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ON IMMIGRANT INTEGRATION

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Abstract

While motherhood is one of the main reasons for the persistence of gender gaps, its impact on the rising share of immigrant mothers in Europe is less well understood. This paper asks how the burden of childcare affects the labor market integration of immigrants. To identify the contribution of this burden to the native-immigrant employment gap, it exploits European Labor Force Survey (EU-LFS) microdata from 2004 to 2019. This survey collects information on respondents' counterfactual behaviour, in the event that: a) they had no care responsibilities; b) they could find a job compatible with their care responsibilities; c) they had access to childcare services. This information allows estimates to be obtained of the impact of childcare on labor supply comparable across eleven countries.

Our results show that the burden of childcare is the major obstacle to the integration of immigrant mothers. While the employment gap between non-EU immigrant and native mothers in Northern and Southern Europe is 35 and 17 percentage points (pp) respectively, two-thirds (24 pp and 12 pp) of it is explained by childcare motivated inactivity. We reject the hypothesis that the childcare gap is solely driven by immigrants' sociodemographic traits or traditional parenting norms. Our estimates suggest that at least a quarter (5.8 pp and 2.6 pp) of the gap is due to the higher opportunity cost of paid work faced by immigrant mothers; that equal access to childcare could reduce it by 10 pp and 7 pp; and that immigrants' exclusion from flexible time arrangements could explain the larger size and higher persistence of the gap in the North. This paper contributes to the literature on immigrant integration, highlighting that the child penalty is the main obstacle to female migrant labor supply and that differences in how European societies handle the burden of care can account for their records on the integration of immigrant households, suggesting that family policies could be central to the integration policy mix and even influence the migration decision.

Keywords: female labor supply, care burden, immigrant and native women, opportunity cost, Europe.

JEL classification: J13, J15, J16, J18, J31, J61, J70.

Resumen

Si bien la maternidad es una de las principales causas de la persistencia de las brechas de género, su impacto en la creciente proporción de madres inmigrantes en Europa es menos conocido. Este artículo se pregunta cómo afecta la carga del cuidado de los hijos a la integración de las inmigrantes en el mercado laboral. Para identificar su contribución a la brecha de empleo entre nativas e inmigrantes, esta investigación analiza los microdatos de la Encuesta Europea de Población Activa (EU-LFS, por sus siglas en inglés) entre 2004 y 2019. La EU-LFS recoge información sobre el comportamiento contrafactual de las encuestadas si: a) no tuvieran responsabilidades de cuidado; b) pudieran encontrar un trabajo compatible con ellas, o c) tuvieran acceso a servicios de cuidado de sus hijos. Esta información permite obtener estimaciones del impacto del cuidado en la oferta de trabajo comparables entre once países.

Nuestros resultados muestran que la carga del cuidado de los hijos es el principal obstáculo para la integración de las madres inmigrantes. Mientras que la brecha de empleo entre las madres inmigrantes no comunitarias y las nativas en el norte y el sur de Europa es de 35 y 17 puntos porcentuales (pp), respectivamente, la inactividad motivada por el cuidado de los hijos explica dos tercios (24 pp y 12 pp) de esta. Rechazamos la hipótesis de que la diferencia en el cuidado de los hijos se deba únicamente a los rasgos sociodemográficos de las inmigrantes o a las normas tradicionales de cuidado. Nuestras estimaciones sugieren que al menos una cuarta parte (5,8 pp y 2,6 pp) de la brecha se debe al mayor coste de oportunidad del trabajo remunerado al que se enfrentan las madres inmigrantes; que la igualdad de acceso al cuidado de los hijos podría reducirla en 10 pp y 7 pp, y que la exclusión de las inmigrantes de los acuerdos de tiempo flexible podría explicar la mayor y más persistente brecha en el norte. Este trabajo contribuye a la literatura sobre la integración de la población inmigrante; destaca que la penalización de los hijos es el principal obstáculo para la oferta de trabajo de las mujeres inmigrantes. Las diferencias en la forma en que las sociedades europeas manejan la carga del cuidado pueden explicar sus registros en la integración de los hogares de los inmigrantes, lo que sugiere que las políticas familiares podrían ser fundamentales en la combinación de políticas de integración e incluso influir en la propia decisión de emigrar.

Palabras clave: oferta laboral femenina, carga de cuidado, mujeres inmigrantes y nativas, coste de oportunidad, Europa.

Códigos JEL: J13, J15, J16, J18, J31, J61, J70.

1. Introduction[1]

Immigration and gender equality are at the core of the demographic challenges faced by European societies. The rise of professional women (Goldin 2014) has evidenced the need to adapt labor markets and childcare institutions to women's new roles. However, these institutions will also have to accommodate an increasingly large share of household of foreign origin. This paper asks how these challenges are related and analyses immigrant integration from the perspective of mothers' childcare penalty. It argues that the burden of childcare is not just a major constraint on native mothers' labor supply, but also explains why that of immigrants does not converge with theirs. Differences in how European societies handle the burden of care can thus account for their records in the assimilation of immigrant households.

Given the growing body of evidence on the penalties imposed by immigrant status and the burden of care, it seems natural to explore the relationship between them. The literature on the child penalty (de Quinto, Hospido and Sanz 2020; Ishizuka 2021; 2020; Kleven et al. 2019) shows that the burden of care is the primary source why women's labor supply diverges from men's. Similarly, most labor market obstacles are amplified for immigrants (Chiswick, Lee and Miller 2005; De la Rica, Glitz and Ortega 2015; García-Gómez, Stanek and del Rey 2021). Given that immigrant mothers fall into both categories, should their non-national status exacerbate the care penalty and if so, can countries adapt their care and labor regimes to facilitate their integration?

This paper investigates the impact of countries' care and labor regimes on integration comparing the labor supply effects of immigrants' and natives' care burden across eleven European countries. Three questions are posed within this framework: 1) Do care responsibilities constrain the labor supply of immigrants and widen the employment gap with natives? 2) Is the gap caused by migrants' higher opportunity cost when choosing between paid vs. unpaid work (i.e., poorer access to care services or to flexible work arrangements) or by constraints internal to the household (e.g., traditional motherhood norms and preferences)? 3) Does the gap persist or fade as the length of the stay in the receiving country increases?

Because the causal effect of the childcare burden on labor supply (the *care constraint*) cannot be identified from the observed correlation between motherhood and employment status, this paper proposes an identification strategy that combines data on respondents' objective employment status with their subjective reasons for that status. Reported reasons provide information about their behavior in the counterfactual scenario where they a) did not have care responsibilities, b) could find a job that would allow them to balance work and family life, and c) had access to affordable care services. This strategy allows us to a) distinguish the impact of childcare from other confounding factors; b) assess the heterogeneity in willingness to work among inactive mothers; and c) assess the role that childcare services and part-time work in the number of hours worked by mothers.

The key advantage of this strategy is its simplicity: the necessary data can be found in standard labor force surveys. We thus use a large subsample of 6.77 million mothers from the European Labor Force Survey (EU-LFS) to obtain estimates of childcare's effect on labor supply comparable across eleven countries and identify its contribution to the native-immigrant employment gap from 2004 to 2019. The comparability of these estimates allows us to discuss

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how the contrast between the care and labor regimes of Southern Europe (Spain, Greece, Italy, and Portugal) and their Northern counterpart (France, Germany, Ireland, Austria, The Netherlands, United Kingdom and Belgium)[2] affect immigrants' integration. While more work-oriented women may potentially self-select into countries with more family friendly environments, this strategy allow us to discuss the role of the receiving context on countries' integration record.

