local and national labour markets, technological innovation, and regional and national economic growth. Finally, using national accounts data from the OECD, I present new descriptive evidence on the consequences of the Covid-19 pandemic for international student enrolments and revenues. Both the literature review and the descriptive analysis provide a novel contribution by bridging the gap between the evidence available up to the Covid-19 pandemic and the most recent developments in the economics of international higher education. In doing so, I explore the implications of the pandemic for the economic impact of international students in receiving countries and set the ground for future work.

### 5.1 INTRODUCTION

The increasing opportunity for higher education students to enrol and study in foreign, often distant, countries is a well-known effect of globalisation. The presence of international students in higher education yields vari-

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1 This chapter is based on a study expected to be published as Boffi (2025). The study is based on a continuation of my contribution to OECD (2022). I am grateful to Eduard Suari-Andreu, Olaf Van Vliet, Sabrina Genz, as well as participants to the work-in-progress seminar series of the Department of Economics at Leiden University on February 22nd, 2023, and participants at the 5th International Conference on European Economics and Politics organised by the Network for European Studies on June 20th, 2024, for comments on a previous version of this paper. A special acknowledgement goes to the members of the International Migration Division at the OECD for their support during my collaboration in 2022. The study upon which this chapter is based is part of the research programme Social Citizenship & Migration at Leiden University.

ous benefits for both the sending and receiving countries (Chevalier, 2022).<sup>2</sup> Through cultural exchange, economic stimulation, and human and social capital accumulation, international students contribute to global mobility, intercultural understanding, and socio-economic development (Levent, 2016; Morris-Lange, 2019). This study reviews the literature on the economic impact of international students in OECD countries and provides new empirical evidence on the subject. The focus on OECD countries is motivated by the fact that they host more than two-thirds of all international students globally and generally have better data for analysing enrolments and revenues.

In the early months of 2020, before the Covid-19 pandemic would temporarily disrupt international education and mobility, the number of international students enrolled at tertiary institutions globally had reached the record figure of 6.4 million (UNESCO, 2024).<sup>3</sup> Out of these, almost 4.4 million were enrolled in OECD countries (68% of the total), up from 2.8 million in 2013.<sup>4</sup> The latter is the first year for which internationally comparable data for OECD countries are available. Even in 2021, the most challenging year of the pandemic, total enrolments, which are calculated by summing all new international student enrolments in the OECD, did not experience a large drop but only a modest 1.4% decrease. Instead, the average per-country change in enrolments, which is calculated by taking the unweighted mean of all changes in enrolments across OECD countries from one year to the next, was a 4.4% increase (OECD, 2023).<sup>5</sup>

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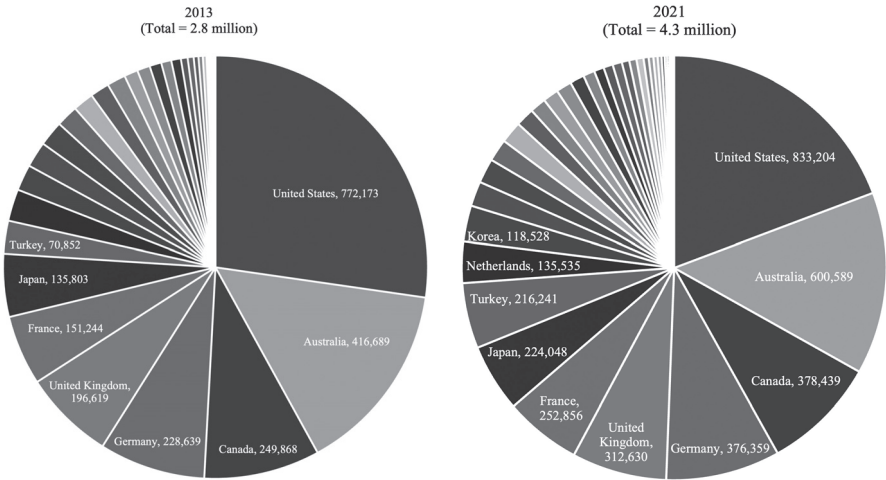
2 International students are defined as individuals who move out of their home country to pursue an entire degree abroad (degree mobility). They are a different group from students who move abroad for just part of their home country-based degree (credit mobility), like students in the European Erasmus programme (OECD, 2022).

3 Tertiary institutions include research universities, universities of applied sciences, colleges, and all other educational establishments that issue state-accredited post-secondary degrees at ISCED 2011 levels 5 to 8.

4 Revenues and enrolments data peak in 2020 because they usually refer to the academic year 2019-2020, which in most OECD countries started in the fall of 2019, when Covid-19 had not spread yet. However, in a few countries, the academic year 2020 started between February and April 2020, i.e., the early phase of the Covid-19 pandemic. This is the case in Australia, Japan, Korea, and New Zealand. Australia and New Zealand, two of the major recipient countries of international students, recorded a large decline in student enrolment already in 2020, while most of the countries showed sizeable drops only from 2021.

5 As explained in Section 5.4, major recipient countries, like Australia and New Zealand, experienced significant drops in international student enrolments during the Covid-19 pandemic, because of geographical distance from origin countries, institutional policies, and lockdown measures. Instead, several smaller countries, mostly European ones, experienced positive rates of growth, because of various factors. Then, it follows that total international student enrolments in the OECD decreased while the average per-country change was positive.

Figure 5.1 Enrolments of international students in OECD countries in 2013 and 2021



Source: author’s elaboration from the data (OECD, 2023).

The growth in international students from 2013 to 2021, as shown in Figure 5.1 above, has deep economic implications for both the sending and receiving countries. Several countries that experienced a consistent increase in the intake of international students in both absolute and relative numbers (such as Latvia, the Netherlands, and New Zealand, whose shares of international students as part of their total enrolments increased from 1.5%, 4.3%, and 14.3% to 10%, 12%, and 20.8%, respectively) have also experienced sustained growth in direct revenues. These revenues come from tuition fees and non-tuition fee private expenditures by international students and their guests (OECD, 2022). Economic multipliers amplify these direct gains into indirect benefits, which vary by country due to factors such as the concentration of students in particular regions or cities, their labour market participation, and their impact on local businesses.

Recently, some host countries have contested the economic benefits brought by international students due to fears of crowding out local students, inflation, and a broader aversion towards immigration (Kayran, 2024; Mehdi et al., 2023). Debates in countries like Denmark and the Netherlands on limiting quotas and enrolments of international students spotlight the tension between economic benefits and local resource strains (Jæger, 2023). Denmark initially reduced English-taught programmes in 2018 to cut costs and prioritise domestic students but reversed this policy in 2023 due to labour shortages and the significant economic contributions of international students (ICEF Monitor, 2024). Similarly, the Netherlands faces housing shortages and overcrowded lecture halls, prompting ongoing discussions on stricter regulation (Staatscommissie Demografische Ontwikkelingen 2050, 2024). This study contributes to the debate by reviewing the available literature on the economic impact of international students in receiving

OECD countries and by providing new descriptive empirical evidence for the period until 2020 and during the Covid-19 pandemic.

Most of the available studies on the subject have focused on the economic impact on the host country, often just on the direct flows of income from international students to public and private parties, rather than on a full cost-benefit analysis. This is due to the clear interest of host countries in measuring the revenues resulting from the export of national education to foreign buyers (international students) and its effect on domestic markets, industries, and consumers. International education is then seen as a service export and a potential source of revenue. Moreover, estimating the impact on the sending countries poses further challenges, particularly in measuring the cultural and income remittances by international students and their return rates (Chevalier, 2022).<sup>6</sup>

In the literature, there is a distinction between studies that focus solely on the income received from international students in the host country and those that also examine broader dimensions, such as labour markets and broader societal effects. The various components of the income effect of international students on the host country, both during their studies and after, are most often estimated using one of three popular methods: the export approach, the input-output approach, and the general equilibrium approach. In short, the first method focuses exclusively on the direct income gains from international students during their studies. Additionally, the second and third methods also try to account for the indirect income effects during and after studies. However, they do so at the cost of making strong assumptions about economic multipliers, retention rates, and other factors.

A precise calculation of the direct income contribution during studies encompasses three components: income from international tuition fees, income from non-tuition fee private expenditure by international students, and income from private expenditure by guests of international students (London Economics, 2023; OECD, 2022). Each of these three direct components is then associated with indirect effects throughout the wider economy. In the case of income derived from the tuition fees paid by international students, the indirect effects come from the universities' expenditure on staff, facilities, and services. For example, this type of indirect gain was estimated to be close to €1 billion in Spain in the academic year 2018-2019 (0.08% of GDP) (Grasset and Menéndez, 2020). Non-tuition fee private expenditure by international students on accommodation, food, healthcare, transportation, and leisure activities also has important indirect consequences throughout the economy. For the academic year 2017-2018 in Sweden, international students generated an estimated SEK 2.4 billion through this type of indirect effect (0.05% of GDP) (Oxford Economics, 2020). Private expenditure from guests of international students, which was estimated to be around €470

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6 On the return migration of international students, see Bijwaard et al. (2016).

million in France in 2014 (Campus France, 2014), also produces sizeable indirect effects, sparking local business activity.<sup>7</sup>

Measuring the income gains from international students during their studies involves a rather intuitive accounting exercise, at least for the direct components. However, calculating the non-income contributions, which typically develop in the longer term after graduation, is more empirically challenging. First, limitations arise from the difficulty in precisely estimating the number of international students staying in the host country after graduation, whether for family, partnership, work, or other reasons. The reasons why international students stay in the host country are often intertwined and difficult to disentangle (Aljohani, 2016). Second, even if it were possible to count every international student staying in the host country after studies, it is still necessary to make country-specific assumptions about future labour force participation, productivity, and return rates at a later stage. For example, a forecast commissioned by the Australian government in 2015 estimated that, among all international students, around 130,000 (22% of the total) would later settle in the country and increase the labour force with tertiary education by 3% (Deloitte Access Economics, 2015). Recent changes in higher education and international mobility, such as the considerable drops in enrolments and revenues from international students in Australia during the Covid-19 pandemic, and the increase in remote-studying and working opportunities, make the prediction from 2015 now outdated.

Analyses of the costs imposed by international students on the receiving country are surprisingly rare. The costs imposed by international students can be classified as direct and indirect as well. Direct costs include expenditures incurred by governments to attract and subsidise international students, such as scholarships and grants. For students from middle- or low-income countries, these are often classified as Official Development Assistance (ODA) and reported in national accounts statistics. The rationale behind including these in a country's ODA is that international students will return home with additional social and human capital, which contribute to development (Amanzadeh et al., 2024). This rationale has been questioned in recent years, given the enhanced efforts of most OECD countries to retain international graduates in the host country (OECD, 2022). Indirect costs include increased demand for housing, transportation, and public services, potential inflation, and administrative and regulatory expenses, all of which can strain the host country's resources and infrastructure. The

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7 Indirect effects are described in the main text as positive externalities coming from the direct economic behaviour of international students (and their guests). However, from a general equilibrium point of view, it is also possible to suppose that the economic activity of international students has complementary and undesired adverse consequences, like higher inflation in university cities and a reduction in available housing. To this date, no studies in the literature have tried to quantify potential negative effects. This remains an open debate, with insufficient empirical evidence on the subject.

rarity of such analyses can be attributed to the difficulties in accurately quantifying these costs and the prevailing focus on the economic benefits of international students.

Given this premise, the literature review and analysis of this study focus on the economic impact of international students on the host country, particularly in terms of the benefits they bring. My approach aligns with the prevailing interest in understanding the economic gains associated with attracting and retaining international students, while paying more limited attention to the costs. The contribution of this study to the aforementioned literature is twofold. First, it provides a review of the available empirical evidence from the literature until the beginning of the Covid-19 pandemic in 2020. The literature available up to this date lacks a comparative overview of the concepts, the methodologies, and the findings of each study on the economic impact of international students on the receiving countries. Moreover, the available studies, like OECD (2022) and the majority of country-specific policy reports, often do not distinguish between income gains and broader economic implications. Finally, as the available cross-country evidence on the effect of Covid-19 on higher education is scarce, this study addresses the question of how the Covid-19 pandemic has impacted enrolments and direct revenues from international students. Answering this question is key to bridging the evidence available until 2020 to the developments in the present decade and beyond. In doing so, it prepares the ground for future work when post-Covid-19 data will become available.

To address the question of the impact of Covid-19 on the economic contribution of international students to the host country, I perform a descriptive analysis of OECD data on the changes in enrolments and direct revenues from international students, with enrolments data available up to 2021 and revenues data available up to 2022. As mentioned above, total enrolments in the OECD did not experience a considerable drop during the pandemic (-1.4% from 2020 to 2021). In contrast, there was an average decrease of 23.1% in direct revenues from international students across countries already from 2019 to 2020. In 2020-2021, the downward trend in revenues persisted, although it was less severe compared to the previous year. The average change across countries in this period was -11.2%, indicating a partial recovery in some countries, but still reflecting the lingering effects of the pandemic. By 2021-2022, a mixed picture of recovery and persisting negative effects emerged. Several countries, including Austria, Czechia, and Italy, demonstrated remarkable growth in revenues, displaying strong rebound effects. Others, like Australia and New Zealand, still lagged behind. Overall, the total change in direct revenues from international students in the OECD from 2019 to 2022 was a decrease of 20.6%, with high country heterogeneity.

The rest of the chapter is structured as follows. Section 5.2 reviews previous studies on the subject and compares the three main techniques employed for the calculation of the income contribution of international students to the receiving country: the export approach, the input-output

approach, and the general equilibrium approach. Section 5.3 continues with the literature study by discussing broader dimensions of the economic impact of international students on the receiving country, such as effects on local and national labour markets, technological innovation, and regional and national growth. Section 5.4 presents new descriptive evidence on the impact of Covid-19 on the enrolments and the revenues from international students in OECD countries. Section 5.5 discusses implications from the findings and concludes.

## 5.2 REVIEW OF THE METHODOLOGIES APPLIED IN THE LITERATURE

Previous evidence on the economic impact of international students on host countries comes mostly from country-specific studies. These studies are often undertaken by education ministries (in Australia, Canada, Denmark, and New Zealand), national statistical or policy institutions (in Australia, Belgium, Estonia, Finland, and the Netherlands), national university associations (in Australia, France, and the United States), or commissioned by the government to private parties, often economic consulting firms (in Australia, Austria, Belgium, Canada, Germany, Ireland, Latvia, Poland, Spain, Sweden, and the United Kingdom). Unfortunately, these studies are typically commissioned only once – often for a single academic year – and are not regularly updated (Sá and Sabzalieva, 2018).