Our findings reveal that the primary cause of the employment gap between immigrant and native mothers is the childcare constraint on labor supply. The employment rate of non-EU immigrant mothers differs from natives' by 35 percentage points (hereafter, pp) in the North and 17 pp in the South of which about two-thirds (24 pp and 11 pp respectively) can be explained by differences in care motivated inactivity.

What explains such large gaps in the incidence of childcare? We test and reject the hypothesis of the childcare gap being solely due to the specific characteristics of immigrant households, such as their human capital, or culturally grounded parenting norms and preferences. Instead, four findings suggest that countries' care and labor arrangements impose a higher opportunity cost on immigrant's labor market participation. Firstly, the gap varies significantly across contexts, and its larger magnitude in the North can be explained by its reliance on part-time arrangements from which immigrants are excluded. Secondly, non-EU immigrants with comparable human capital endowments and care-burdens remain 14.2 pp more likely to resort to inactivity in the North (6.6 pp in the South). Thirdly, we show that providing immigrants with access to care services could reduce these gaps by 10 pp in both regions. Finally, controlling for reported willingness to work and previous employment experience, the gap remains at one fourth of its raw value −5.8 pp in the North and 2.6 in the South. Given the potential endogeneity of willingness to work, we regard this last estimate as a lower bound on the effect of the receiving context on immigrants' opportunity cost of paid work.

To the best of our knowledge, this is the first paper to examine immigrant integration across countries from the optic of the childcare constraint, and to show that countries' integration experiences are inextricably linked to how they manage the burden of care. These findings imply that family policies play a large role into the migrant integration policy mix.

These policy implications are directly related to the European debate on cultural integration. The question of whether immigrants' cultural orientations are compatible with those of the receiving society is frequently debated. Immigrants often come from more traditional societies, and previous research suggests that they will remain sorted into traditional parenting roles (Donato and Gabaccia 2015; Hou and Frank 2015). However, our findings reveal that receiving countries' institutions are partly responsible for low female migrant participation and suggest that adapting them could promote its convergence with natives'.

Our findings complement previous research that has emphasized how the interaction between gender and immigrant status results into specific vulnerabilities. Female migrants are more likely to work in low-skilled and unstable jobs; they tend to be excluded from welfare and institutional protection, are more exposed to traditional gender roles, and these obstacles may accentuate their isolation beyond the labor market (Kanas and Steinmetz 2021; OECD 2020;

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[2] This distinction is common in the literature. See, for example, Reher 1998; De Giorgi and Pellizzari 2009; Iacovou 2011; Crespo and Mira 2014; León 2016; and Lafleur and Stanek 2017. Section 3 provides the Southern and Northern European institutional contexts in regard to the care, migration, and employment regimes.

Rice and Vall-Castelló 2018; Rubin et al. 2008; Sánchez-Domínguez and Fahlén 2018). Previous single-country studies have thus suggested that immigrant status could amplify the labor market impact of motherhood (Nieto 2021; Sánchez-Domínguez and Guirola Abenza 2021; Vidal-Coso 2019). However, although the childcare constraint on native mothers is known to vary across countries', little was known about how this variation translates into immigrant integration.

To provide a background for our motivation, we begin with a brief overview of the current gender challenges in Europe, followed by the theoretical mechanisms behind the care constraint and our hypotheses. Finally, we describe the empirical strategy as well as the data used. The fifth section presents the results followed by a discussion and concluding remarks.

2. The demographic challenge: Migration and gender inequality in Europe

What effect does the burden of childcare have on immigrant's labor market participation? This question is particularly relevant in the light of two closely related demographic challenges faced by European aging societies: the transition towards a generalized dual-earner household model and the integration of an ever-larger share of immigrant women.

The Grand Gender Convergence. The change in women's roles, often referred as the *"The Grand Gender Convergence"* (Goldin 2014), is one of the most significant demographic developments of the twentieth century (England 2010; Esping-Andersen 2009; Goldin 2006; Goldscheider, Bernhardt and Lappegård 2015; Grow and Van Bavel 2015). At its heart are quantitively unprecedented changes in women labor force participation (Table 1), paralleled by major structural shifts in the expansion of higher education, the rise of the service economy, contraceptive technologies (Bras and Sánchez-Domínguez 2019; Goldin and Katz 2002), and the decline in fertility. These changes have transformed women's life cycle and drastically redefined their role in society (Goldin and Mitchell 2017).

Although fertility has declined below replacement rate since the 1970s (see third column (TFR (Total Fertility Rate) in Table 1), Gimenez-Nadal and Sevilla (2012) show that time allocated to childcare has increased. Households have resorted to increasingly time-consuming parenting styles (Doepke and Zilibotti 2017) and women continue to be the primary caregivers. As a result, their careers systematically diverge from men following the birth of the first child (Kleven et al. 2020; Kleven et al. 2019). This cost may explain, at least in part, the gap between fertility and desired fertility (Kohler, Billari and Ortega 2006).

Therefore, childcare remains the central tension within the grand gender convergence. The "*incomplete revolution*" hypothesis proposed by Esping-Andersen (2009) suggests that couples could resolve this tension by transitioning towards a generalized dual-earner model. This transition will imply a shift in policies and labor market institutions — *the care and labor regimes* (Fleckenstein and Lee 2020; Jurado-Guerrero and Naldini 2018)–, but also in the norms organizing marriage, fertility, and gender roles (Esping-Andersen and Billari 2015). This model largely encapsulates the policy mix commonly advocated by international organizations (Esping-Andersen 2002; OECD 2017) to address the challenge of ageing because, if implemented successfully, it could reconcile gender equality with fertility and take full advantage of women's labor to support social security. But, to what extent is it feasible?

Immigrants' role in the Grand Gender Convergence. The transition towards the dual earner model in Europe has overlapped with another major demographic development: the rising share of international immigrants. As shown in Table 1, net migration flows across

European countries have increased and become increasingly feminized since the 1990s (Van Mol and De Valk 2016).

How will female migrants fit into the transition towards the dual-earner model? The literature suggests that they could play a distinctive role (Anttonen and Sipilä 1996; Simonazzi 2009). Because of their younger age and higher fertility, immigrants may be able to alleviate the burden of ageing. They could take over jobs left by natives in the care and clean sector (Sánchez-Domínguez and Fahlén 2018) and reduce the cost of outsourcing domestic work for natives, and so increase local labor supply (Cortes and Pan 2017; Da Roit, González Ferrer and Moreno-Fuentes 2013; Farré, González and Ortega 2011; Gavanas 2013). As a result, their labor supply complement, rather than compete with, that of native women (Amuedo-Dorantes and De La Rica 2011).

What has received less attention, until recently (Nieto 2021; Sánchez-Domínguez and Guirola Abenza 2021; Vidal-Coso 2019), is the impact of the burden of care on immigrant households. This question is relevant not only in terms of female migrant opportunities. The stock of non-national households and their higher fertility rates imply that immigrants (and their descendants) will be a sizable part of future European population. If their behavior does not keep pace with natives', female migrants' participation will not only fail to alleviate the fiscal burden of ageing; they may also contribute to the survival of traditional gender norms and be the source of inter-ethnic tensions. This highlights the importance of understanding immigrants' specific circumstance into account in the recalibration of care and labor regimes.

3. Care and labor regimes: persistent South-North contrasts

The previous section highlighted that European societies face two interconnected demographic challenges: adapting their care and labor market regimes to a generalized dual earner model and accommodating an increasing number of female immigrants into this model. However, countries differ substantially in their arrangements regulating female labor and the provision of care (their "*care and labor regimes*"); how should these differences affect the integration of immigrants?

The impact of care and labor regimes is inherently difficult to study. It is made up of both formal regulations and welfare programs, as well as informal (and thus unobservable) norms and institutions that regulate the link between work and family. In this paper, we operationalize this problem around the contrast between Southern and Northern Europe. This distinction is common in the literature (Crespo and Mira 2014; De Giorgi and Pellizzari 2009; Iacovou 2011; Lafleur and Stanek 2017; León 2016; Reher 1998) and is visible in two key dimensions, as shown in Table 1.

The first dimension where the North-South gradient may be observed is in the pattern of female labor force incorporation. In the 1960s, both regions had low (Table 1), although very different female employment rates: near 34% in the North and roughly 10% lower in the South. In the last six decades, all countries increased these rates (to 55 percent in the North and 48 percent in the South), and several countries in the South (Spain and Portugal) overcame some of their Northern neighbors (e.g., France and Belgium).

The most striking difference, aside from employment rates, is the difference in hours worked (Table 1, column 4). In the North, the incorporation was largely into part-time employment, with 35 percent of working women in that status in 2020 (up to 60% in the Netherlands). In the South, in contrast, younger cohorts have entered the labor market primarily full-time, with 13% of employed women working part-time.

Table 1: Eleven country-level contexts for the care constraint on labor supply

		Female employment regime				Family policies		Migration regime		
		Employment rates		Year in which TFR reached the below-replacement level [3]	Part-time employment rate [4]	Public expenditure on family benefits, 2017 [5]	Enrollment rate, 2019 [6] (%)	Share of international migrants [7]		Share of female migrants [8], 2020
		1960 [1]	2019 [2]		2019			1990	2020	
Southern Europe	Spain	17.7	53.3	1981	21.4	1.31	38.2	2.1	14.6	52.2
	Portugal	17.0	54.8	1982	9.9	1.69	39.7	4.4	9.8	52.1
	Greece	35.5	44.4	1981	15.0	1.62	35.3	6.1	12.9	52.1
	Italy	24.6	41.3	1976	7.0	2.47	27.8	2.5	10.6	53.6
Northern Europe	Netherlands	22.6	59.8	1973	59.6	1.84	65.5	7.9	12.8	51.9
	Austria	44.8	56.0	1972	34.0	2.62	20.9	10.3	19.3	51.2
	Germany	41.1	56.6	1970	36.3	3.17	37.7	7.5	18.8	49.9
	France	36.5	51.3	1975	20.4	3.6	60.4	10.4	13.1	51.5
	Belgium	25.5	49.8	1972	28.0	3.15	58.1	8.9	17.3	50.9
	United Kingdom	37.6	58.7	1973	36.1	3.23	45.1	6.4	13.8	52.3
	Ireland	29.7	56.0	1991	32.8	1.62	42.9	6.4	17.6	50.1

Sources: [1] Olivetti Petrongolo (2016); [2] [4] [5] [6] OECD Social and Welfare Statistics; [3] World Bank; [7] [8] UN DESA (international migrant stock as a percentage of the total population at mid-year 2020 and the share of female migrants in the international migrant stock at mid-year.

The North-South contrast can equally be seen in policies and institutions (columns 5-6 of Table 1). Public expenditure on family benefits yields much higher values in Northern Europe (2.7% of GDP, on average) and substantially lower ones (1.8%) in the South. When looking at the prevalence of formal childcare, the pattern is clear: nearly half of children under the age of three are in formal childcare in the North, compared to one-third in the South.

These employment and policy patterns reveal that households allocate time differently between paid and unpaid work in Northern and Southern Europe: while in the South they are polarized between dual and single earner households, a large share of them in the North remain in the intermediate *"1.5 earner"* model.

The employment disparity between the North and South is consistent with previous literature, which shows that these regions differ on the family's ability to provide care (Leitner 2003; Saraceno and Keck 2010). Southern Europe has historically been characterized by strong family ties (Reher 1998) and low female labor force involvement, which has resulted in care being provided mostly within the household or the extended family (Bordone, Arpino and Aassve 2017; Jappens and Van Bavel 2012; León 2010; Peterson, Runyan and Peterson 2010). Over the last decades, the incorporation of Southern European educated women into the labor force has been supported by outsourcing care to the private (and largely informal) sector (Farré, González and Ortega 2011), whereas less educated women have stayed inactive or relied on extended family in the absence of public support (Bordone, Arpino and Aassve 2017). In contrast, in the North, family ties were weaker (Van Zanden, De Moor and Carmichael 2019) and women started joining the labor force earlier. Institutions supported the existing division of labor within households and consolidated the "*1.5 earner*" model (Riederer and Berghammer 2020).

4. External and internal determinants of childcare constraints on labor supply

Our previous discussion suggests that patterns of female labor supply may be influenced by countries' care and labor regimes. Could these arrangements also affect the integration of immigrants. This conjecture raises two questions: how do care and labor regimes affect the childcare constraint? and why should they have a specific effect on immigrants?

The starting point of our answer is that the *childcare constraint* is the outcome of the labor supply decision: households allocate time between unpaid care work and paid market work, and the share of women's time allocated to care constrains their (paid) labor supply. This decision may differ between women because they face different opportunity costs or because their households respond differently to them, what we call *constraints external and internal to the household*, respectively. Countries' care and labor regimes regulate external constraints making the external-internal distinction central to understand the effect of the receiving context.

4.1 Constraints external to the household: the opportunity cost of paid work

Mothers' opportunity costs associated with paid work are referred to as "external constraints". These constraints are external to the household because they are determined by the environment of the receiving country which shapes women's earning potential in the market (1), the availability of jobs compatible with the provision of childcare work within the household (2), and, on the cost of outsourcing childcare away from the household (3).

4.1.1. Labor market conditions and earning potential

When mothers can earn less in the labor market, the opportunity cost of providing care within the household decreases. The gap between natives and migrants may thus emerge directly from the generic (i.e., unrelated to motherhood) obstacles that the latter confront in the labor market (Dustmann and Frattini 2011; Kossoudji and Cobb-Clark 2000; Vidal-Coso 2019), such as discrimination (Birkelund et al. 2021), language skills (Yao and van Ours 2015) and lack of networks (Bilecen, Gamper and Lubbers 2018). These barriers reduce their earning potential — particularly for immigrant women from non-European countries (DeVoretz and Irastorza 2017; Kofman and Raghuram 2006; Riaño and Baghdadi 2007; Rubin et al. 2008)— and may make unpaid care work a less costly alternative. Alternatively, these obstacles may influence women's participation through their effect on their partner employment — the "*added worker effect*" (Guner, Kulikova and Valladares-Esteban 2020)—if women react to their partner's job loss by expanding their labor supply.

4.1.2. The access to flexible work arrangements and the dual-labor market paradox

Access to flexible work arrangements is a major driver of female employment's opportunity costs (Cortes and Pan 2017; Goldin 2014). Flexibility is defined as workers' ability to adjust the execution of their tasks to accommodate other activities. Flexibility thus enables mothers' to allocate time to unpaid work (Cortes and Pan 2018) while maintaining their paid job productivity, so shaping the care constraint.

Part-time work is perhaps the most frequent expression of flexibility in Europe, especially in the North (Table 1). Part-time arrangements protect a portion of mothers' schedule from work duties allowing them to accommodate care to work. Its effects on gender equality are, however, disputed and the literature distinguishes between the *segmenting* and *integrative* roles of part-time (Gallie et al. 2016; Riederer and Berghammer 2020): its highly gendered pattern may involuntarily marginalize them into low-end market niches (Fernández-Kranz and Rodríguez-Planas 2021), however, it may allow mothers to accommodate the burden of care and avoid leaving the labor market, especially less educated ones (Del Boca, Pasqua and Pronzato 2008).

The power of flexible work arrangements to accommodate care responsibilities will, however, depend on the protection of the employment relationship (Fernández-Kranz and Rodríguez-Planas 2011). When mothers resort to part-time to accommodate childcare responsibilities, they partly shift the cost of adjustment to firms. This is only possible if their employment status is protected, and employers cannot force them to work longer hours.