For example, evidence from Germany, one of the main destination countries for international students in continental Europe, is limited to only one study from 2013 (Prognos, 2013).<sup>8</sup> This reduces the external validity of the findings and their relevance over the years as international education evolves. Most importantly, the research focus is often solely on the direct income gains from international students due to the difficulties in estimating the broader post-study economic impact and the short-term scope of such analyses. Finally, most of these studies are strictly policy-oriented rather than academic in nature.

The OECD host countries for which the economic impact of international students is most frequently assessed are all the English-speaking countries. This is likely due to the large revenues that such countries receive from the attraction and retention of international students (OECD, 2022). Among these, Australia has yearly reports and statistics on the income gains at the regional and national level, while Canada and New Zealand have both several reports periodically updated by private parties and education ministries. The United Kingdom has also a mix of governmental and private studies on the topic, and for the United States, the National Association of Foreign Student Advisers (NAFSA) provides figures and statistics every year since 2003. For example, recent figures estimated \$47

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8 An update of the German study is due by the end of 2024.

billion in educational-services exports in 2019 (2.0% of total exports), more than the national exports of income management services (Nafsa, 2023). For Australia, in the same year, the Australian Bureau of Statistics estimated AUD 40 billion in revenues from the exports of education-related services (8.5% of total exports and 2.0% of GDP), more than the revenues from gold exports (Australian Bureau of Statistics, 2022).

In Europe, more than one study has also been carried out for Belgium (particularly for the Flanders region), Estonia, Finland, France, Ireland, the Netherlands, Spain, and Sweden. In Austria, Denmark, Germany, Hungary, Poland, and Switzerland only one study has been carried out so far. To this date, 17 out of the 38 OECD countries, Chile, Colombia, Costa Rica, Czech Republic, Greece, Iceland, Israel, Italy,<sup>9</sup> Korea, Lithuania, Luxemburg, Mexico, Norway, Portugal, Slovak Republic, Slovenia, and Turkey have neither policy reports nor academic studies precisely quantifying the economic impact of international students in the country.

All the aforementioned studies adopt one or more of the three main approaches to estimate the income contribution of international students: the exports approach, the input-output approach, and the general equilibrium approach. A short summary of the pros and cons of each approach and the countries for which it has been employed is provided in Table 5.1 below.<sup>10</sup>

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9 In November 2023, Uni-Italia and the Italian Ministry of Foreign Affairs and International Cooperation organised the *4th Conference with International Higher Education Agencies on The economic impact of international students*. Despite Italy remaining one of the main destination countries for international students in Europe, so far, the research on their economic impact in the country is limited to survey evidence from a few university cities (Uni-Italia, 2023).

10 The focus of the literature review is mostly on the studies and reports written in English. For a detailed overview of recent studies on the economic impact of international students on host OECD countries, see Table 5.2 at the end of the chapter.

Table 5.1 Main methods to calculate the income gains from international students in the host country

|                              | PROs                                                                                                             | CONs                                                                                                                                                                                                             | Countries for which it has been employed                                                                       |
|------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Exports Approach             | Precise account of the direct revenues. The estimates are comparable across export sectors and across countries. | No account of indirect effects and the long-term impact.                                                                                                                                                         | Australia, Estonia, Finland, France, Ireland, New Zealand, United States                                       |
| Input-Output Approach        | In addition to direct effects, indirect effects and interdependencies between sectors are considered.            | In estimating indirect effects and the long-term impact, it does not account for resource scarcity, time lags between the effects, and rising input prices. These may lead to an overestimation of the benefits. | Canada, Finland, Germany, Hungary, Latvia, The Netherlands, New Zealand, Poland, Spain, Sweden, United Kingdom |
| General Equilibrium Approach | Direct and indirect effects across sectors and regions can be estimated in the short and in the long term.       | Expensive and time-consuming to be built, less easy to update. Based on country-and-year specific assumptions.                                                                                                   | Australia, Belgium                                                                                             |

Source: author’s elaboration from the literature.

5.2.1 The Export Approach

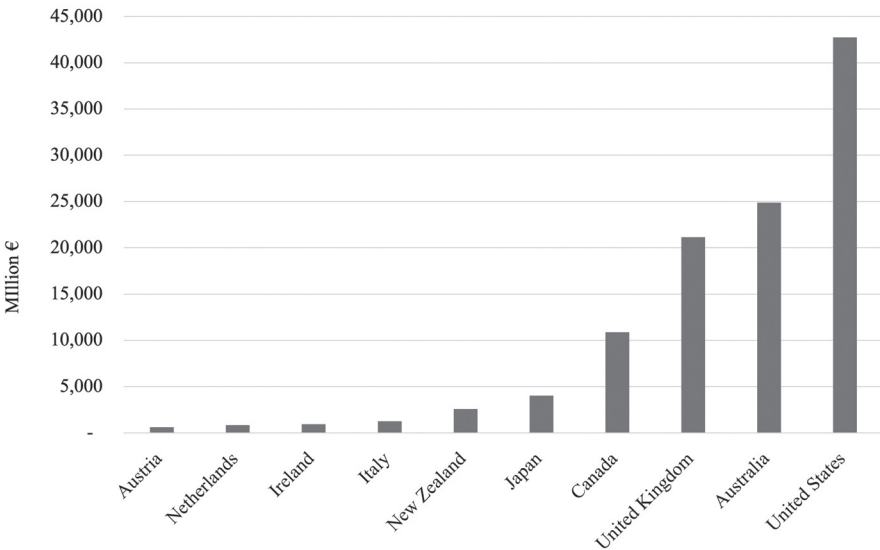
The exports approach relies on trade statistics from the national balance of payments of the host country to calculate the direct income contribution of international students to the economy. In its simplest form, the contribution is calculated by adding up the statutory tuition fee and average non-tuition fee expenditure per international student (and their visitors) and multiplying the result by total enrolments.<sup>11</sup> This first approach, despite being rather superficial (most importantly, indirect effects are not considered), is quite precise in providing accounting figures on direct contribution to public finances. For this reason, the OECD (2022) adopts it for its most recent analysis of the direct revenues of international students from 2010 to 2019.

11 Tuition fee expenditure is directly taken from the balance of payments of higher education institutions. Instead, non-tuition fee expenditure per international student is an approximate measure imputed by the host country’s statistical authority based on the consumption behaviour of the average international student. Therefore, it might be less accurate than tuition fee expenditure.

This analysis uses statistics on the exports of education-related services, including expenditures for tuition, food, accommodation, local transport, and health services by international students adopting the 2010 Extended Balance Of Payments Services classification (EBOPS).<sup>12</sup>

The figures showed a general growth in revenues across most OECD countries, with total revenues from the exports of education-related services in the OECD area increasing from €47 billion in 2010 to over €110 billion in 2019 (OECD, 2022). English-speaking OECD countries appeared as the industry leaders. The United States, Australia, the United Kingdom, Canada, and New Zealand ranked as the top five countries by gross revenues, making up more than 80% of the total revenues from the exports of education-related services in the OECD in 2019 (Figure 5.2 below).

Figure 5.2 Top-ten country by direct revenues from international students (million €), 2019



Source: author’s elaboration from the data (OECD, 2023).

Notably, the United States and Canada more than tripled their absolute values over the past decade, while Australia, New Zealand, and the United Kingdom almost doubled them. In Europe, the Central, the Eastern, and the Baltic countries have experienced significant increases in their education-related services exports, often doubling or tripling from 2010 to 2019.

An advantage of this first approach is that it makes the exports of education-related services comparable to other export industries and as a percentage of total exports. The OECD (2022) reported that despite the strong increases several countries have experienced in absolute values from

12 The comparability of the data across countries is ensured by the common adoption of the 2008 System of National Accounts (SNA).

2010 to 2019, the exports of education-related services account for below ten percent of total exports in all OECD countries in 2019. Once again, the English-speaking countries were the ones where educational exports represent the highest shares of total exports. Finally, in all countries, direct revenues from international students accounted for 0.2% or less of GDP in 2019, except for the United Kingdom, Canada, New Zealand, and Australia, where they accounted for 0.6%, 0.6%, 1.4%, and 2.1% of GDP, respectively.

Within the country-specific literature, the export approach is employed yearly by the National Association of Foreign Student Advisers (NAFSA), the national authority studying and promoting the attraction of international students to the United States. The Ministry of Education of New Zealand adopts the export approach too. In 2019 it was calculated for instance that international students generated more than NZD 4.8 billion in direct revenues (1.5% of GDP). This makes it the fifth largest export industry in the country, more than the wine industry and the air transport industry combined (New Zealand Education, 2020). In Europe, estimates for Ireland showed that revenues from the exports of higher education contributed €336 million to the Irish economy in the academic year 2017-2018 (0.1% of GDP) (Indecon International Economic Consultants, 2019). For France, the latest estimates showed that international students directly contributed €5 billion to the French economy in 2022 (almost 0.2% of GDP) (Campus France, 2022).

A major limitation of the export approach is that it lacks any estimate of indirect effects from the private expenditure of international students (and their guests) throughout the economy. Moreover, given that it is based on the trade statistics of a specific year, through an export approach it is not possible to calculate the future economic contribution of international students. The input-output and the general equilibrium approaches are used to calculate indirect effects and the long-term impact.

### 5.2.2 The Input-Output Approach

In addition to the direct income contribution, the input-output approach also estimates indirect effects by using economic multipliers (such as those from OECD input-output tables) to mirror the interdependencies between various sectors of the economy. In this way, it can deliver a more detailed assessment of international students' income contributions at the regional level and over time. For instance, the input-output approach captures how an increase in international students in a particular geographical area leads to an increase in local housing expenditure.

This approach has been widely adopted in several countries. Estimates for the 2015-2016 academic year in Latvia showed that the total income contribution of international students to the economy was €148 million (0.5% of GDP) (Domnīca Certus, 2016). In the same academic year, the United Kingdom received a net contribution of GBP 23.6 billion from international students, which rose to GBP 28.2 billion in 2018-2019, and to GBP 37.4 bil-

lion in 2021-2022 (1.7% of GDP). The increase was mostly driven by growth in tuition fee income from international students (higher fees and a larger cohort) (London Economics, 2023).<sup>13</sup> For Spain, it was estimated that the income contribution of international students in the academic year 2018-2019 was more than €3.5 billion (0.3% of GDP) (Grasset and Menéndez, 2020).

A serious limitation of this approach comes from the assumption that local and national industries can freely (and infinitely) adjust their supply in response to international student-driven demand. This assumption ignores real-world economic constraints. For example, the price of inputs should increase, time lags apply, and scarcity regulates the availability of resources. Time lags refer to the delay between an increase in demand in a sector and the corresponding increase in supply. For instance, if a significant number of international students suddenly move to an area, it may take time for the local housing market to build additional accommodations or for local businesses to expand their services to meet the new demand. These delays can result in temporary shortages and increased prices, which are not accounted for in the input-output approach. Therefore, this approach tends to overestimate the indirect economic contribution of international students. Furthermore, most of these assumptions are country- and time-specific and do not allow for comparisons across countries and over time.

### 5.2.3 The General Equilibrium Approach

Finally, the last approach uses general equilibrium (GE) models to account for interdependencies between various sectors of the economy without double counting the impacts that private expenditure by international students can have across sectors and allowing for resource scarcity and time adjustments. By modelling time lags, expected stay rates, and behavioural responses of different economic sectors, GE models can estimate the impact of changes in the number and the contribution of international students, immigration policies, and technology, in both the short and long run.

This approach was recently used in a detailed report on the regional economic impact of international students in Australia in 2018, where total national export revenues of AUD 34 billion (1.8% of GDP) were broken into their regional components. In the same report, the International Educational Education of Australian also forecasted an AUD 715 million real GDP con-

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13 Because of Brexit, from the 2021-2022 academic year onwards, international students from the EU in the UK are subject to full international fee rates instead of the reduced home fee rates. As expected, this had a dramatic impact on the influx of EU students. London Economics (2023) reported that 92% (350,145) of international first-year students in 2021-2022 were from outside the EU (a 68% increase since 2018-2019), with only 8% (31,220) from the EU (a 52% decrease since 2018-2019). Unfortunately, 2022 data for international student enrolments in all OECD countries are not available yet. It remains to be seen whether Brexit will produce spillover effects on other host countries, altering the composition and the size of their pool of international students.

tribution from international students to the Gold Coast region in the long run (International Educational Association of Australia, 2019). Using data for the academic year 2015-2016, De Witte and Soncin (2021) estimated the income benefits of international students in the Flanders regions of Belgium in both the short term and the long term. In the short term, international students contributed €57 million in tuition fees, €630 million in non-fee private expenditure, and €139 million in expenditure from visitors, totalling 0.2% of GDP. Long-term benefits were driven by the 52.8% retention rate of international graduates, whose employment contributed between €4.2 billion to €5.6 billion to the regional GDP. Finally, the analysis revealed that the benefits of international students in Flanders exceeded the costs by a factor of 2.4 to 3.1 times (De Witte and Soncin, 2021).

Even though GE models can provide estimates of the economic impact of international students on virtually every sector of the economy, they are used less frequently than exports or input-output analyses. This is because they suffer from several limitations. First, they require more effort and time to be built and fine-tuned compared to export or input-output models, and thus, they are updated less often. Second, they involve a high degree of complexity and must be tailored to each single national economy to fully capture the behaviours of its economic agents. Third, they tend to assume fully rational behaviours of the parts involved, complete preferences, and full information, resulting in outcomes that may not withstand the test of time. For example, the aforementioned Australian study could not foresee the impact and the changes that the Covid-19 pandemic would have had on the attraction, retention, and future employment of international students in the country the following years.

### 5.3 BEYOND THE INCOME GAINS: OTHER FOCUS AREAS IN THE LITERATURE

The economic impact of international students on the receiving country extends beyond the direct and indirect income gains discussed in Sections 4.2 to 4.2.3. With different methodologies, studies in the literature have focused on several other economic aspects in both the short and longer run. Among these, the most immediate economic effects are found in the labour market inclusion of international students, during and after their studies. In the longer run, international students also contribute to technological innovation – a key factor for the development of any advanced capitalistic economy – and ultimately to broader economic growth. The methods employed for the calculations of such effects include (but are not limited to) input-out analyses and GE models, while exports analyses are mostly excluded, for the limitations discussed in Section 4.2.1.

### 5.3.1 Local and National Labour Markets

In most OECD countries, upon their arrival, international students can enter the host country's labour market automatically or with an additional permit.<sup>14</sup> Governments commonly support the attraction and retention of international students with various policies intended to provide businesses with a constant stream of young skilled workers.<sup>15</sup> However, international students can represent a sizeable shock to the labour force and the demographic composition of local communities (Borjas, 2005; Moskal, 2016). For these reasons, labour market effects are studied to formulate the best integration policies and help both employers and employees navigate the changes brought by the influx of international students.