This often-overlooked interaction between flexibility and employment protection has two implications for our study. It could explain why part-time is less common in the South, where labor markets are dual. The prevalence of fixed-term contracts in the South (Polavieja 2003), leaves a large share of workers (*outsiders)* essentially unprotected. *Outsiders* are therefore unlikely to benefit from part-time or other maternity-friendly arrangements (Fernández-Kranz and Rodríguez-Planas 2021). At the same time, both in dual and non-dual labor markets, immigrants tend to be *outsiders,* working in the secondary or informal sector (Sánchez-Domínguez and Fahlén 2018) and lacking institutional protection. This status will exclude them from part-time strategies (Bevelander and Groeneveld 2012).

These implications translate into a paradox uncovered by previous research (Sánchez-Domínguez and Guirola Abenza 2021): immigrants may have an easier time narrowing the gap with natives in dual labor markets. While these provide less protection for outsiders, they also imply that a considerable proportion of natives are outsiders and, like immigrants, are excluded from part-time and other forms of protection.

At an empirical level, this has three implications. Firstly, whether the incidence of care translates into part-time or inactivity will differ between the North and the South. Second, as outsiders, immigrants in both regions are less likely to have access to part-time as a reconciliation strategy, particularly non-UE. Finally, the "*dual labor market paradox*" suggests that in dual labor markets the gap between natives and immigrants may be less severe.

4.1.3. Outsourcing strategies: Affordability of (public private) care market, state, and extended family networks.

Outsourcing childcare allows parents to work full-time. The cost and availability of substitutes for household production will thus influence the intensity of the care constraint, as well as its variation among countries and families (Cortés and Pan 2019; Raz-Yurovich 2014).

Societies have different *care regimes* (Anttonen and Sipilä 1996), and thus differ in the opportunities that they offer for outsourcing, and to whom. These depend on the availability of three alternatives: the public sector –childcare and education–, the private sector –formal and informal care–, or the extended family. As previously stated, public care is less prevalent in the South than in the North, and recently expanded private sector arrangements should translate in more unequal opportunities, which is consistent with the polarization between inactive and full-time working mothers.

The care regime of the receiving society should thus affect the integration of immigrants. If native families rely mainly on costly private childcare, immigrant households will be penalized since they will be unlikely to have the same resources. When natives resort to the extended family, as is common in the South, immigrants will be penalized since their extended family remains in their country of origin. Finally, when natives rely on public childcare, the gap could be easier to narrow only if immigrants have the same access, but this may not be the case given the barriers that immigrant households encounter in accessing public services (Römer 2017), particularly in the early years after arrival.

From an empirical point of view, this implies that immigrants are more likely to be care constrained due to their lower outsourcing capacity to either family, public, or private care arrangements. This gap could be more pronounced when care is organized around private or extended family networks (in the South) or, alternatively, if natives relied on public services (North) and immigrants faced institutional barriers to accessing them.

4.2 Constraints internal to the household: preferences, bargaining and motherhood norms

Even when they face comparable opportunity costs, households may make different decisions. The literature has shown that constraints internal to the household, such as culture, aspirations, and gender norms can account for differences in (1) labor supply (Fernandez and Fogli 2009; Polavieja 2015), (2) the willingness to outsource housework (Van der Lippe, Frey and Tsvetkova 2013) or (3) the response to the partner's loss of employment (Gonalons-Pons and Gangl 2021; Vidal-Coso 2019).

Mother's willingness to work may differ across regions due spatial transmission of cultural norms (Moriconi and Rodríguez-Planas 2021). While these are likely to be historically endogenous to labor market arrangements, in the short-term they are likely to be sticky and create differences in outcomes, even within the same country (Collins 2019).

Internal constraints are especially important when comparing migrants to natives. Female immigrants may emigrate from countries with different gender norms and family systems, or they

may lack labor market experience or professional identity. The relative traditionalism of their households (Kanas and Steinmetz 2021) can be considered the default explanation for the adoption of more traditional gender roles. In fact, the evidence on the effect of cultural norms comes primarily from the study of immigrant's behavior in receiving countries (Fernandez and Fogli 2009; Hou and Frank 2015; Polavieja 2015; Röder and Mühlau 2014).

Internal constraints imply that the observed native-immigrant differences in the care-constraint can be explained empirically by differences in willingness to work. When observable sociodemographic characteristics – education, age – accounting for differences in culture or aspirations, and, especially, previous labor market experience – as a proxy for willingness to work – are considered in Europe, these differences typically vanish.

4.3 Assimilation in the view of the care constraint (internal vs. external constraints)

Our previous discussion of external and internal constraints sheds new light on how the process of convergence with natives with the length of stay—*assimilation*— can take place. With longer lengths of stay, immigrants' external constraints may converge with natives. The legal, institutional, linguistic, and cultural barriers that result in the reduction of immigrant's human capital (Zwysen 2019) may disappear over time (Chiswick and Miller 2014). Migrant households may be able to get flexible work arrangements and childcare facilities, and the opportunity cost of labor force participation may converge with natives. It is also possible, however, that immigrants converge with natives in their internal constraints (Algan et al. 2012), for example, if their preferences or culturally grounded motherhood norms change with the length of stay.

We expect the gap between natives and EU immigrants to be less than the gap between non-EU immigrants on both external and internal constraints. With respect to external constraints, EU immigrants have better institutional protection and access to care and employment services (Fellini and Guetto 2020). But at the same time, we also expect that their households will be more similar to natives in the receiving countries in terms of preferences and willingness to work.

External vs internal constraint and the assimilation debate: The heart of the debate over the benefits of immigration for receiving countries revolves upon the evaluation of the care constraint on labor supply, as well as the relative importance of internal and external constraints. If labor and care regimes — external limitations — prevent migrants from participating in the labor market, countries can adapt to them, integrating migrants into a dual earner-career model, and thereby taking full advantage of migrants' labor. However, if lower participation is due to traditional gender or cultural norms, a higher proportion of female migrants will increase the number of homes where women are not incorporated to the labor market. Assimilation would be more difficult in that scenario, as it would mean restricting immigrants' cultural and social identities in a potentially more conflictive process.

4.4 Research hypotheses

The previous discussion lies several empirical expectations which inform our analysis. Firstly, we expect that the North and the South's *care and employment regimes* will influence how the care burden translates into labor supply (H1). In particular, the previously observed patterns of polarization of dual full-time earners and single earner households in the South, vs. 1.5 earner in the North result from the heterogeneous effect of care responsibilities.

Secondly, we expect the care constraint to result in a *native-immigrant gap in labor market* participation both in the North and the South, that should persist even once we consider observable characteristics-- such as differences in care burden or human capital (H2).

Thirdly, the gap caused by the care constraint should result from a mix of *internal and external constraints*. This gap could result from a) the exclusion from part-time jobs, which will especially penalize immigrant participation where these arrangements are more common (in the North) (H3a), b) from worse opportunities to outsource care responsibilities (H3b), or c) from different *willingness to participate* in the labor market (H3c). Our goal is to quantify the contribution of these factors.

Finally, the hypothesis of *assimilation* suggests that these gaps should decrease over time, and also be smaller for EU immigrant than to non-EU, given that the latter are more similar to natives than the former (H4).

5. Empirical strategy

The factors governing the childcare constraint on labor supply are complex and, as we argued, distinguishing between external and internal constraints is critical to understand their impact on immigrant integration. Their analysis, on the other hand, poses major empirical challenges which may explain why no clear answer to the previous questions exists in the literature. This section outlines the nature of these challenges, details our strategy to address them, and discusses where it stands with respect to alternative approaches.