The local labour market effects of the entrance of a large number of young migrants in the host country can be disruptive and long-lasting. On average, they rejuvenate the labour force, diversify it, and, overall, increase its size (Beine et al., 2022; Han et al., 2022). Through their non-tuition private expenditure, international students can also drive-up local demand and supply indirectly, creating jobs in specific industries, like housing, hospitality, and tourism. For example, through an input-output model, it was calculated that out of the estimated 2,900 jobs supported by international students in Sweden in the academic year 2017-2018, almost 30% were in the hospitality sector (Oxford Economics, 2020). For Hungary, in 2020, it was calculated that 96.7% of the employment generated by international students was concentrated in hospitality, real estate, transportation, and warehousing (Tempus Public Foundation, 2020).

Furthermore, if international students become active members of the labour force during their studies and/or after graduation they may even end up conditioning the local labour demand. For instance, student cities often have jobs in which host country language proficiency is not required, making it easier to hire international students. For example, employers in university cities in the Netherlands like Amsterdam, Utrecht, and Rotterdam frequently do not require Dutch language proficiency for entry-level and part-time jobs (Centraal Planbureau, 2019). In addition, depending on their level of education and field of study, international students may concentrate in specific high-skilled occupations.<sup>16</sup> The United States provides a notable example of this. There, about 9.5% of the high-skilled labour force in

14 The type and the duration of the permit issued to international students to work during studies impact not only the quantity, but also the quality (in terms of grades), of the international students that enrol in the host country. For further evidence, see Amuedo-Dorantes et al. (2020) and Dam et al. (2018).

15 The skill level of international students depends also on whether they are bachelor's, master's, or PhD students.

16 Han et al. (2022) conducted a critical review of the factors influencing the integration of international students in the host country's labour market after graduation. These included host country cultural knowledge, language fluency, motivation, family structure, and immigration status.

2014 was made up of individuals who first entered the country on a student visa and then transitioned to a temporary or permanent work visa. In the IT sector, the share was significantly higher at 15.7% (Bound, 2015). In Europe, Estonia presented a similar picture, as evidence from 2020-2021 showed that international students who stay in the country upon graduation tended to concentrate in IT, engineering, manufacturing, business, and administration jobs (Statistics Estonia, 2022).

These local and sectoral developments are felt also at the national level. Estimates show positive effects on the total number of jobs created by international students in several OECD countries over the years. Through the application of an input-output approach to national statistics on enrolments and survey data, comparative evidence for Austria, Germany, the Netherlands, Poland, Spain, and Switzerland showed that in 2011, for every 10 international students, 1.5 jobs were created in Austria (5,000 overall), 1.4 in Germany (22,000 overall), 1.5 in the Netherlands (8,000 overall), 2.3 in Poland (5,700 overall), 1.6 in Spain (11,500 overall), and 1.8 in Switzerland (4,100 overall) (Prognos, 2013). More recent findings from Latvia showed that every 10 international students supported about 2.7 jobs (1,474 jobs overall) in the 2015-2016 academic year (Domnīca Certus, 2016). For the United States, the country accounting for around 20% of all international students in the OECD area, the figures showed that international students supported 306,308 jobs through their expenditure in the academic year 2020-2021 (0.2% of the total jobs in the country). In other words, for every 10 international students, more than three jobs were supported in the United States through expenditure on accommodation, food, retail, and transportation sectors (Nafsa, 2023). This finding on the expansion of the labour supply caused by international students is corroborated by recent evidence from Beine et al. (2022). They showed that an additional international graduate increases the local supply of skilled workers by about 0.2 workers, as they tend to stay in their state of study.

In other major recipient countries like Australia and Canada, international students made up about half of all temporary workers in the national labour force in 2017. The OECD (2018) showed that, in full-year full-time equivalent (FY/FTE) terms, international students made up 1.3% of all workers in Australia and New Zealand, and 1.1% in Canada. In the other countries, their maximal potential contribution was 0.4% or less. Given the limits some countries place on the maximum number of hours international students can work during courses and study breaks, like 20 hours per week during courses in Australia, Canada, and New Zealand, it is more difficult to estimate the exact contribution of international students to the employed population. In a recent calculation, the OECD (2018) assumed that the average international student worked 25% of the maximal hours of work allowed per year by the permit rules. Following this assumption, in Australia, Canada, and New Zealand students added up to 0.4% of the employed population, and 0.1% or less in other countries.

However, as classical economic theory would predict, when international students enter the labour market, they may also produce negative spillover effects on natives. Governments may be concerned that intra-sectoral labour market shifts may lead to the displacement of native-born workers (i.e., international graduates become more appealing to local businesses and act as substitutes of natives) (Card, 2001; Kerr and Kerr, 2011). Early research for the United States looked at the impact of the rising share of doctorates awarded to international students – interpreted as an exogenous labour supply shock – had on the salaries of competing workers, whether foreign-born or not. As the theory on intra-sectoral labour shifts would predict, an exogenous increase in the supply of foreign students showed a significant negative effect on the earnings of competing workers. As a consequence, fewer Americans may decide to look for jobs in fields dominated by international graduates, like IT (Borjas, 2005).

For Italy, instead, more recent findings showed that international education boosted the employment probabilities and the career perspective of Italian undergraduate students upon return to the home country (d’Hombres and Schnepf, 2021). Despite higher employment, there was also evidence that international students, often during studies, take up jobs in the hospitality and catering sectors that Italian native-born individuals would not choose, favouring the development of a de-facto dual labour market (Brandi et al., 2012). Similar disparities between the jobs of international students and natives were found also in Germany and Japan, where, at the national level, international graduates seemed to be employed in less-rewarding professions that native-born peers preferred not to perform (Liu-Farrer and Shire, 2020).

In conclusion, the influx of international students significantly impacts local and national labour markets in both the short and long term. In the short term, their non-tuition expenditure boosts local demand and support jobs in industries such as housing, hospitality, and tourism. In the long term, their integration into the labour force enlarges the supply of skilled workers, especially in fields like IT, engineering, and business. Although there can be potential negative spillover effects on native workers, the overall expansion and diversification of the labour market brought about by international students contribute to economic dynamism and growth.

### 5.3.2 Technological Innovation

The impact of skilled immigration on technological innovation is a long-researched topic, with evidence of positive effects (see seminal work by Bot-tazi and Peri (2003) and more recent evidence from Bernstein et al. (2019), OECD (2024a), and Ortega and Peri (2014)). As the population of international students has steadily increased since the 2010s, new literature has begun to assess the contribution of this growing type of skilled migrants to technological innovation. International students represent a specific subset of young skilled migrants who can contribute to technological innovation

both directly and indirectly, given their relative high employability. They often bring diverse perspectives, different abilities, and knowledge from their home countries, enriching the business environments of the host countries.<sup>17</sup> This diversity encourages creativity and novel approaches to problem-solving, which are fundamental for technological progress. Furthermore, international students frequently participate in advanced research projects and collaborative ventures with local industry, during and after their studies, directly contributing to innovative outputs (Beine et al., 2022).

Higher education institutions and international companies argue that their ability to make profits, develop knowledge, and, in the longer term, contribute to technological innovation depends also on unbound access to the brightest students they can attract (Bound et al., 2021). Technological innovation as an indirect outcome of increasing internationalization in higher education is usually measured by the number of new patents filed in a university city or by the research output associated with rising enrolments of international students. As expected, generally master's and PhD students produce bigger effects than bachelor's students (Hunt and Gauthier-Loiselle, 2010).

In the United States, the presence of international students in higher education and the possibility of innovation spillovers have received considerable attention. Early evidence found that the rising labour market participation of international students had a significant positive impact on both future patent applications and future patents awarded to university and non-university institutions. More specifically, a 10% increase in the number of international graduate students raised patent applications by 4.5%, university patent grants by 6.8%, and non-university patent grants by 5.0% (Chellaraj, 2008). For PhD students in science and engineering (S&E) – two fields closely tied to innovation and with disproportionately higher participation of international students, particularly from China and India – both domestic and international students significantly increased the scientific output of higher education institutions (Center for Security and Emerging Technology, 2020; Stuen et al., 2012). Notably, the effect is found to be strongly positive for high-performing international students, such as those who benefit from merit-based scholarships (Stuen et al., 2012). For the specific subpopulation of Chinese doctoral students in Science, Technology, Engineering, and Math (STEM) in the United States – approximately 36,000 individuals in the academic year 2018-2019 (Feldgoise and Zwetsloot, 2020) – it was estimated that, on average, they performed as well as or better than the very top native students, with a strong record of publications during their doctorates (Gaulé and Piacentini, 2013).

The matter has received somewhat smaller attention in other countries, with mixed findings. In Canada, where the points-based immigration

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17 The knowledge and the culture that international students bring with them depend also on their country of origin.

system aims at attracting the most talented workers from abroad, STEM graduates generated lower patenting rates than corresponding native-born students and STEM graduates in the United States (Blit et al., 2020). The more modest contribution of Canadian immigrants is possibly explained by the fact that only one-third of Canadian STEM-educated immigrants found employment in STEM jobs, compared to two-fifths of the Canadian-born and one-half of US immigrants (Blit et al., 2020).

Further evidence from Australia, Spain, and the United Kingdom suggests that an initial study experience works as an effective trampoline toward entrepreneurship and innovation. A recent study from Australia looked at the effect of a skilled visa program allowing international graduates from higher education institutions to temporarily live and work in Australia on innovation outcomes at the regional level. The findings showed a positive impact of the visa program on the number of patent applications, indicating a positive effect of the skilled immigration visa program on regional innovation (Crown et al., 2020). For international students from Spain, it was found that participating in the Erasmus programme, i.e., credit mobility, had a positive effect on the probability of becoming an entrepreneur upon return and on IT skills formation (Conti et al., 2016). Similarly, for the United Kingdom in 2014, it was estimated that 60% of international students were more likely to become entrepreneurs in the host country as a result of studying there (London Economics, 2023).

In sum, international students significantly contribute to technological innovation in their host countries through their diverse perspectives, specialised skills, and active participation in research and industry collaborations. Their presence in higher education institutions has been linked to increased patent applications and augmented scientific output, particularly in the STEM fields. While the impact varies across countries, evidence shows that international students drive technological advancement and foster entrepreneurship, with positive effects for economic growth beyond the mere income contribution.

### 5.3.3 Regional and National Growth

International students play a significant role in driving economic growth both regionally and nationally. Their presence in university cities opens immediate flows of income through tuition fees and living expenses, while their participation in the labour market and local economies stimulates job creation and business activity. Moreover, the skills and knowledge they acquire during their studies can lead to innovation and productivity gains, further enhancing economic development. By backing a multicultural and skilled workforce, international students help to create dynamic and competitive economic environments, which are essential for long-term growth and prosperity (Chevalier, 2022).

Generally, the changes brought by international students are mostly felt in university cities. Municipalities and metropolitan areas in the main

destination countries welcome international students to their universities to benefit from the spillover effects that these institutions spawn for the public and private sectors. In this way, international students can work as a powerful engine towards regional development. Capital cities like Auckland, London, Paris, and Tokyo, are at the core of international education. With a long history shaped by globalisation, they host some of the world's leading universities and a diverse mix of higher education institutions. These attract talented students, vitalise local economic activity, and supply businesses with an always-fresh pool of skilled workers.

In Auckland, revenues from international students amounted to NZD 2.2 billion in 2015 (around 64% of the national total), with over 16,000 jobs in the region supported by international students. No other region was comparable in absolute terms for international student numbers or earnings (Infometrics and National Research Bureau, 2016). Strong regional patterns emerged also in Canada, where, Ontario, the region with the highest number of international students in the country, made the largest contribution to national GDP in 2018 with 55.3% of the total (CAD 19.5 billion), followed by British Columbia with 19.8% and by Quebec with 11.9% (Global Affairs Canada, 2020). In Australia, where international education is the country's third-biggest export industry, in 2018, 97% of international students resided in the country's major cities, like Melbourne and Sydney (International Educational Association of Australia, 2019). This concentration of skilled migrants induces economic growth in the surrounding regions both in the short- and the long-run (Chowdhury, 2022).

In Europe, in the academic year 2013-2014, Paris and the surrounding Île-de-France region hosted 28% of all the international students in France (Campus France, 2014). For London, in the same academic year, the share was slightly lower at 22% (around 66,000 students). This meant that 18% of the city's total student population (366,605) was made of international students (London First and PWC, 2015). In addition, it was estimated that the city received GBP 2.8 billion in fees and non-fee expenditure from international students (0.8% of the city's GDP in 2014) (London First and PWC, 2015). Recent evidence from Hungary showed that between 72.4% and 90.5% of international students' spending was located in the country's four main university cities in 2020, with Budapest on top. The Hungarian capital was also the city where the effect of spending on employment was felt the most with 51.3% of the national employment impact being measured there (Tempus Public Foundation, 2020).

Estimating the overall effects at the national level is more challenging, as it involves the inclusion in the calculation of multipliers to model the impact of the economic effects from one region to others, through the methods discussed in Sections 5.2.2 and 5.2.3, for example (Levent, 2016). Bergerhoff et al. (2013) provided an early but critical contribution. They set up a two-country endogenous growth model to find that international student mobility increased national growth for both countries on average by 0.013 percentage points. These effects also varied by the sizes of the

two countries in the model. For example, a small country that receives a sustained inflow of students from a larger country could experience an extra growth of around 0.05 percentage points. This positive effect of international students on national growth are driven by mechanisms such as human capital accumulation, knowledge spillovers, labour market integration, and network effects. In turn, the positive effect of international students on national growth increases when a country designs its education and migration policy to facilitate the retention of international students and their integration in the labour market, as discussed in Section 5.3.1 (Bergerhoff et al., 2013).

A recent survey of the literature on international students and economic growth by Chevalier (2022) supports these findings. Most studies report positive growth effects for both sending – through income remittances and return migration – and receiving countries – through the mechanisms discussed above (Amanzadeh et al., 2024). Chevalier (2022) emphasises that the benefits of international student mobility extend beyond the immediate economic gains, contributing significantly to the long-term development and competitiveness of host economies, as discussed in Sections 5 to 5.3. The largest benefits are reaped by international students themselves, who gain valuable skills, knowledge, and global networks that enhance their career prospects and earning potential (Chevalier, 2022).

## 5.4 THE IMPACT OF COVID-19

Sections 5.2 and 5.3 have discussed the literature on the economic contribution of international students on the receiving country in terms of income received and more, emphasising their impact on the labour market, technological innovation, and overall economic growth. However, recent global events, including the Covid-19 pandemic, have introduced new dynamics and challenges to international higher education. This section examines how these changes have affected international student enrolments and revenues. As cross-country evidence on the economic effects of the pandemic on higher education is very limited, this section aims to provide a new valuable contribution to the literature.