5.1 The identification problem

The core of the empirical problem is simple: the causal effect of the care burden cannot be directly inferred from observational data. The observation that mothers work less hours does not allow to conclude that reducing their burden —e.g., through a policy intervention-- would increase their labor supply. The *identification problem* (Manski 1993) comes from our need to make two distinctions implied by our hypotheses.

Firstly, we need to distinguish the *care constraint* from a *spurious* correlation between motherhood and working hours. This association would be spurious if mothers' labor supply was lower for reasons unrelated to their care burden. Some women, for example, may be socialized into more traditional marital roles (not necessarily linked to motherhood) resulting in different aspirations and educational investments. These could translate into less hours worked regardless of the care burden, but also translate into higher fertility. The burden of childcare could therefore have no constraining effect on hours worked, but it would correlate with them.

Secondly, even if we can impute a causal effect to the childcare burden, we need to distinguish between constraints that are internal (affecting their willingness to work) and external to the household (affecting the opportunity cost). As previously stated, these two mechanisms have different implications that are central to understand how the care and labor regime influences the migrant-native gap. Table 2 summarizes the distinction between these three links between motherhood and hours worked.

The problem of identifying these three mechanisms is central to the empirical study of the *child penalty* (see Clarke 2018 for a review). While certain differences between mothers and other groups — e.g., education– are observable in the data, others — gender roles, aspirations, willingness to work– are more difficult to control empirically. These unobservables blur any direct comparison between mothers and other groups, preventing policymakers from determining the margin for policy intervention.

The problem of unobservables in the comparison between migrants and natives adds another layer of difficulty to identification. As argued in section 4, migrants are likely to differ from natives in terms of both *external* (e.g., access to care facilities or flexible jobs) and *internal* constraints (e.g.,

Table 2: Three possible causal paths

LINK MOTHERHOOD WORK	CONSTRAINED BY CARE	WILLING TO WORK MORE	POSSIBLE MECHANISMS
Spurious correlation	No	No	- Traditional spousal roles – Lack of human capital
Constraints internal to households	Yes	No	- Traditional parenting roles/preferences – Intrahousehold bargaining
Constraints external to households	Yes	Yes	- Access to flexible work. – Unaffordable childcare

Source: Authors' elaboration.

motherhood norms). However, because these constraints are not directly observable, identifying why immigrants differ from natives, how they converge over time and how policies could influence these outcomes remains an empirical challenge.

5.2 Data and identification strategy

To identify the care constraint, we combine data on employment status with subjective information provided by survey respondents in the European Labor Force Survey (EU-LFS). This strategy enables comparisons across countries and between locals and immigrants, as well as identifying the care constraint and its (external vs. internal) nature.

The EU-LFS gathers annual cross-sectional data for all EU countries covering their whole population and documenting its household composition, sociodemographic profiles, and labor market status. For non-nationals, it includes information on their nationality and length of stay in the country. We subsample data for 11 European countries between 2004 and 2019 for which information on household composition and care incidence is available. We subset working age mothers living in households with children under 14 years old. In total, this amounts to a pooled sample of 6.77 million women[3] of which Table 3 provides summary statistics.[4]

The central advantage of the EU-LFS is that it collects information on respondents' (subjective) reasons for their (objective) employment status. When they are either working part-time or inactive (i.e., neither employed nor looking for a job), respondents are asked about the reasons for this status. This allows us to disentangle the effect of care from other confounding factors linking motherhood to employment. We classify as *"Care Constrained",* our dependent variable*,* those who mention the provision of care as their main reason for their working status, subdividing them as *"Part-time: Care''* (if their employment status is part-time), or *"Inactive: care"* (if inactive). Each respondent thus falls in one of 5 categories that allow to characterize the response to the care responsibilities: *Full-time*, *Part-time for care reasons*, *Part time for other reasons*, *Inactive for care reasons*, and *Not-working for other reasons* (when the person is unemployed and looking for a job, or when she is inactive for other reasons).

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[3] Table A1 (Appendix) shows the sample size and time scope by country of destination.

[4] For comparison, we will also use the sample of men living in households with children, amounting to 6.37 million observations.

Table 3: Sample characteristics and distribution of independent variables by region and migrant status (%)

	North			South		
	Native	EU	Non-EU	Native	EU	Non-EU
Age						
16-29	21.2	21.2	25.8	15.1	24.7	30.9
30-44	61.0	63.6	59.9	65.4	64.1	57.7
45-59	17.1	14.2	12.9	17.8	10.3	9.8
60+	0.7	0.9	1.4	1.7	0.9	1.6
Years of residence						
>= 2 years		8.5	7.6		4.5	6.5
3-5		17.2	16.9		15.1	18.7
6-9		22.1	20.0		27.7	28.5
10-14		22.0	23.6		32.4	28.7
15 <		12.4	13.9		6.2	4.7
Education						
Primary	19.3	25.3	51.8	39.9	31.3	56.7
Secondary	45.9	39.8	26.5	35.2	46.7	30.7
University	34.8	34.9	21.7	24.9	22.0	12.5
Urbanization [1]	40.9	56.1	65.6	42.0	39.6	51.3
Partner's employment status						
Employed	70.0	71.3	59.4	74.5	70.8	65.3
Inactive	4.8	5.7	12.0	6.0	5.6	5.2
Unemployed	3.1	4.1	9.0	5.1	9.1	10.8
No partner	22.1	18.9	19.5	14.5	14.5	18.7
N of children in the household by age category						
0-3	0.3	0.4	0.4	0.3	0.3	0.4
4-11	1.3	1.3	1.6	1.2	1.2	1.4
12-14	1.7	1.6	1.9	1.5	1.4	1.6
N	2,708,660	169,413	227,477	3,321,727	80,637	267,103

Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: (1) Percentage of people living in highly urbanized areas.

To assess how the burden of care affects employment in the North and South (H1), we examine the likelihood of men and women in each category pooling all survey waves regions in two (North and South) samples. Our expectation is that the care constraint will lead to *more "Part-time: Care"* in the North than in the South sample.

To compare the incidence of care on migrants and natives in the North and the South, we focus on women (H2 and H3a). We distinguish between EU and Non-EU immigrant and compare their probability of being in the status of *'Full time'*, *'Part-time: Care'*, and *'Inactive: Care'* with natives. We use a linear probability model to assess the share of this gap that can be explained by differences in observable characteristics. A first baseline specification (*(1) No controls*) includes country-year intercepts only, and thus captures the average gap between migrants and natives. A second specification (*(2) Controls*) adjusts for differences in *household composition* and *human capital* that may affect the opportunity cost of withdrawing from the labor market: it includes controls for

urban density, education, 5-year age categories, the existence of a *partner in the household* and *its employment status*. A third specification (*(3) Care burden*) tries to assess the impact of a well-known difference between migrants and natives, namely the *age* and the *number of children*. It includes controls for the number of children in the household in each school-age category: pre-school (under 3), primary and elementary (3 and 11) and secondary (between 12 and 14).

After estimating the native-migrant gap in care-constrained part-time and inactivity, we quantify the extent to which this gap can be explained by constraints internal to the household (H3c). Based on Table 2, we thus look for indicators of the willingness to work. Firstly, we control for the reported *willingness to work* in case of finding a suitable job. Secondly, we add a dummy for *previous work experience*. Our assumption is that inactivity due to care reason combined with the absence of previous work experience is an indicator of the degree of specialization in unpaid care work, and thus a proxy for how these women would behave in the absence of external constraints.