In 2020, the Covid-19 pandemic came as an unexpected shock to international education and mobility, forcing most educational institutions to move at least part of their programmes online. Differences in the rates of contagion and in the governmental policies implemented to contain it had important repercussions on the decisions that educational institutions made in the academic year 2019-2020 and the following ones. Some universities were able to adapt quickly and move their full programmes online, while others lagged behind (Mbous et al., 2024; Van De Velde et al., 2021).

While Covid-19 vaccines started being deployed in most OECD countries since December 2020, the World Health Organization (WHO) declared the global health emergency caused by the Covid-19 pandemic to have

ended only in May 2023 (Reuters, 2023). This means that the academic years 2019-2020, 2020-2021, 2021-2022, and 2022-2023 are the ones at least partially impacted by the pandemic. Nonetheless, most high-income countries were able to go back to some forms of in-person education already from 2022 (Zhao and Xue, 2023). Thus, it follows that the most acute and immediate consequences of the pandemic are likely to be found in 2020 and 2021. Instead, the long-term impact on the modes of education, like an increase in online programs and remote teaching, and the well-being of the students, like the educational and social opportunities missed due to the lockdowns, may persist in later years.<sup>18</sup>

To conduct a descriptive analysis of the impact of the Covid-19 pandemic on international students, I study OECD data on the changes in enrolments and direct revenues from international students, with enrolments data available up to 2021 and revenues data available up to 2022. The enrolments data are from the OECD's yearly publication *Education at a Glance* (2023), where the variable 'enrolment of international students by country of origin' is included, but no analysis similar to mine is performed. The data on direct revenues from international students are from the OECD Statistics on International Trade in Services database (OECD, 2024b).

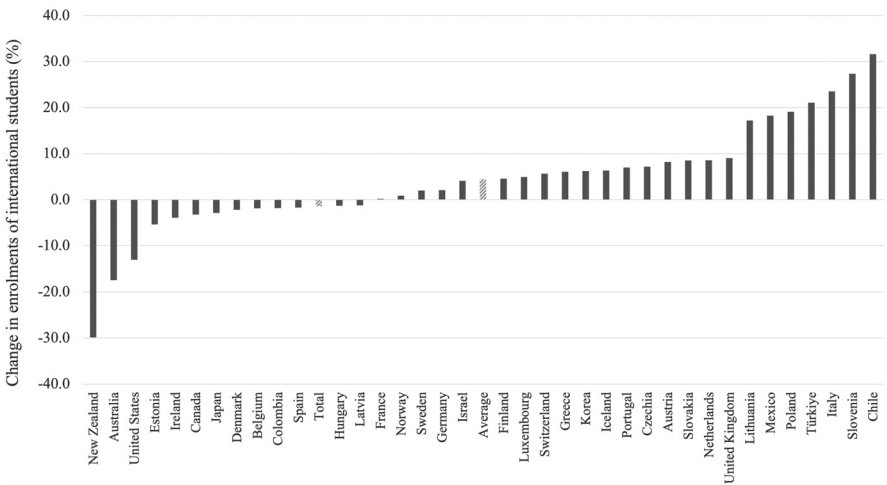
Before Covid-19, in the years from 2013 to 2019, the number of international students enrolled at tertiary institutions had grown at a rate of between 200,000 and 300,000 additional enrolments per year, both in more traditional and in more recent recipient countries (see Figure 5.1 in Section 5.1). From 2.8 million in 2013, until reaching the record figure of almost 4.4 million in 2020 (OECD, 2023). For most countries, enrolments statistics from 2020 refer to the academic year 2019-2020, which started in the fall of 2019, before Covid-19 became a pandemic. Therefore, the effects of Covid-19 on enrolments are captured from 2021, the first year fully impacted by the pandemic and by the measures government adopted to contrast it. Despite the significant disruption brought by the pandemic to the ordinary modes of instructions, international travel, and the well-being of the students and the staff, total international student enrolments in the OECD did not experi-

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18 Most of the very recent literature on Covid-19 and international education has focused on the effects of the pandemic on the well-being of the students, as a particularly vulnerable migrant group, given that they often move with no established network in the host country. For cross-country evidence, see Van De Velde et al. (2021). For country-specific evidence, see Nguyen and Balakrishnan (2020) for Australia, Firang (2020) for Canada, Zhao and Xue (2023) for the United Kingdom, and Mbous et al. (2024) for the United States.

ence a considerable drop in 2021.<sup>19</sup> Instead, there was a more modest 1.4% decrease, with a high degree of cross-country heterogeneity.<sup>20</sup>

Figure 5.3 Changes in enrolments of international students (%), 2020-2021



Source: author’s elaboration from the data (OECD, 2023).

Figure 5.3 above shows that the countries experiencing the biggest enrolment drops in 2021 were the usually-high-profiting English-speaking ones. New Zealand suffered a 29.9% drop, Australia 17.4%, the United States 13.0%, Ireland 3.9%, and Canada 3.3%. These downward movements signalled that, although higher education was a profitable export industry, it was not immune to external demand shocks (e.g., no international students available ‘to buy’ the host country institution’s education). The reasons why these specific countries experienced bigger drops than others could have been purely geographical. The distance from destination countries like Australia, Canada, and New Zealand might have led prospective students from Europe and Asia to prefer enrolling in their home or neighbouring countries. Policy factors also played a role. For example, Australia and New Zealand closed their borders almost completely until late 2022.

In contrast to the decrease of the total number of enrolments, the average per-country change in enrolments, which is calculated by taking the unweighted mean of all changes in enrolments across countries, was a 4.4% increase (OECD, 2023). This is because, contrary to what could be expected,

19 Only countries like Australia and New Zealand, where the academic year started in the early months of 2020 when Covid-19 was already spreading, exhibited 10.0% and 17.6% decreases in enrolments in 2020.

20 As explained in Section 5.1, total enrolments are calculated by summing all new enrolments in the OECD. The average change in enrolments is calculated by taking the mean of all changes in enrolments across OECD countries, not weighted. The same calculation applies to total and average revenues.

several countries witnessed increasing enrolments in 2021. These included traditional recipient countries like Italy (23.5%), the United Kingdom (9.0%), and the Netherlands (8.5%), which were quick in moving courses and exams online, but also countries that became popular international student destinations more recently, like Chile (31.6%), Slovenia (27.3%), and Turkey (21.1%). It is noteworthy that out of the 25 European OECD countries, only 7 reported negative changes in enrolment, while 18 reported positive changes.

Geographical proximity is a known factor influencing the decision to move of international students (Vortisch, 2024). Given the geographical distance of prospective European international students from traditional destination countries like Australia, New Zealand, and the United States and that intra-European mobility remained relatively easy during the Covid-19 pandemic, it is possible that European international students preferred to enrol in a neighbouring country rather than traveling out of the continent.<sup>21</sup> Unfortunately, data for international student enrolments in 2022 and 2023 are not available yet and it is not possible to see whether these changes in enrolments endured also in the final years of the pandemic.

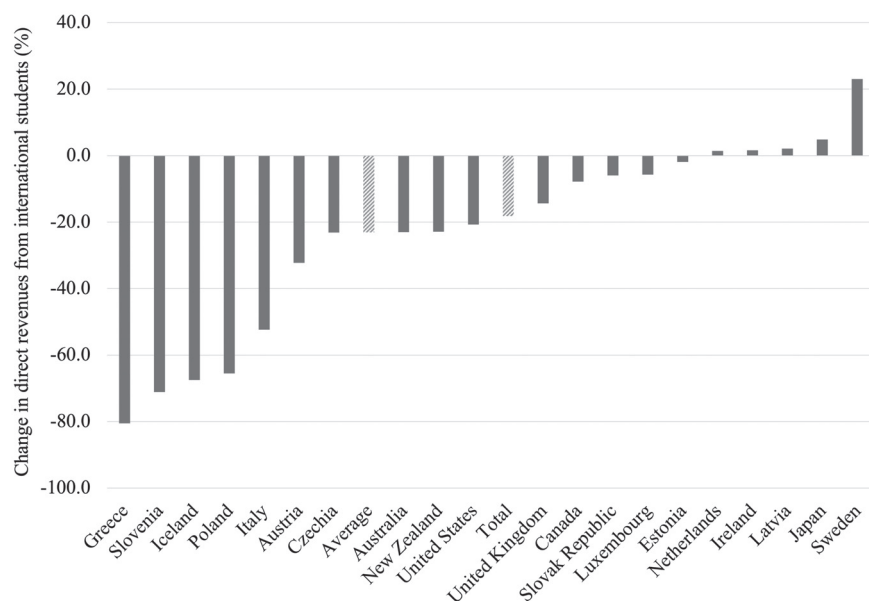
The aforementioned trends in international enrolments have had immediate repercussions on the revenues generated by international students in host countries through the direct and indirect effects discussed in Sections 5.1 and 5.2. To calculate the direct impact of international students on the economies of the receiving countries during the Covid-19 pandemic, I apply an exports approach, as described in Section 5.2.1. The method used for my analysis is the same as that adopted in the most recent cross-country study by the OECD (2022) and in several single-country studies by OECD member countries (such as Estonia, France, Ireland, New Zealand, and the United States). It involves comparing trade statistics from the national balance of payments of the host country to calculate the direct income contribution of international students to the economy. In its simplest form, the contribution is calculated by adding the statutory tuition fees and the average non-tuition fee expenditures per international student (and their visitors), then multiplying the result by the total enrolments.<sup>22</sup> This approach ensures immediate cross-country comparability of the statistics on the direct revenues generated by the export of education-related services to international students and includes both tuition fee income and non-tuition fee private expenditure, while excluding indirect effects.

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21 Given that most educational programmes had moved completely online by 2021, it is also possible that international students did not find it worthwhile to move to distant destination countries to attend classes exclusively online.

22 As explained in Section 5.2.1, tuition fee expenditure is directly taken from the balance of payments of higher education institutions. Instead, non-tuition fee expenditure per international student is an approximate measure imputed by the host country's statistical authority based on the consumption behaviour of the average international student. Therefore, it might be a less accurate than tuition fee expenditure.

Figure 5.4 Changes in direct revenues from international students (%), 2019-2020

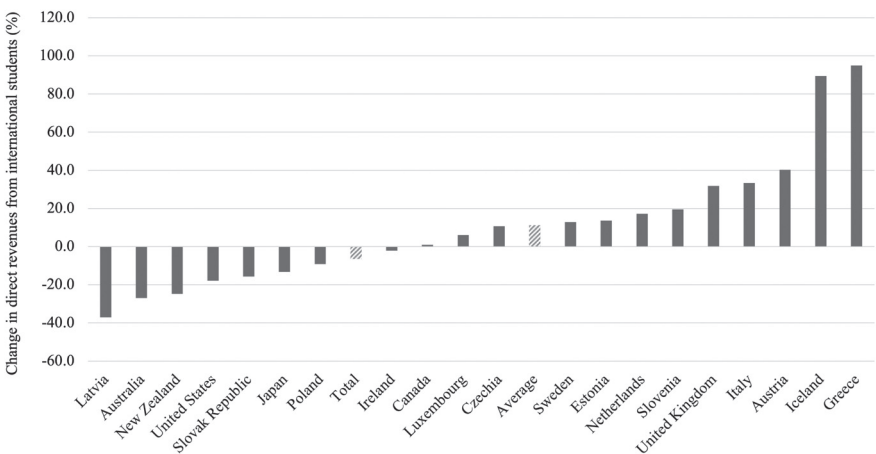


Source: author's elaboration from the data (OECD, 2024b).

The changes in the direct revenues from international students in OECD countries from before the Covid-19 pandemic up to 2022 reveal significant shifts in economic dynamics within the higher education sector.<sup>23</sup> Analysing the changes from 2019, the last year not impacted by Covid-19, to 2020 (Figure 5.4 above), several countries suffered considerable drops in revenues, with Greece experiencing the most significant decrease of 80.5%, followed by Slovenia at 71.1%, and Iceland at 67.5%. These declines led to an average decrease of 23.1% in direct revenues across OECD countries. Major recipient countries like Australia, New Zealand, and the United States also experienced significant declines. Interestingly, despite enrolments not significantly dropping in most countries, direct revenues had already decreased in 2020. This was because tuition fee payments were halted or halved in several countries, and private expenditure largely dropped due to lockdown restrictions. It is likely that indirect contributions, not quantifiable through an export approach, also significantly decreased to different extents in different countries.

23 Data on the exports on education-related services, which in an export approach measure direct revenues from international students, are available until 2022. Unfortunately, as discussed in the main text, enrolments data are available until 2021 and, therefore, it is not possible to compare enrolments and revenues in 2022. Data on the enrolments of international students in 2022 will become available with the OECD's publication of *Education at a Glance 2024* by the end of 2024.

Figure 5.5 Changes in direct revenues from international students (%), 2020-2021

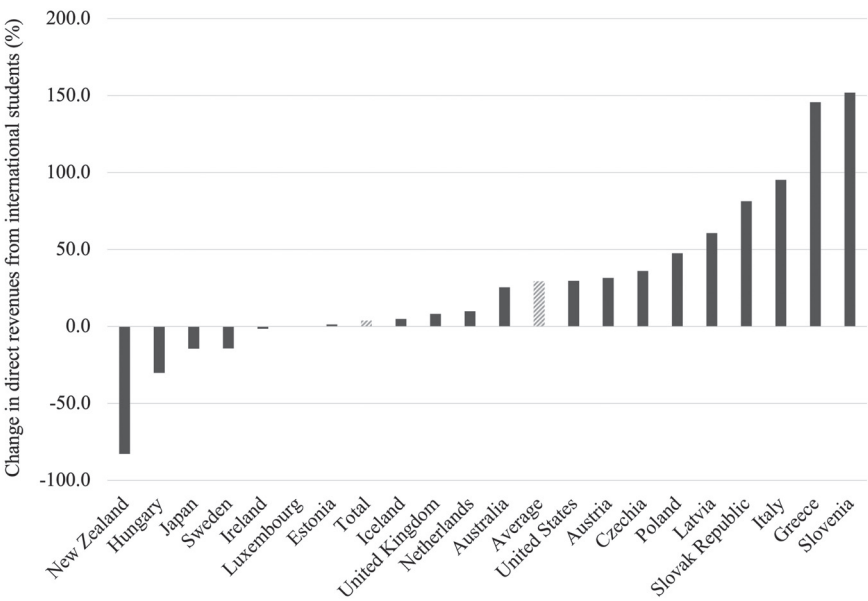


Source: author's elaboration from the data (OECD, 2024b).