We also address a specific constraint external to the household: differences in *access to care services* (H3b). To answer how the native-immigrant gap would be in the absence of this obstacle, we consider two policy scenarios. In scenario "*Universal*", all households (native and migrants) are granted free access to care services; in scenario "*Targeted*", access is targeted at immigrants only as part of an integration policy. The EU-LFS asks those respondents declaring working part-time or being inactive due to care responsibilities whether they would increase their labor supply if they had access to care facilities[5]. We thus simulate each scenario recoding as 0 the variable *Part: Care* and *Inactive: Care* when the affected care-constrained mother (all mothers in "*Universal*", only migrants in "*Targeted*") reports a willingness to work more hours if she had access to affordable care services. Estimating the gap in these two scenarios, and comparing it to the status quo, allow us to establish how care policy could promote the integration of migrant mothers.

Finally, we evaluate assimilation (H4) re-running previous analyses but distinguishing immigrants by the length of their stay in the country. While this exercise is subject to survival bias (if immigrants leave the country in the face of low employment opportunities), it allows to assess whether their outcomes converge with those of natives for those who spent a large enough time in the country. A particular concern with this analysis is that convergence may occur because the care constraint decreases as children become older. We thus control for the number of children in each age interval. Finally, we evaluate whether policies promoting access to care services could facilitate the integration in the early stages of migration, considering only the gap attributable to care-services access as a function of the length of stay (i.e., excluding those not willing to outsource care responsibilities).

5.3 Advantages and limitations of our identification strategy.

The above strategy can address the identification problem because respondents' reported reasons are informative about how they would act in the counterfactual where a) they did not have care responsibilities, b) could find a job compatible with their care responsibilities, and c) had access to affordable care services.

The central limitation of our identification strategy is that the reasons reported by respondents may not correspond to their counterfactual behavior. They may instead reflect an *ex-post* rationalization of *ex-ante* constrained behavior. In the context of our research question, the exclusion from childcare services or flexible work arrangements could affect reported willingness to work, and thus controlling for the latter may bias downward our estimates of the effect of the

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[5] The item used to answer this question presented a significant number of missing values. We thus proceeded to statistically impute them to preserve the comparability of the sample to other analyses. The details are described in the Appendix.

former. This limitation implies that the estimates of the impact of external constraints can only be interpreted as a lower bound on their actual effect. In addition, we address it, and we also contrast reported willingness to work with previous employment experience.

A second limitation comes from the potential selection of immigrants. The specialized literature recognizes (Borjas, Kauppinen and Poutvaara 2019) that migrant self-selection is important in explaining migrant economic behavior in the destination country. As a result, female migrants who are more attached to the labor market may emigrate to countries with better employment opportunities. Such a selection effect would be to bias downward the estimates of external constraints, but to the extent that such selection affects the *declared* work orientation (expressed willingness to work, or behavior if they had access to childcare services), our analysis partly addresses such constraint.

Our strategy has, however, two key advantages over existing approaches based solely on observed behavior, such as event studies around childbirth (Nieto 2021; Vidal-Coso 2019): it can be implemented using cross-sectional survey data from multiple countries, yielding comparable estimates, and it allows us to distinguish between internal and external constraints. Because our goal is to assess how the receiving country's context affects the native-immigrant gap, and considering the aforementioned caveats, we believe these two benefits outweigh its limitations.

6. Results

Following our empirical strategy, we begin by measuring the effect of care against other obstacles to full-time employment; we then investigate the reasons why immigrants confront these barriers; and, finally, we examine how these obstacles vary with the immigrants' length of stay.

6.1 Descriptive results: The care constraint vs. other reasons for non-work

Gendered patterns in the care constraint: North-South contrast. Figure 1 illustrates the gendered incidence of the care burden by presenting the share of native men and women living in households with children under 14 in each of the five employment status for the North and the

Figure 1: Care constraint by gender in Europe
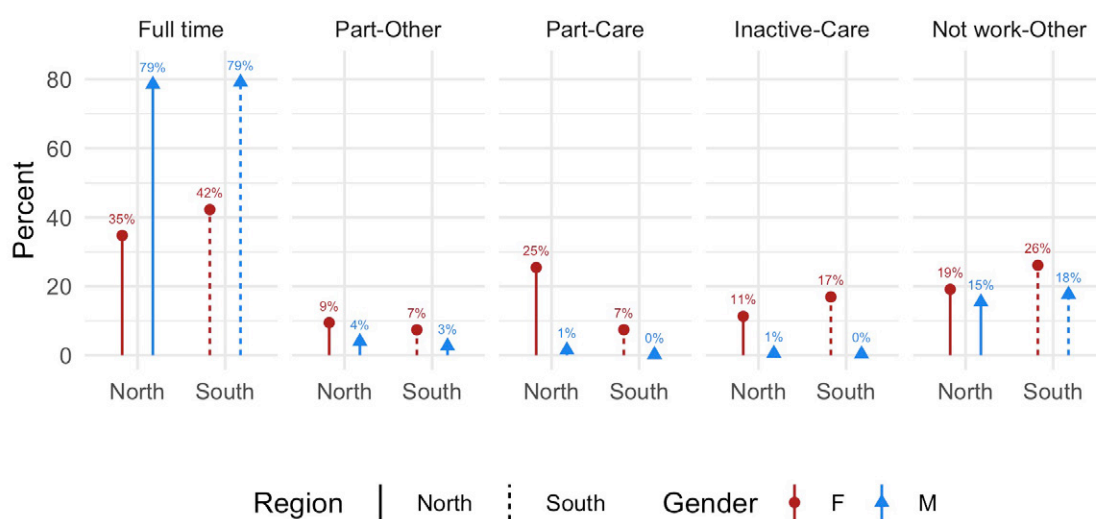
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included.

Figure 2: Care constraint by gender by country
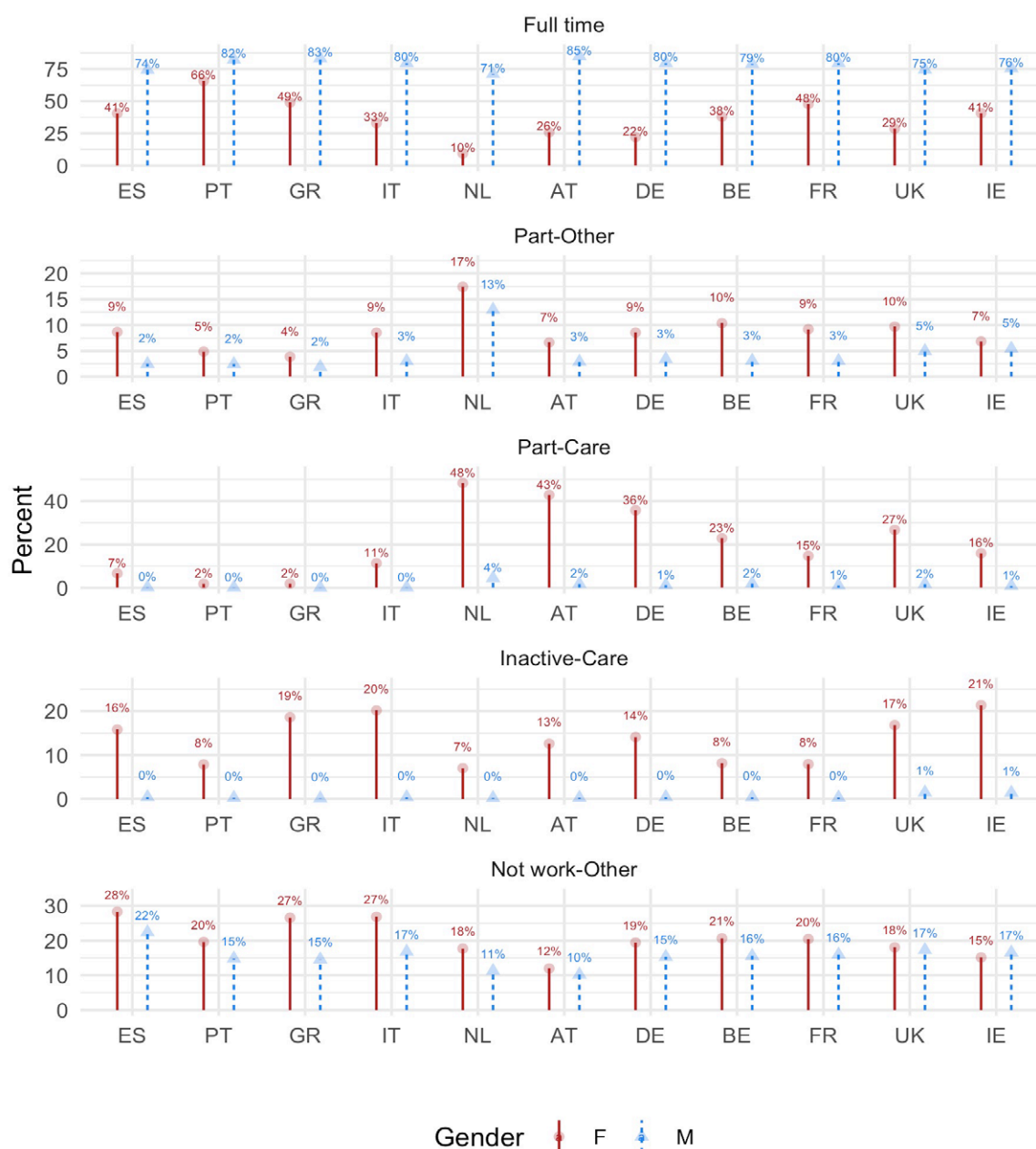
Full time

	ES	PT	GR	IT	NL	AT	DE	BE	FR	UK	IE
F	41%	66%	49%	33%	10%	26%	22%	38%	48%	29%	41%
M	74%	82%	83%	80%	71%	85%	80%	79%	80%	75%	76%

Part-Other

	ES	PT	GR	IT	NL	AT	DE	BE	FR	UK	IE
F	9%	5%	4%	9%	17%	7%	9%	10%	9%	10%	7%
M	2%	2%	2%	3%	13%	3%	3%	3%	3%	5%	5%

Part-Care

	ES	PT	GR	IT	NL	AT	DE	BE	FR	UK	IE
F	7%	2%	2%	11%	48%	43%	36%	23%	15%	27%	16%
M	0%	0%	0%	0%	4%	2%	1%	2%	1%	2%	1%

Inactive-Care

	ES	PT	GR	IT	NL	AT	DE	BE	FR	UK	IE
F	16%	8%	19%	20%	7%	13%	14%	8%	8%	17%	21%
M	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%

Not work-Other

	ES	PT	GR	IT	NL	AT	DE	BE	FR	UK	IE
F	28%	20%	27%	27%	18%	12%	19%	21%	20%	18%	15%
M	22%	15%	15%	17%	11%	10%	15%	16%	16%	17%	17%

Gender   F   M

Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included.

South. While men's' full-time employment rate is 79% in both regions, for women it is 35% in the North and 42% in the South. Most of this gap can be accounted by the large share of women who are *"care-constrained"* — either inactive or working part-time due to care responsibilities (36% in the North and 24% in the South) — compared to the marginal share of men (2% in the North, and less than 1% in the South).

North-South differences are also apparent in Figure 1. In line with our findings in table 1 and H1, female employment rates are larger in the North than in the South (69% vs. 56%) because part-time arrangements allow women to reconcile their work and family life to a larger extent. As a result, in the North, the care constraint manifests itself in the *1.5 earner model*: 25% of mothers work part-time due to care responsibilities, while complete inactivity is less prevalent (11%). In the South, however, there is a *polarization* of work-family trajectories, with a larger share of

Figure 3: Care constraint by migrant status in Europe
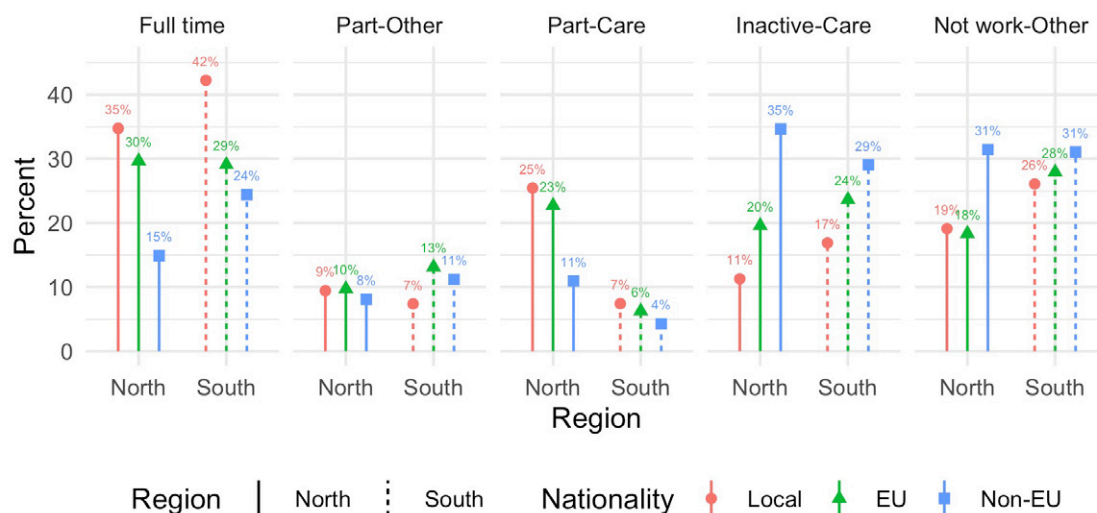
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under
14 years old are included.

mothers working full-time (42%) and 17% becoming inactive, and a much smaller share resorting
to intermediate part-time arrangements (7%).

These findings support our hypothesis (H1) that the North-South contrast in inactivity and part-
time reflects differences in how these regions handle care responsibilities. This is clear when
comparing part-time employment for non-care reasons to part-time for care reasons, where the
North and the South differ by only 2 percentage points.

Figure 2 validates the empirical relevance of the Figure 1 shares by quantifying them for individual
countries. Intra-cluster homogeneity is clearest for the shares in the *"Part-Care"* category: France
is the lower bound of the North Cluster, with 15% of mothers in that status, 4 percentage points
higher than Italy (11%), the upper bound of the South cluster. Other categories show similar but
less severe disparities, particularly *'Inactive-Care'* (Portugal, Ireland and UK are notable
exceptions).

Migrant-native contrasts. Figure 3 compares the percentage of native women to EU and non-
EU immigrants. It illustrates that female migrants have a lower employment rate than natives in
all countries, and the gap with natives is greater for non-EU nationals (35 and 17 pp. in the North
and the South, respectively) than for EU nationals (6 pp. in the North and 8 pp. in the South).

Part-care contributes to the native-immigrant gap in employment: while the share of migrants
resorting to the part-time strategy is higher in the North, the even larger share of natives (25%)
in this status results in a substantially larger inactivity gap between natives and non-EU
immigrants. This is consistent with our hypothesis that, part-time penalizes is an option only
available for labor market *insiders* —within the framework of stable employment relationships—
to which migrants, particularly non-EU face greater institutional obstacles.

The mirror image of the native-migrant gap in *Full-time* and *Part-Care* is a gap of the opposite
sign in *Inactivity: Care*, which is particularly large in the North (of 9% —twice the native share—
for EU migrants, and 24%–three times– for non-EU). Compared to the gap in non-employment for
other reasons (*"Not work-other"),* inactivity due to care reasons is the major cause behind the gap
native-immigrant employment gap.