In 2020-2021 (Figure 5.5 above), downward trends in revenues persisted, although less severe compared to the previous year. Latvia, Australia, and New Zealand experienced substantial declines. However, some countries showed strong resilience. For instance, Estonia, the Netherlands, and the United Kingdom showed positive growth in direct revenues from international students. These are some of the same countries where enrolments of international students grew as well in 2021. The average change in this period was an 11.2% increase, indicating a partial overall recovery, but with significant country heterogeneity.

In 2021-2022 (Figure 5.6 below), the data show a mixed picture of recovery and persisting declines. New Zealand faced a further staggering decline of 82.8%, signalling persisting difficulties in attracting international students even at a later stage of the pandemic. However, several countries, including Austria, Czechia, and Italy, demonstrated remarkable growth. For the reasons discussed above, like geographical proximity and relative easiness of travel in the EU during the pandemic, European countries often appear among those where revenues increased most, or decreased the least, during the pandemic.

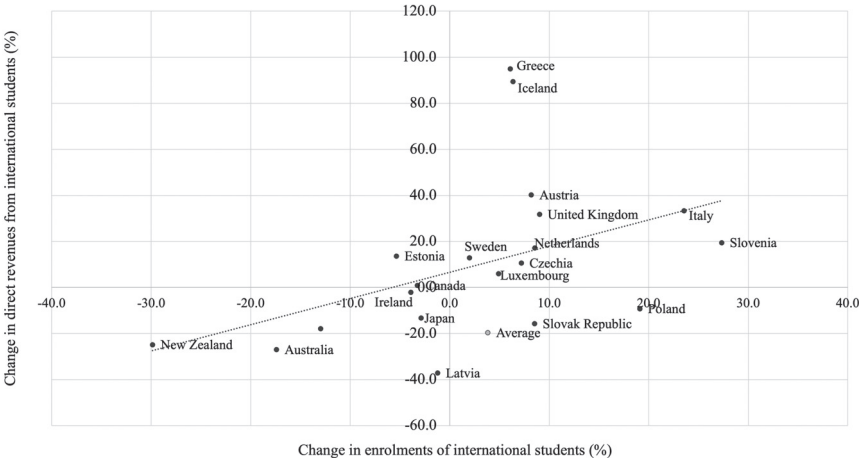
Figure 5.6 Changes in direct revenues from international students (%), 2021-2022



Source: author’s elaboration from the data (OECD, 2024b).

The trends in direct revenues from international students were largely driven by fluctuations in the number of enrolments already discussed. Figure 5.7 below shows that, from 2020 to 2021, the last year for which both enrolment and revenues data are available, countries experiencing significant declines in enrolment numbers also witnessed drops in direct revenues, highlighting the interconnectedness of these factors. Conversely, countries showing resilience or growth in enrolment figures often saw stable or increasing direct revenues. The correlation between the two metrics (0.43) underscores the importance of enrolment stability for the economic sustainability of the international higher education sector. However, the direct relationship between enrolments and revenues experiences different shifts from country to country because of the varying country-specific changes in the revenues’ components. First, during the pandemic tuition fees remained fixed in some countries, while they were reduced or suspended in others. Second, private expenditure by international students (and their guests) was limited by the lockdown measures imposed with varying degrees of strictness in all OECD countries.

Figure 5.7 Changes in enrolments and revenues of international students (%), 2019-2021

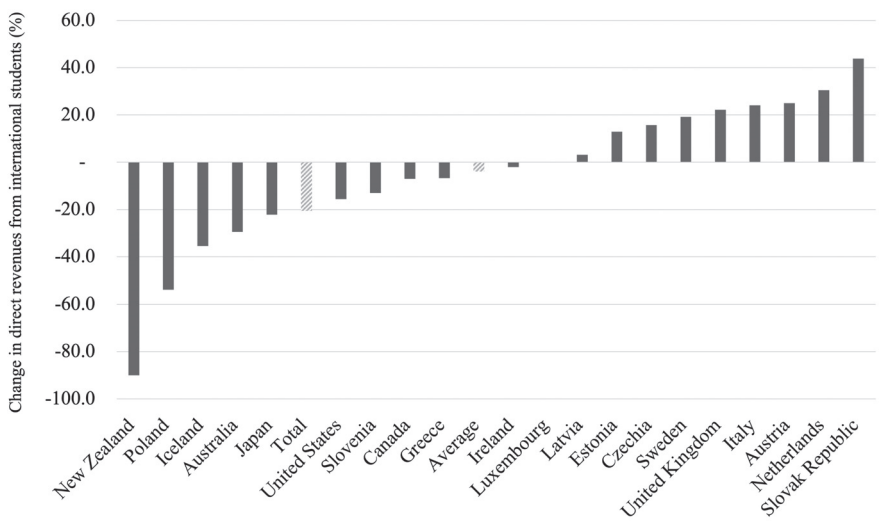


Source: author’s elaboration from the data (OECD, 2023, 2024b).

In sum, the data on enrolments and revenues reflect the complex and dynamic nature of international higher education in OECD countries amid the Covid-19 pandemic. While international enrolments decreased in some countries and increased in others, the total change in direct revenues from international students in the OECD from 2019 to 2022 is a decrease of 20.6% (Figure 5.8 below). As challenges have persisted until 2022 and total enrolments and revenues in the OECD have not caught up with pre-pandemic numbers yet, some countries, especially in Europe, experienced increases both in terms of enrolments and direct revenues from 2019 to 2022.

At this moment, the data do not allow to predict when total enrolment and revenues will match the record levels achieved before the pandemic. Given that the total decrease in revenues has been considerably higher than the decrease in enrolments, mostly due to the severe drops in Australia and New Zealand, it is likely that revenues will return to pre-pandemic levels after enrolments recover. It also remains to be seen whether the increase in international students in Europe during the pandemic was only temporary or if it will persist in the long run. If persistent, this would represent an important shift in international higher education trends, potentially limiting the predominant position of English-speaking countries outside of Europe.

Figure 5.8 Overall changes in direct revenues from international students (%), 2019-2022



Source: author’s elaboration from the data (OECD, 2024b).

5.5 CONCLUSION

The economic impact of international students in OECD countries is a complex phenomenon with far-reaching implications for both the sending and receiving countries. As evidenced by the extensive literature review presented in this study, the contributions of international students to the economy of the host country expand beyond direct income gains via tuition fee and non-tuition private expenditure to encompass a wide array of indirect effects. From stimulating demand in various sectors to fostering technological innovation and regional growth, international students play a significant role in shaping the economy of their host country.

The three main methods employed in the literature to calculate the income received from international students by the host country are the exports approach, the input-output approach, and the general equilibrium approach (GE). Each of these methods offers valuable insights into different aspects of the phenomenon. While the exports analysis provides accounting figures exclusively for the direct revenues from international students during their studies, input-output and GE models are designed to include indirect and long-term effects as well, albeit with important limitations. Generally, most studies on the subject are country-specific and provide little comparative evidence. From the findings in the literature, it appears that the countries receiving the highest direct revenues from international students during their studies are the English-speaking ones that have been in the market the longest: the United States, Australia, and the United Kingdom.

This study considers the economic impact of international students also beyond the immediate income gains and looks at the effects on local and national labour markets, technological innovation, and regional and national growth in the longer run. These effects are the strongest for local businesses and industries, university cities, and the surrounding areas. However, most of the models employed until 2020 for the calculations of the long-run economic effects have been based on pre-Covid-19 factors and might need to be updated. As the possibilities for remote studying and remote working considerably increased during and after the pandemic and the most recent trends show European countries gaining a higher share of international students, it remains to be seen whether the models built before the pandemic are still accurate.

The Covid-19 pandemic introduced unexpected challenges to international education, with different consequences depending on each country's location and policies. While some countries, mostly the ones most difficult to reach during the pandemic, experienced significant declines in enrolments, others, mostly the European countries, saw remarkable increases. This underscores the complex interplay of variables influencing the students' decision to move or not to move during times of crisis. Through the application of an export analysis based on the most recent OECD data, the findings of this study reveal significant declines in direct revenues from international students in most countries, particularly in 2020 and 2021, followed by a mixed picture of struggles and recovery in 2022. Countries experiencing declining enrolments also witnessed drops in direct revenues. Conversely, countries that demonstrated resilience or growth in enrolments often saw stable or increasing direct revenues. The relationship between enrolments and revenues was influenced by country-specific factors like the Covid-19 national and international restrictions, institutional policies on the modes of instruction, and the adaptability of universities to the pandemic.

Looking ahead, the literature has several open venues for future research. First, large comparative studies on the economic effects are still limited. Despite the adoption of an export approach allowing for comparisons across countries of the direct economic impact of international students during studies, the available cross-country evidence is scarce. Comparative studies inform countries of best practices in the industry and can provide important advice on the directions to follow. It remains to be seen whether it would be possible to adopt methodologies that estimate indirect effects across countries and over time without making country-and-time-specific assumptions. Second, most studies tend to ignore the costs associated with the intake of international students and focus only on the immediate benefits. Including a calculation of the costs can orient the debate and policy decisions based on facts, ensuring a more balanced and informed evaluation. Finally, precise estimates of the post-study impact are even rarer due to the difficulties in tracking international students post-graduation and in quantifying their long-term economic contributions. The increasing quan-

tity of higher education data becoming available over time will allow such studies to grow in both the quantity and quality of the analyses.

It is important for policymakers and stakeholders in higher education to adapt to the evolving landscape of international education, taking into account the lessons learned from the pandemic and the decade of sizeable growth that preceded it. Policymakers should also ensure that the economic analysis includes both benefits and costs to inform balanced and effective policy decisions. An evidence-based approach can help in devising strategies that not only attract international students but also heighten their positive impact on the host country's economy and society. There is increasing evidence that international students are one of the potential drivers of employment, technological innovation, and economic development in the receiving countries. By creating an inclusive and supportive environment and updating their attraction and retention policies to a post-pandemic world, countries can maximise the benefits of global talent mobility, while tackling the challenges of globalisation.

## 5.A ADDITIONAL TABLES

Table 5.2 Recent studies on the economic impact of international students in OECD countries

| Country            | Approach and data                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Estimated economic benefits                                                                                                                                                                                                                                                                                                                                          | Years                   | Author                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------|
| Australia*         | The approach adopted was exports-based. To model the economic contribution from student expenditure on fees and living expenses, different lines of revenues were considered. Enrolment data were based on 2014 figures, while revenue and consequent contribution to value added and employment were based on income year 2014-2015 figures.                                                                                                                      | International education was estimated to contribute AUD 17.1 billion to Australia's GDP in 2014-2015. The export revenues were estimated to support over 130,700 Full Time Equivalent (FTE) employees in 2014-2015, accounting for 1.3% of Australia's total employment.                                                                                             | Academic year 2014-2015 | Deloitte Access Economics, 2015 |
| Austria            | Based on an analysis of the literature, an input-output model was developed to quantify the income contribution of international students. The data were from a survey administered by Prognos AG and from the statistical offices of the country considered.                                                                                                                                                                                                      | The value added calculated for international students amounted to around €8,000 per individual. Every 10 international students, 1.5 jobs were estimated to be added to the Austrian economy (8,800 in aggregate). The aggregate value added by each graduate amounted to around €74,000.                                                                            | 2011                    | Prognos, 2013                   |
| Belgium (Flanders) | The methodology used a cost-benefit analysis, by which the direct and indirect benefits and costs of international students were calculated. The long-term impact of international students was examined by estimating the stay rate after graduation and the subsequent contribution to the national economy. Data on students were taken from the Flemish Ministry of Education and stay rates data were taken from the Flemish Government Social Security Data. | Regarding direct contribution: the private social contribution made by students (e.g., due to student jobs) is close to €48 million, tuition fee income is close to €57 million, while the non-tuition fee income from spending amounts to nearly €630 million. Furthermore, long-term benefits are estimated to be a variable amount between €4.2 and €5.6 billion. | Academic year 2015-2016 | De Witte and Soncin, 2021       |
| Canada             | An input-output model was built upon extensive secondary research involving reviewing literature, collecting existing statistical data and information, as well as consulting with representatives from the provincial and territorial education sectors, and representatives from organizations researching trends in international education in Canada and its provinces.                                                                                        | The combined direct and indirect contribution of all international student expenditures amounted to CAD 19.7 billion. In terms of employment, 218,577 jobs.                                                                                                                                                                                                          | 2018                    | Global Affairs Canada, 2020     |

| <i>Country</i> | <i>Approach and data</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>Estimated economic benefits</i>                                                                                                                                                                                                                                                                                                                                                                                                    | <i>Years</i>            | <i>Author</i>                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------|
| Denmark        | A cost-benefit analysis was carried out by the Danish Ministry of Education from national registry data. The average net contribution per international student is calculated on the basis of students from the period 2004-2015 with a focus on the year groups that started in the period 2004-2007. This follows the behaviour of the international students for up to 11 years after the start of their studies.                                                                                  | Approximately one in four international students in a bachelor programme was estimated to make a positive net contribution to public finances. In the master's programmes, a little more than one in three was estimated to make a positive net contribution. Overall, including those who left Denmark immediately after graduating, each student contributed on average between DKK 2,000-7,500 per year from the start of studies. | 2004 to 2016            | Danish Ministry of Higher Education and Science, 2018 |
| Estonia        | An export analysis was performed on population census data collected by Statistics Estonia.                                                                                                                                                                                                                                                                                                                                                                                                           | International students paid €3.6 million in income tax and €7.8 million in social contributions, which is an increase of more than €1 million year on year. The total tax receipts from international students who graduated in the academic year 2019-2020 and continued working in Estonia was €4.5 million.                                                                                                                        | Academic year 2019-2020 | Statistics Estonia, 2022                              |
| Finland        | The data are from the national statistical office, Statistics Finland. The analysis starts from an export approach and then the input-output model is built.                                                                                                                                                                                                                                                                                                                                          | International students contributed €81 million to the Finnish economy. The calculation took into account the resources used for education, the net annual tuition fees received, the indirect income transfer effects resulting from the students' consumption and work, and the income earned by foreigners who graduated in the period from 2009 to 2019.                                                                           | Academic year 2019-2020 | Suhonen et al., 2022                                  |
| France         | An export approach was built on survey data. Between February and April 2022, a 50-question survey was distributed to 9,992 international students who had stayed in France in the last three years. This sample was made representative of the 302,863 international students in France via statistical adjustment, applied on four determining criteria: student's geographic origin, type of higher education institution attended, level of study, and receipt of French government scholarships. | International students contributed around €5 billion to the French Economy. The net contribution was €1.3 billion, after subtracting the imputed costs.                                                                                                                                                                                                                                                                               | 2022                    | Campus France, 2022                                   |

| Country | Approach and data                                                                                                                                                                                                                                                                                                                                                                                                                                            | Estimated economic benefits                                                                                                                                                                                                                                                                                                                                                                                                                                     | Years                   | Author                                           |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------|
| Germany | Based on an analysis of the literature, an input-output model was developed to quantify the income contribution of international students. The data were from a survey administered by Prognos AG and from the statistical offices of the country considered.                                                                                                                                                                                                | International students generated €400 million in tax revenues and created 22,000 jobs. Since education in Germany is predominantly public and tuition-free, the state shoulders considerable costs, but these expenditures were estimated to amortise if 30% of international graduates stayed and worked in Germany for at least five years.                                                                                                                   | 2011                    | Prognos, 2013                                    |
| Hungary | Mixed methodology, using qualitative analysis primarily for expert interviews and focus group studies, and quantitative methods for questionnaire surveys. Regarding data sources, secondary data have also been used; data were provided by the Central Statistical Office, the National Tax and Customs Administration of Hungary, the National Spatial Development and Management Information System, as well as the Higher Education Information System. | Overall, the direct economic contribution by the students and their guests was HUF 180 billion through fees, living expenses, and tourism. Through their spending, students have an average employment effect of 8.3 workers added per 100 students. Considering the indirect effects and the intersectoral relations, the employment effect is close to 20,000 added jobs. Besides, students' spending also generated public revenues for over HUF 10 billion. | Academic year 2019-2020 | Tempus Public Foundation, 2020                   |
| Ireland | The approach used was exports-based. University fees' contribution to the economy estimations were carried out with export data from the Irish University Authority, while non-tuition fee expenses come from the Higher Education Authority's student survey.                                                                                                                                                                                               | Net contribution of international students from tuition fees was around €216 million. The estimated total non-tuition expenditure by international students was €119.5 million. The total annual export income generated for the Irish economy by international students was around €336 million.                                                                                                                                                               | Academic year 2017-2018 | Indecon International Economic Consultants, 2019 |
| Latvia  | The approach used was an input-output model built on survey data. 848 students were surveyed from a potential pool of 4,376, 80% of all those studying in Latvia in the 2015-2016 academic year. For the analysis of the indirect effects, OECD multipliers have been used.                                                                                                                                                                                  | International students directly contributed around €73 million to the Latvian economy. The indirect contribution was estimated around €75 million. The total impact of international students on the Latvian economy was estimated to be around €148 million (0.6% of GDP). Also, they contributed about €20 million a year to the Latvian budget in taxes and created about 1,474 jobs (2.7 for every 10 students).                                            | Academic year 2015-2016 | Domnīca Certus, 2016                             |

| <i>Country</i>  | <i>Approach and data</i>                                                                                                                                                                                                                                                                                                                                                                                        | <i>Estimated economic benefits</i>                                                                                                                                                                                                                                                                                                                                       | <i>Years</i>            | <i>Author</i>                  |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|
| The Netherlands | Microdata from the Dutch Central Bureau of Statistics were used to calculate the chances of staying and the labour market outcomes. The use of microdata for these calculations made it possible to distinguish between different groups of students. For the calculation of costs and benefits, a distinction was made according to type of education and origin (EEA or non-EEA).                             | Over the lifecycle, international students from the academic year 2021-2022 will generate a net contribution of €1.5 billion. The balance of income and costs during and after the study is positive for both EEA and non-EEA students, but the balance is much larger for students from non-EEA countries.                                                              | Academic year 2021-2022 | Elfferich, 2022                |
| New Zealand*    | The economic contribution associated with students' spending was estimated using a multi-regional input-output model. The assessment was delivered using a staged approach with a survey to collect information, an information review stage, and the modelling stage. The National Research Bureau coordinated the survey stage. Immigration New Zealand drew the samples and contacted the selected students. | International students delivered an economic contribution of NZD 5.1 billion to the New Zealand economy (4.8 on-shore and 0.3 off-shore) and supported an estimated 47,490 jobs. Visiting guests added an additional NZD 460 million to the economy.                                                                                                                     | 2017                    | Market Economics Limited, 2018 |
| Poland          | Based on an analysis of the literature, an input-output model was developed to quantify the economic contribution of international students. The data come from a survey administered by Prognos AG and from the statistical offices of the country concerned.                                                                                                                                                  | The gross value added per student amounted to €3,900. Every 10 international students add 2.3 jobs to the economy (5,700 in aggregate). The aggregate gross value-added effect per head was €22,100. The long-term tax revenues from indirect taxes on consumer goods and services as well as direct taxes on the earnings arising from job creation were around €1,200. | 2011                    | Prognos, 2013                  |
| Spain           | The estimation technique was based on an input-output model. The data were gathered from various public and private educational institutions.                                                                                                                                                                                                                                                                   | International students made an overall economic contribution to the Spanish economy of €3.7 billion (with an estimated multiplier effect of almost 2.3).                                                                                                                                                                                                                 | Academic year 2018-2019 | Gras-set and Menéndez, 2020    |
| Sweden          | For the calculations, an input-output model built on Swedish Higher Education Authority's data was employed. Student subsistence spending has been calculated using the cost of living in Sweden, produced by Study in Sweden, an organisation promoting Sweden as a higher education destination.                                                                                                              | International students' expenditure amounted to an estimated SEK 2.4 billion supporting around 2,900 jobs. The economic activity and employment sustained by international students' subsistence spending also generated SEK 660 million in tax revenues for the Swedish national and municipal government.                                                              | Academic year 2017-2018 | Oxford Economics, 2020         |

| Country        | Approach and data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Estimated economic benefits                                                                                                                                                                                                                                                                                                                 | Years                   | Author                 |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------|
| Switzerland    | Based on an analysis of the literature, an input-output model was developed to quantify the income contribution of international students. The data were from a survey administered by Prognos AG and from the statistical offices of the country considered.                                                                                                                                                                                                                                                                                                                                                                    | The gross value added per student amounted to €17,500. Every 10 international students, 1.8 jobs were estimated to be added to the economy (4,100 in aggregate). The aggregate gross value-added effect per student was around €24,400.                                                                                                     | 2011                    | Prognos, 2013          |
| United Kingdom | The approach adopted was an input-output model. The analysis focused on the aggregate economic benefits and costs to the UK economy associated with the 381,356 international students commencing their studies in 2021-2022, taking account of the total impacts associated with students over the entire duration of their study in the United Kingdom (adjusted for completion rates).                                                                                                                                                                                                                                        | The 2021-2022 cohort of international students delivered a net economic benefit of approximately GBP 41.9 billion, of which GBP 4.3 billion from EU students, and GBP 37.6 billion from non-EU students.                                                                                                                                    | Academic year 2021-2022 | London Economics, 2023 |
| United States  | The approach adopted was exports-based. Student enrolment data were provided by the <i>Open Doors</i> report published by the Institute of International Education in partnership with the Bureau of Educational and Cultural Affairs, US Department of State. Tuition and living expense data come from the US Department of Education's National Center of Educational Statistics Integrated Postsecondary Education Data System. Datasets used to calculate the number of jobs created or supported came from the US Department of Commerce, specifically International Trade Administration and Bureau of Economic Analysis. | International students contributed \$33.8 billion to the United States economy. International students also created or supported over 335,423 jobs. For every three international students, one US job was created and supported by private expenditure in the higher education, accommodation, dining, retail, and transportation sectors. | Academic year 2021-2022 | Nafsa, 2023            |

*Notes:* \*Australia and New Zealand produced reports also during the Covid-19 pandemic years. However, these reports do not correctly represent the pre-pandemic state of international higher education in these countries because, as discussed in the main text, they were the two countries hardest hit by drops in international enrolments and revenues. For this reason, I prefer to include older studies that are more representative of the period before Covid-19. *Source:* author's elaboration from the literature.



This dissertation conducts empirical analyses of various aspects of the socio-economic integration of migrants in high-income countries, as a pathway to social citizenship. Social citizenship extends beyond the legal status of migrants to include their participation in the economic, social, and civic life of the host country. By examining the labour market experience of first-generation migrants in the Netherlands, the net fiscal position (NFP) of migrants in Europe, and the economic impact of international students on the host countries, this research offers a broad view of the integration process.

The empirical analyses show that the successful integration of migrants is not only an important step towards social citizenship but can also significantly contribute to economic growth and demographic sustainability. Conversely, poorly managed integration can fuel social tensions, create additional costs, and exacerbate economic disparities. For example, in several EU countries, migrants often contribute to public finances more than natives, yet they also face greater risks of temporary employment and social exclusion. That is the case particularly among non-Western and extra-EU migrants. Such findings highlight how successes or challenges in one area of integration have consequences across others, emphasising the need for evidence-based policies that consider such interconnections.

This dissertation aims to make significant academic contributions by filling numerous gaps in the literature on the socio-economic integration of migrants in high-income countries. In addition to its academic contributions, this dissertation has direct policy relevance. It addresses the ongoing policy debate on immigration, which is often filled with concerns over security, cultural identity, and economic competition. By providing robust empirical evidence, the research offers a balanced view of the benefits and costs of immigration, supporting more informed and constructive dialogue. These insights have practical implications for improving social cohesion, economic output, and the overall well-being of both migrants and natives.

## 6.1 MAIN FINDINGS

The main research question of this dissertation is: *'How does the economic performance of migrants contribute to their socio-economic integration, as a path to social citizenship?'* As discussed in Chapter 1, social citizenship involves more than just voting rights; it includes full membership in the host society,

encompassing a broad range of rights and responsibilities. This dissertation analyses some of these aspects: participation in the labour market, contribution to the public finances, and access to the educational system. The findings suggest that socio-economic integration is an important step toward social citizenship. By securing stable employment, contributing to public finances, and obtaining higher education, migrants build a solid foundation to acquire the full set of rights and responsibilities that define social citizenship.

Labour market participation and job security emerge from the findings in Chapter 2 as key factors for socio-economic integration towards social citizenship. The chapter finds that first-generation migrants in the Netherlands, especially those with a non-Western background, are more likely to be employed in temporary jobs than natives. This probability increases with host-country-language difficulties, while higher education and active social contacts do not appear to have an effect. Migrants who struggle with the host country's language are particularly prone to temporary employment, which often leads to more job insecurity, low job satisfaction, and limited career progression. This relationship could be subject to potential endogeneity from omitted variables, reverse causality, and measurement errors. However, most importantly, the findings appear to be robust to an instrumental variable technique that is often employed in the literature. The results suggest that non-Western migrants are worse positioned than Western migrants to fully integrate into the host country's labour market and achieve social citizenship.

In addition to labour market outcomes, and directly related to them, fiscal contributions are another critical aspect of the integration process towards social citizenship. Chapters 3 and 4 show that, on average, migrants have a relatively more positive NFP than natives across most EU countries, from 2007 to 2018. Notably, the gap between the NFP of migrants and natives has widened since the beginning of the 2010's, as the NFP of migrants has seen constant improvements, while that of natives has never recovered since the global financial crisis. The stagnation of natives' NFP since the 2010's can be attributed to their increasing reliance on contributory benefits, especially pensions. In contrast, the resurgence of migrants' NFP is linked to decreasing total benefits, specific country policies, and compositional changes within the migrant population. The relationship between migrants and their net fiscal contributions varies across countries. The beneficial fiscal effects of immigration are particularly significant in Southern Europe, where the native population is the oldest and the welfare state is largely oriented toward pensions. There, despite migrants contributing more, they are also less supported by the welfare state. If migrants keep contributing to European welfare states without receiving equitable benefits, their path to social citizenship could be limited.

Net fiscal contributions also vary by migration background, with intra-EU migrants generally making higher fiscal contributions than extra-EU migrants. This finding depends on the countries and years considered and

is primarily due to lower fiscal contributions and higher reliance on welfare benefits by extra-EU migrants compared to intra-EU migrants. Individual characteristics like age and education, as well as country effects, significantly affect net fiscal contributions. In particular, age emerges as the single most important variable in making the NFP of migrants more positive compared to natives. Migrants often represent a selection of young, healthy, and productive individuals from their country of origin. This typically makes them more employable and less likely to require welfare support compared to the general population.

It is also noteworthy that while higher education is associated with higher net fiscal contributions by intra-EU migrants, this is not the case for extra-EU migrants. Direct fiscal contributions by extra-EU migrants do not significantly increase with higher education. Therefore, effective policies that support the recognition of extra-European degrees, as well as tailored job training, can increase the NFP of migrants currently contributing the least and foster their social citizenship. As migrants are enabled to fully participate in a country's welfare state, they also rejuvenate the resident population, support demographic sustainability, and uphold the pension system. In other words, when migrants enjoy social citizenship and contribute to the economy of the host country, everyone is likely to be better off. It remains to be seen whether these positive fiscal effects will decrease over time as migrants accumulate pensions and possibly retire in the host countries.

Finally, Chapter 5 examines the economic impact of international students, a migrant group whose path to social citizenship begins with socio-economic integration through education and subsequent employment. International students have a sizeable impact on the economy of their host countries during their studies and, if successfully integrated into the labour market afterwards, are well-positioned to achieve social citizenship. Their economic impact originates not only from the income directly spent on tuition fees and living expenses but also from broader mechanisms generating indirect benefits and costs. The successful integration of international students can reduce labour shortages, boost technological innovation, and stimulate economic growth in university cities and the surrounding areas. These positive effects can potentially be enhanced by policies that minimise the negative effects associated with the potential displacement of native workers or competition for limited resources such as land and housing. In addition, evidence from the Covid-19 pandemic shows that countries and institutions capable of quickly adapting to sudden challenges, such as moving educational programmes online, are more likely to maintain a steady stream of international enrolments and revenues.

Overall, this dissertation aims to show that socio-economic integration is an important step towards social citizenship. Studying the economic performance of migrants in high-income countries can shed light on this process. Labour, fiscal, and educational outcomes influence each other. To maximise the economic contributions of migrants to their host countries,

these aspects need to be correctly understood and supported by effective policymaking. Examples of policy implications derived from the findings of this dissertation are discussed in the section that follows.

## 6.2 POLICY IMPLICATIONS

### *Labour policies*

Following the findings of Chapter 2, the importance of offering migrants a viable transition from temporary to permanent employment is a critical policy implication. These can include, for example, placing a cap on consecutive temporary contracts, or establishing hiring quotas for permanent and temporary employees that business have to abide by (Barbieri and Cutuli, 2015). Providing more stable employment options not only improves the livelihoods of migrants but also makes their hiring more expensive, thereby helping to regulate the demand for cheap migrant labour by local businesses. This can prevent situations where migrants are working and living in poor, and potentially illegal, conditions. Besides, it would limit the diffusion of businesses that thrive on the use of consecutive temporary contracts and substandard working conditions. This would help create a more balanced labour market where the exploitation of migrants is minimised and the overall quality of jobs is improved (Boeri et al., 2012; Ojala et al., 2018).

However, higher labour costs could result in increased prices for goods and services, as businesses pass on the additional costs to consumers. Additionally, small and medium-sized enterprises (SMEs) that operate on tight margins might struggle to absorb these higher costs, potentially leading to layoffs or even closures (Borjas, 2005). Policymakers would need to consider ways to support these businesses during the transition, possibly through subsidies or tax incentives, which would in turn require public funding. Addressing other potential social costs, such as increased competition for low-skilled jobs and wage suppression in certain sectors, is also essential (Altonji and Card, 1991). Implementing minimum wage laws and safeguarding fair labour practices can help protect both migrants and native workers from exploitation and unfair competition. Following such interventions, unemployment rates among both migrants and natives might increase in the short run, especially in regions where the labour market is already strained (Card, 2001). However, in the longer run, the labour market is likely to reach a better equilibrium point, minimising displacement effects (Dorn and Zweimüller, 2021; Muysken et al., 2015).

Migrants often present higher inactivity levels than native-born individuals (Eurostat, 2024a). Following the findings of Chapters 2 and 4, programmes that support migrants' skill development and retraining could enhance their employability and reduce inactivity levels (Koopmans, 2016). These programmes could be designed in collaboration with industry stakeholders to ensure they meet the demands of the labour market. For

instance, as discussed in Chapter 5, higher educational institutions could coordinate with the main players in the local and national labour markets to secure a smooth transition of international students into employment. These measures should be complemented by efforts to address discrimination in selection criteria (Andriessen et al., 2012; Quillian and Lee, 2023). As discussed in Chapter 2, anti-discrimination laws should be rigorously enforced, and employers should be encouraged to adopt inclusive hiring practices.

### *Welfare policies*

Migrants are frequently accused of taking advantage of European welfare states, while recent evidence and the findings from Chapters 3 and 4 show that they actually often make positive fiscal contributions (Christl et al., 2022; Fiorio et al., 2024; Österman et al., 2024). Providing migrants with transparent and fair access to welfare benefits and services, alongside requiring their equitable contributions, can enhance economic stability by ensuring that all residents are able to participate fully in the economy. Migrants who feel secure in their basic needs are more likely to invest in their skills and education, boosting employability and productivity (Brücker et al., 2021). Furthermore, disposable income levels would likely increase, which in turn would stimulate demand, support businesses, and ultimately drive economic growth (Colas and Sachs, 2024). However, implementing such inclusive policies comes with potential costs. Expanding access to welfare could require significant initial investments in public services and may face political resistance from those who fear that migrants might overburden the systems or that their inclusion could diminish the benefits for the native population. Additionally, the concern of fostering dependency or encouraging further immigration can also fuel opposition (Alesina et al., 2023).

Policymakers could then consider less costly reforms that make it easier for migrants to participate in the welfare state, taking into account their unique circumstances and migration backgrounds. A simple starting point, for instance, would be to ensure that tax payment forms and cash benefits withdrawal procedures are available in the languages of the main countries of origin. Increasing fiscal contributions by migrants would have additional beneficial effects on the pension system in countries where the local population is ageing particularly fast (Christl et al., 2022). Migrants can rejuvenate the resident population, fill labour shortages, and contribute to the funding that modern welfare states require (Chojnicki and Ragot, 2016). Nonetheless, the potential political backlash from natives concerned about cultural changes and job competition may remain (Tabellini, 2020).

The fiscal costs associated with immigration cannot be ignored but can be mitigated. Increased pressure on public services such as healthcare, education, and housing can lead to higher expenditures (Barrett and Maître, 2011; Pellizzari, 2011). To reduce these costs, governments should ensure

adequate funding and resource allocation to public services to accommodate the needs of an increasingly diverse resident population. However, securing the necessary funding and resources requires political will, which may be challenged by budget constraints or opposition from those who prioritise other fiscal items (Alesina et al., 2023; Tabellini, 2020). Despite the potential challenges, economists and politicians can work together to deliver clear communication on the actual benefits and costs of immigration, even if doing so may not always align with the immediate electoral interests.

### *Social policies for vulnerable groups*

The findings from Chapters 2, 3, and 4 report that non-Western and extra-EU migrants often face more economic struggles in the host country than Western and intra-EU ones, despite similar age distribution, family characteristics, and education levels. This is due to various structural obstacles, including discrimination, limited recognition of previous work experience and educational degrees, language barriers, and restricted access to inter-ethnic networks (Bleakley and Chin, 2010; Dorn and Zweimüller, 2021; Dustmann and Fabbri, 2003; Kuptsch and Sparreboom, 2018). To harness the economic potential of non-Western and extra-EU migrants, policies should provide specific support for these groups, addressing the particular challenges they face.

As the findings of Chapters 2 and 5 show, governments could promote language training programs as host country language proficiency remains a significant barrier to stable employment and integration for many migrants. Funding public and private language training programmes and ensuring their accessibility to all migrants is a good way to follow (Chiswick and Miller, 2014). Previous evidence and the findings of Chapter 2 illustrate that migrants who arrive young and learn the host country's language early report better labour market outcomes than migrants who migrate later and face language barriers (Chiswick and Wang, 2019; Miranda and Zhu, 2013; Van Ours and Veenman, 2006; Yao and Van Ours, 2015). Despite imposing an additional initial cost on public finances, the labour and fiscal benefits are likely to be superior in the long run. In fact, as Chapters 3 and 4 show, if migrants are able to further integrate, their higher employability and reduced inactivity will make their net fiscal contributions more positive, possibly offsetting the initial training costs (Koopmans, 2016).

Additionally, as discussed in Chapters 2 and 4, the recognition and validation of foreign qualifications, particularly of those obtained in non-Western countries, can help migrants perform better in the labour market. This, in turn, would reduce overqualification and skill mismatches, increase labour supply for higher-skilled jobs, and ultimately contribute to economic growth (Brücker et al., 2021; Budria and Martinez de Ibarreta, 2021; Montt; 2017; Visintin et al., 2015). Achieving this could require bilateral agreements between countries and the development of standardised procedures for

credential evaluation. Multi-country institutions like the OECD and the EU could play an important role in coordinating efforts in this context (OECD and European Commission, 2023).

Policies aiming at leveraging differences between Western and non-Western migrants, or between intra-EU and extra-EU ones, should also consider country-of-origin-specific factors, like cultural distance and reason for migration. When a population group is marginalised, it creates additional socio-economic costs for the host country, such as greater reliance on social assistance and higher unemployment (Conte and Mazza, 2019). This is more often the case for non-Western or extra-EU migrants than for Western or intra-European ones (Gracia et al., 2015). Supporting socio-economic integration through community-based programmes that strengthen inter-ethnic networks can help them navigate the labour market and the welfare state more effectively, without being confined in their own ethnic communities (Martinovic et al., 2009; Portes, 2014). These programmes could focus on building social capital, learning the host country's language, and reducing isolation, especially at an earlier age. Community centres and local organisations can facilitate the implementation and participation in such programmes, providing migrants with a sense of belonging and support (Chiswick and Wang, 2019; Lancee, 2010). In turn, this would likely increase motivation to work, reduce inactivity, and foster the path to social citizenship even among the most vulnerable individuals.

### 6.3 FUTURE RESEARCH

While this dissertation provides empirical insights into multiple aspects of the socio-economic integration of migrants in high-income countries, several areas warrant further research.

First, as larger population datasets become available for more countries and years, future research should aim at longitudinal studies that track the integration outcomes of migrants over extended periods. This approach would provide a deeper understanding of the long-term impacts of migration policies and the factors that influence successful integration. Longitudinal data can reveal patterns and trends that cross-sectional studies might overlook, offering a more detailed picture of the integration process. Such studies could explore how different cohorts of migrants behave and evolve over time, examining outcomes like employment trends, fiscal contributions, and social integration metrics. For example, in relation to the topics analysed in Chapters 2 and 5, such studies could investigate the lifelong professional trajectories of temporary workers and/or students with a migration background. This would also allow for a better understanding of how temporary contracts lead (or do not lead) to permanent ones, providing crucial insights into the pathways for long-term integration.

While Chapters 3 and 4 show that young economically active migrants are typically net fiscal contributors, there is no evidence about whether this

positive balance is maintained as they age. Longitudinal data would then allow to check whether the net fiscal contribution of migrants diminishes in the longer run as they age and retire in their host country (Chojnicki and Ragot, 2016). This type of analysis is particularly important because it addresses a current limitation of the available studies. It also would help test the common concern about the long-term fiscal sustainability of immigration. Migrants who stay in the host country until retirement might begin to rely more heavily on pensions and social services, which could potentially shift them from being net fiscal contributors to net fiscal recipients, exactly like natives.

Second, as discussed in Chapters 3, 4, and 5, a large part of the empirical evidence on the socio-economic factors influencing the integration of migrants comes from country-specific studies (Chojnicki et al., 2022; Dustmann and Frattini, 2014; Hinte and Zimmermann, 2014; Ruist, 2014). As more and more data become available, richer comparative research across different national contexts can offer valuable insights into best practices and the effectiveness of various policy approaches. Within the literature on the fiscal impact of immigration, comparing the NFP of migrants in all EU-27 countries, including the ones that joined the EU more recently, can provide evidence on the sustainability of new welfare models. Comparative studies can identify which policies are most effective in different contexts and help policymakers adapt successful strategies to their own countries.

Third, further research is also needed to better understand the role of social contacts in shaping the socio-economic outcomes of migrants, as described in Chapter 2 (Chiswick and Wang, 2019; Lancee, 2010; Portes, 2014). Current empirical research on the economic effects of social contacts suffers from very limited quantitative measures. To operationalise the strength of social contacts and their influence on an individual's economic outcomes is challenging. Qualitative studies from other social sciences like sociology, anthropology, and psychology that take stock of the personal experiences of migrants from different countries can offer valuable starting points for discussing integration dynamics (Patulny and Svedsen, 2007). These can include studying how inter-ethnic social networks can support socio-economic integration and identifying strategies to combat segregation in the labour market and society. Additionally, experimental studies that test interventions designed to reduce discrimination in specific contextual factors, such as personnel selection and hiring practices, could suggest practical solutions to more persistent issues (Quillian and Lee, 2023).

Fourth, despite being outside the scope of the present work, another promising area of research is the analysis of the same integration outcomes included in this dissertation, but for subsequent generations of migrants (Gracia et al., 2015; Piton and Rycx, 2021; Van Elk et al., 2019). Understanding the experiences of the children of first-generation migrants can provide insights into the long-term success of integration policies and the inter-generational transmission of social citizenship. Studies could investigate educational attainment, career progression, and social mobility among

second-generation migrants, offering a broader view of how integration policies impact future generations. For example, they can address whether the fact that the parents obtained higher education in the host country or in the origin country influences the educational choices and attainments of the children.

Lastly, the overlap between growing immigration to high-income countries and internal demographic changes is an increasingly relevant area of research (Chojnicki and Ragot, 2016; Christl et al., 2022). With native-born populations ageing fast, understanding how migrants can contribute to demographic sustainability and economic growth is strategically important. Future contributions to the literature could explore the potential of migrants to fill labour shortages, support pension systems, and uphold overall demographic stability. Again, comparative studies built on longitudinal data could be very helpful in this context. Such research would also help debunk myths about the economic unsustainability of immigration to high-income countries and ground the public debate in rigorous economic evidence.

In conclusion, as high-income countries continue to experience significant levels of immigration, the integration of migrants becomes increasingly important. This dissertation aims to demonstrate that successful socio-economic integration is economically beneficial not only for migrants but also for the host country. If managed correctly, it supports the welfare state, economic growth, and demographic sustainability. Addressing the challenges of immigration and integration requires coordinated efforts from government, businesses, and citizens. In doing so, it can foster social citizenship, while minimising the potential negative impacts on public finances, available resources, and local population groups. The integration of migrants is not merely a policy challenge but also an opportunity to build stronger, more resilient societies. As we move forward, it is imperative to continue studying and addressing the challenges of migration, ensuring that the benefits of globalisation and international mobility are realised for everyone.



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# Samenvatting (Dutch Summary)

## SOCIAALECONOMISCHE INTEGRATIE EN SOCIAAL BURGERSCHAP VAN MIGRANTEN: EMPIRISCHE ANALYSES

Deze dissertatie onderzoekt het groeiende fenomeen van internationale migratie, met daarbij een focus op de sociaaleconomische impact op hoge-inkomenslanden en het concept van sociaal burgerschap. Sociaal burgerschap heeft een bredere betekenis dan enkel het overnemen van de nationaliteit van het gastland. Het verwijst naar de volledige deelname van een individu aan het economische, sociale en maatschappelijke leven van een land. Migranten worden vaak geconfronteerd met uitdagingen om dit te kunnen bereiken, zoals taalbarrières, discriminatie en een beperkte erkenning van buitenlandse diploma's en werkervaring. Dit onderzoek verkent hoe de economische prestaties van migranten bijdragen aan hun sociaaleconomische integratie, onderweg naar sociaal burgerschap. De analyse omvat verschillende empirische studies, die elk een ander aspect van de integratie van migranten behandelen, zoals het type arbeidsrelatie, financiële bijdragen aan de collectieve sector en de economische impact van internationale studenten.

De centrale onderzoeksvraag in dit proefschrift is hoe de economische prestaties van migranten hun algehele integratie in de ontvangende samenleving beïnvloeden en bijdragen tot sociaal burgerschap. Dit onderwerp is met name relevant in het licht van toenemende wereldwijde migratietrends en gepolariseerde debatten over migratiebeleid. Het proefschrift richt zich specifiek op landen met een hoog inkomen, waar de meerderheid van de internationale migranten zich momenteel bevindt, en onderzoekt verschillende aspecten van hun sociaaleconomische integratie. Het proefschrift bestaat uit vier hoofdstukken, die elk empirische inzichten bieden in de relatie tussen economische prestaties en sociaaleconomische integratie. Succesvolle integratie kan sociale cohesie bevorderen, economische groei stimuleren en spanningen met betrekking tot immigratie verminderen. Migranten krijgen op hun beurt meer zekerheid en rechten in de ontvangende samenlevingen.

Hoofdstuk 2 richt zich op de arbeidsmarktintegratie en onderzoekt de arbeidsmarktpatronen van eerste generatie migranten in Nederland. Nederland biedt een interessante casus, omdat het een relatief lange geschiedenis van immigratie kent en in de jaren 2010 het EU-land is met de scherpste toename van tijdelijke arbeid. Dit hoofdstuk onderzoekt of eerste generatie migranten vaker tijdelijk werk hebben dan personen die in Nederland zijn

geboren. Daarnaast wordt onderzocht of factoren zoals opleidingsniveau, taalvaardigheid en sociale contacten de kans op tijdelijk werk beïnvloeden. Tijdelijk werk biedt flexibiliteit, maar mist vaak de baanzekerheid en doorgroeimogelijkheden van vast werk. Het hoofdstuk onderzoekt ook hoe modererende factoren zoals opleiding, taalvaardigheid en sociale contacten deze waarschijnlijkheid beïnvloeden.

Met behulp van gegevens van het *Longitudinal Internet Studies for the Social Sciences (LISS) panel*, onthult de empirische analyse dat niet-westerse migranten aanzienlijk vaker een tijdelijke baan hebben in vergelijking met in Nederland geboren werknemers. De analyse laat zien dat de beheersing van de Nederlandse taal de belangrijkste factor is die de kans op tijdelijk werk beïnvloedt, waarbij personen die de Nederlandse taal niet goed genoeg beheersen vaker werkzaam zijn in tijdelijke banen. Interessant genoeg blijkt dat, hoewel opleidingsniveau en sociale contacten vaak worden verondersteld een belangrijke rol te spelen in het verbeteren van arbeidsmarktuitskomsten, deze factoren een relatief zwak effect hebben op de arbeidsmarktpositie van migranten in Nederland. De resultaten suggereren dat voor niet-westerse migranten taalvaardigheid een primaire belemmering vormt voor het vinden van vast werk. De bevindingen van dit hoofdstuk bieden belangrijke beleidsimplicaties en benadrukken de noodzaak van betere taalvaardigheidsprogramma's en arbeidsmarktbeleid dat de overgang van tijdelijk naar vast werk bevordert. Hoewel dergelijk arbeidsmarktbeleid van toepassing zal zijn op alle werkenden, zal het per saldo ook vooral effect hebben op de arbeidsmarktpositie van migranten, aangezien zij relatief vaak tijdelijk werk hebben. Door zich te richten op Nederland, een land met een van de hoogste percentages werknemers in tijdelijke banen in de Europese Unie, biedt dit hoofdstuk inzichten die relevant zijn voor andere hoge-inkomenslanden die soortgelijke arbeidsmarkt-trends ervaren.

Hoofdstuk 3 verschuift de focus naar de impact van migratie voor de overheidsfinanciën en biedt een vergelijkende analyse van de nettobijdrage aan de overheidsfinanciën ('*net fiscal position*'; NFP) van migranten en autochtonen in 15 EU-landen van 2007 tot 2018. De NFP meet het verschil tussen hoeveel migranten bijdragen aan de collectieve sector via belastingen en sociale premies en hoeveel zij ontvangen van de overheid via uitkeringen en toeslagen. Dit is een controversieel onderwerp in het publieke debat. Vaak wordt verondersteld dat migranten netto-ontvangers zijn en dat zij daarom een last vormen voor de verzorgingsstaat. Door gebruik te maken van microgegevens op individueel niveau van de *European Union Statistics on Income and Living Conditions (EU-SILC)* en deze te combineren met fiscale informatie van de OESO, biedt het hoofdstuk een gedetailleerde analyse van de nettobijdrage aan de overheidsfinanciën voor verschillende migrantengroepen en de autochtone bevolking.

De resultaten laten zien dat in de meerderheid van de onderzochte EU-landen migranten, gemiddeld genomen, een minder negatieve (of meer positieve) NFP hebben dan autochtonen. Vooral intra-EU-migranten

zijn vaak netto-bijdragers aan de overheidsfinanciën, doordat zij veelal betaald werk verrichten en meer bijdragen via belastingen en premies dan dat ontvangen via uitkeringen en toeslagen. De situatie is echter complexer voor extra-EU-migranten, die vaker afhankelijk zijn van sociale uitkeringen, met name in landen met genereuze socialezekerheidsstelsels. Dit verschil kan grotendeels worden toegeschreven aan arbeidsmarktfactoren. Zo hebben extra-EU migranten minder vaak (goedbetaald) werk. Een belangrijke kanttekening bij de bevindingen in dit hoofdstuk is dat de analyses zijn gebaseerd op momentopnames. Hierin wordt niet meegenomen dat de NFP varieert over de levensloop. Daarmee is het een open vraag hoe de NFP van migranten zich in de toekomst zal ontwikkelen, wanneer de gemiddelde leeftijd van migranten stijgt.

Het hoofdstuk benadrukt ook dat de kloof tussen de gemiddelde NFP van migranten en autochtonen is toegenomen sinds de wereldwijde financiële crisis van 2008. In 2017 overtrof de gemiddelde NFP van migranten het niveau van vóór de crisis, terwijl dit nog niet het geval is voor autochtonen. Bovendien laat het zien dat de NFP van migranten verschillen in heel Europa, afhankelijk van het type welvaartsstaat van het gastland. Ze zijn bijvoorbeeld het hoogst in Zuid-Europa, waar landen als Griekenland, Italië, Spanje en Portugal een relatief vergrijsde bevolking hebben en welvaartsstaten vooral gericht zijn op pensioenen. Deze landen behoren tot de landen die het meest profiteren van jonge, gezonde, inzetbare migranten.

Voortbouwend op de bevindingen van Hoofdstuk 3, onderzoekt Hoofdstuk 4 de onderliggende factoren die bijdragen aan het verschil in de NFP tussen migranten en autochtonen in dezelfde landen en jaren die in het vorige hoofdstuk zijn geanalyseerd. Met behulp van de Oaxaca-Blinder-decompositiemethode onderzoekt het hoofdstuk hoe persoonlijke kenmerken zoals opleidingsniveau, leeftijd, gezinsstructuur, en gezondheid bijdragen aan de verschillen in NFP tussen migranten en autochtonen. De gemiddeld jongere leeftijd, en daarmee een hogere inzetbaarheid op de arbeidsmarkt, goede gezondheid en weinig behoefte aan bijstandsuitkeringen, is de belangrijkste reden voor de positievere NFP van migranten in vergelijking met autochtonen. De analyse toont ook aan dat migranten met een hoger opleidingsniveau over het algemeen een positievere NFP hebben, vooral onder intra-EU-migranten. Voor extra-EU-migranten zijn de voordelen van onderwijs echter minder uitgesproken. Ondanks vergelijkbare opleidingsniveaus ervaren extra-EU-migranten niet dezelfde baten van hun opleiding als intra-EU-migranten. Waarschijnlijk heeft dit te maken met de lagere waardering van buitenlandse kwalificaties op de Europese arbeidsmarkt. Dit leidt tot slechtere arbeidsmarkttuitkomsten en bijgevolg tot lagere belastingbijdragen. De decompositie laat zien dat leeftijd en opleiding de achtergrondkenmerken zijn die het meest positief bijdragen aan het verschil in NFP tussen migranten en autochtonen. Andere factoren, zoals het aantal kinderen in een huishouden en land-specifieke kenmerken, hebben daarentegen een negatief effect.

De bevindingen van het hoofdstuk benadrukken het belang van het aanpakken van de specifieke uitdagingen waarmee extra-EU-migranten worden geconfronteerd, met name rond de erkenning van buitenlandse kwalificaties en het verbeteren van de arbeidsmarktintegratie. Op deze manier, kunnen beleidsmakers de NFP van deze groep positiever maken en hun bijdragen aan de Europese socialezekerheidsstelsels verbeteren.

Hoofdstuk 5 onderzoekt de economische impact van internationale studenten op OESO-landen. Internationale studenten vormen een belangrijke en groeiende demografische groep in hoge-inkomenslanden. Ze leveren niet alleen een bijdrage aan de onderwijssector via collegegeld, maar ook aan de lokale economie via consumentenbestedingen aan levensonderhoud en deelname aan de arbeidsmarkt. Dit hoofdstuk biedt een literatuurstudie over de economische bijdragen van internationale studenten en presenteert nieuwe empirische bevindingen over de economische impact van internationale studenten in de jaren voorafgaand aan en tijdens de Covid-19-pandemie. Uit het literatuuronderzoek blijkt dat het meeste bestaande onderzoek zich richt op de voordelen die internationale studenten met zich meebrengen, zonder rekening te houden met de kosten. Engelstalige OESO-landen lijken de landen te zijn waar de economische impact van internationale studenten het vaakst wordt bestudeerd en waar de directe economische voordelen het grootst zijn. De economische impact van internationale studenten is aanzienlijk, niet alleen in termen van directe financiële bijdragen zoals collegegeld en consumptie, maar ook in de lange termijn bijdragen die ze leveren aan de arbeidsmarkt, innovatie en economische groei. Veel internationale studenten blijven na hun afstuderen in hun gastland wonen, waar ze bijdragen aan de lokale economieën en vacatures vervullen, vooral in sectoren met een hoge vraag, zoals STEM-vakgebieden.

De pandemie zorgde voor een tijdelijke verstoring van de internationale studentenstromen, wat leidde tot dalingen in inschrijvingen en inkomsten voor veel instellingen in verschillende OESO-landen. Dit hoofdstuk benadrukt echter de veerkracht van internationale onderwijssystemen, waarbij wordt opgemerkt dat het aantal internationale studenten in veel landen snel herstelde na het opheffen van de beperkingen, vooral in Europa, terwijl landen zoals Australië en Nieuw-Zeeland moeite hebben om terug te keren naar de cijfers van voor Covid.

In dit hoofdstuk wordt de nadruk gelegd op de noodzaak van beleid dat de integratie van internationale studenten na hun afstuderen vergemakkelijkt, zoals gestroomlijnde visumprocedures en partnerschappen tussen universiteiten en lokale bedrijven om het vinden van betaald werk te bevorderen. Door internationale studenten vast te houden, kunnen gastlanden hun economische bijdragen maximaliseren en de diversiteit en dynamiek van hun arbeidsmarkten verbeteren. De bevindingen van dit hoofdstuk hebben belangrijke beleidsimplicaties, vooral in het licht van de voortdurende concurrentie tussen hoge-inkomenslanden om internationale studenten aan te trekken en te behouden.

In het afsluitende hoofdstuk synthetiseert de dissertatie de belangrijkste bevindingen en bespreekt hun bredere beleidsimplicaties. Een belangrijke conclusie is dat de economische integratie van migranten cruciaal is voor hun bredere sociale en maatschappelijke integratie, wat een essentieel onderdeel is van sociaal burgerschap.

Het onderzoek benadrukt de noodzaak van gerichte beleidsmaatregelen die de specifieke uitdagingen aanpakken waarmee verschillende migrantengroepen worden geconfronteerd, waaronder taalbarrières, erkenning van diploma's en toegang tot banen die werkzekerheid bieden. Beleidsmakers moeten zich ook richten op het creëren van inclusieve arbeidsmarkten die migranten in staat stellen volledig bij te dragen aan de samenlevingen. De bevindingen van deze dissertatie dragen bij aan de lopende debatten over immigratiebeleid door empirisch inzicht te bieden in de economische impact van migratie. De dissertatie wijst ook op mogelijkheden voor toekomstig onderzoek, met name in het begrijpen van de langetermijneffecten van integratiebeleid en de rol van migranten bij het aanpakken van demografische uitdagingen in hoge-inkomenslanden, waar de lokale bevolking snel vergrijst. Over het geheel genomen biedt de dissertatie een uitgebreide, multidimensionale analyse van migrantenintegratie, met een bijdrage aan zowel de academische literatuur als de beleidsdiscussies.

Dit onderzoek naar de sociaaleconomische integratie van migranten in hoge-inkomenslanden biedt een genuanceerd begrip van hoe economische prestaties hun weg naar sociale burgerschap vormgeven. Door de arbeidsmarktuitskomsten, fiscale bijdragen en de impact van internationale studenten te onderzoeken, biedt de dissertatie een holistisch beeld van de migrantenervaring en de implicaties ervan voor gastlanden. Het onderzoek overbruggt lacunes in de bestaande literatuur door empirische inzichten te bieden in meerdere dimensies van migrantenintegratie, waardoor een basis wordt gelegd voor toekomstig onderzoek en beleidsontwikkeling. De bijdragen van de dissertatie zijn in het bijzonder relevant in de context van de groeiende migratiestromen en bieden inzichten die kunnen helpen bij het complexe proces van het integreren van nieuwkomers in de ontvangende samenlevingen.



# Curriculum Vitae

Giacomo Boffi was born in Lodi, Italy, in 1996. He pursued his pre-university education in Lodi and subsequently obtained a Bachelor's degree (BSc) in Politics & Economics cum laude from the University of Milan in 2018. Following this, he earned a Master of Science (MSc) in Economic Policy from Utrecht University in 2019.

In 2020, Giacomo began his PhD on the Economics & Governance of Migration at the Department of Economics of Leiden University's Law School and at Leiden University College, under the supervision of Prof. Dr. Olaf van Vliet and Dr. Eduard Suari-Andreu. His research consisted of empirical analyses of migrant socio-economic integration in high-income countries, and it was conducted as part of the Social Citizenship and Migration research programme at Leiden University, as well as the Leiden-Delft-Erasmus Centre on Governance of Migration and Diversity. His PhD training included courses and summer schools in the Netherlands (e.g., Tinbergen Institute) and abroad (e.g., Paris School of Economics, Istituto ISEO). During his PhD, Giacomo contributed to the teaching activities of the Department of Economics, specifically in courses such as Principles of Economics and Comparative Political Economy. In 2022, Giacomo collaborated with the International Migration Division of the Organisation for Economic Cooperation and Development (OECD) in Paris, contributing to a chapter of the 2022 International Migration Review.

The studies included in his PhD dissertation have been presented as separate research papers at several national and international conferences and workshops, including the 2023 Researchers Day at the Dutch Ministry of Justice and Internal Affairs, the 5<sup>th</sup> and the 6<sup>th</sup> International Conferences on European Studies, the 10<sup>th</sup> Netherlands Economists' Day, the 36<sup>th</sup> Annual Conference of the Italian Association of Labour Economists, the Migration Seminar Series organised by Maastricht University and the United Nations University, the 10<sup>th</sup> Annual Conference of the Maastricht Centre for Citizenship, Migration, and Development, the 64<sup>th</sup> Annual Conference of the Italian Economic Association, the 2023 State of the Art Conference organised by the Directorate General for Migration of the Dutch Ministry of Justice and Internal Affairs, the 8<sup>th</sup> Workshop on Immigration, Health, and Wellbeing organised by Oxford University, and the 2024 Workshop on the Fiscal Effects of Immigration organised by ZEW Mannheim.



In the range of books published by the Meijers Research Institute and Graduate School of Leiden Law School, Leiden University, the following titles were published in 2024 and 2025

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