Figure 4: Care constraint by migrant status and by country of destination
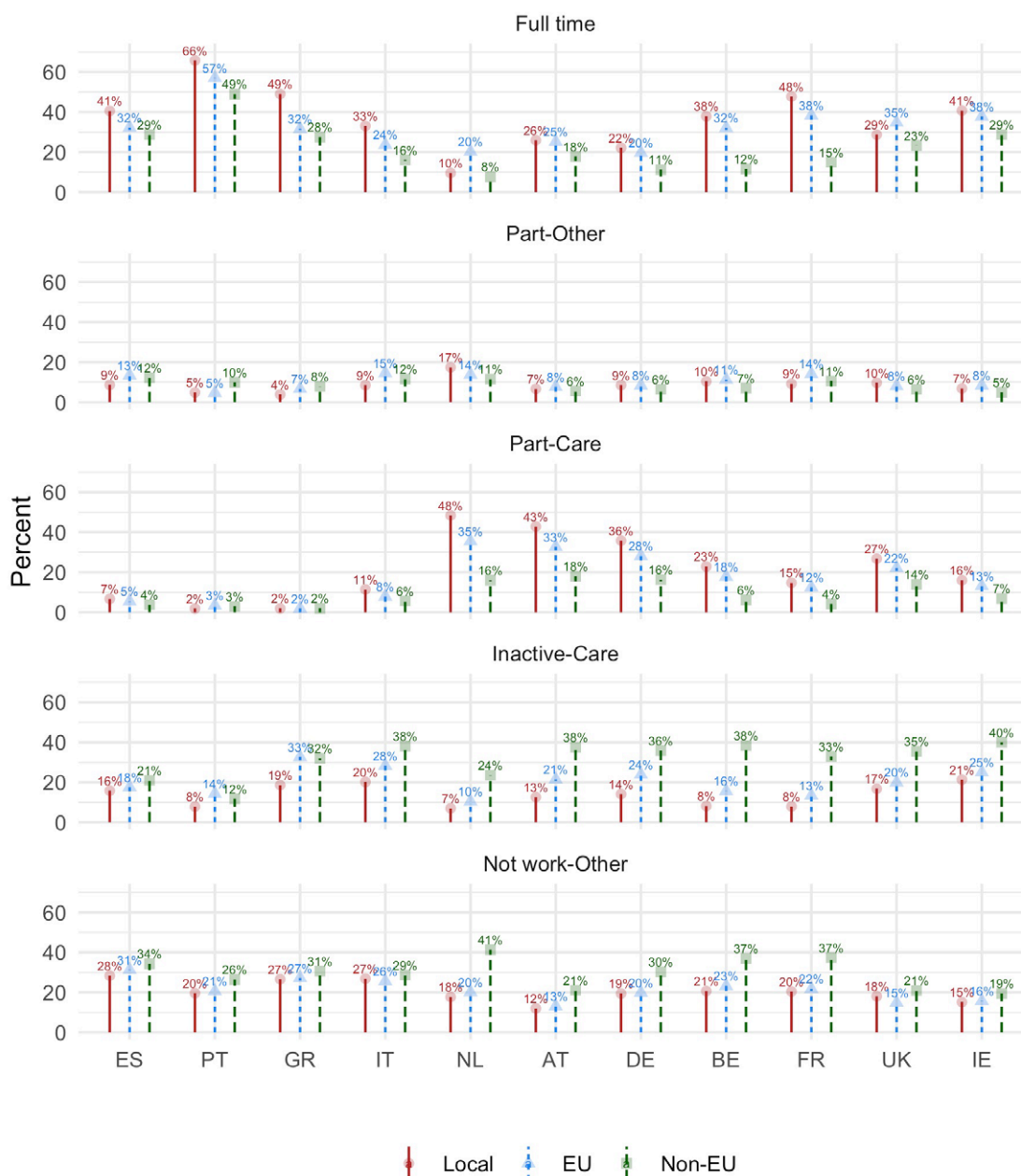
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included.

Figure 4 shows how the same patterns exist within each cluster. In almost all Southern countries, the gap between natives and non-EU mothers in Part-Care and Inactive-Care is smaller than in any of their Northern counterparts.[6]

The pattern is clear: the care constraint affects migrants differently than natives. Quantitively, the care constraint explains close to two-thirds of the gaps in employment between native and non-EU immigrant mothers. Jointly taken, the gaps in part-time and inactivity due to care reasons outweigh the gaps in these statuses due to other reasons. Furthermore, the native-immigrant gap

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[6] The only alteration of the ranks happens for Italy (18 pp gap) and the Netherlands (17 pp gap) with respect to inactivity.

is larger in the North, where part-time is the main avenue to accommodate care responsibilities, suggesting that the gap results from immigrants' exclusion from these arrangements.

6.2 Decomposing the migrant-native gap in the childcare-constraint

6.2.1 Lineal Probability Model (LPM) results on native-immigrants care constraint

Figure 5 shows the result of the linear probability model, which enables in understanding the factors contributing to the gap between migrants and natives in each region.

The dots represent (vertical axis) the estimated gap between native and immigrant in the probability of being in full-time, part-time due to care reasons and inactive for care reasons using the EU-LFS 2004-2019. The baseline specification *Model (1) No controls* shows the raw native-immigrant gap, controlling for country-year effects. Model *(2)* c*ontrols* adjusts for differences in urban density, education, age, the presence of a partner in the household and his employment status. Model *(3) Care Burden* adds controls for the number of children and their age; finally, the last three specification adjusts for previous work experience: Model *(4) Ever worked,* and Model *(5) Want work controls* by willingness to work; and both Model *(6) Want work+ever.* All coefficients are statistically significant. See Figure A1 (Appendix) for the numeric values of estimates and standard errors.

Figure 5 confirms the image shown in Figure 3: larger gaps in the North between natives and migrants in their *Full-time* and *Part-Care* shares translate into gaps of the opposite sign in *Inactive-Care.*

Consider first the gap between natives and non-EU immigrants in part-time due to care reasons. Part-time patterns confirm our descriptive results. Natives are 15.9 percentage points (pp) more likely than migrants to resort to part-time to handle the care burden than migrants in the North. This gap only declines to 11.6 pp when observable characteristics are considered (*(3) Care Burden).* In the South the gap has the same direction, but is one order of magnitude smaller, ranging from 3.4 pp in the baseline to 2.6 pp after adjusting for observables.

For inactivity, the baseline gap between natives and non-EU immigrants is disproportionately larger in the North (23 pp) than in the South (11.8 pp). Adjusting for observables reduces its size by half in the South (6.6 pp) but remains much larger in (14 pp) in the North, mirroring the gap in part-time.

The gaps between EU migrants and natives are qualitatively similar but smaller in size. The gaps are not reduced by controlling for observables (model *(2) Controls* and *(3) Care burden*) in human capital or care burden, since these are significantly closer to those natives than to those of EU.

6.2.2 LPM results on native-migrants gaps controlling for internal constraints

Figure 5 also compares previous estimates to those after controlling for differences in willingness to work and previous employment experience; thus, the estimated coefficients in models 4 to 6 can thus be interpreted as a lower bound on differences in *external constraints.* These findings indicate that the relatively larger share of non-EU migrants who lack employment experience or are unwilling to work accounts for a large portion of the initial difference in inactivity. Even when those willing to work and with employment experience are compared (specification *(6) Want work+ ever*), the North has a care-driven inactivity gap of 5.8 percentage points (vs. 14 percentage points before controlling) and the South has a gap of 2.6 percentage points (vs. 6.6 pp).

It is worth noting that the three specifications that control for previous employment experience (*(4) Ever worked*), willingness to work (*(5) Want work*) or both (*(6) Want work+ eve*r) deliver

Figure 5: Sociodemographic and internal constraints of care among immigrants in Europe
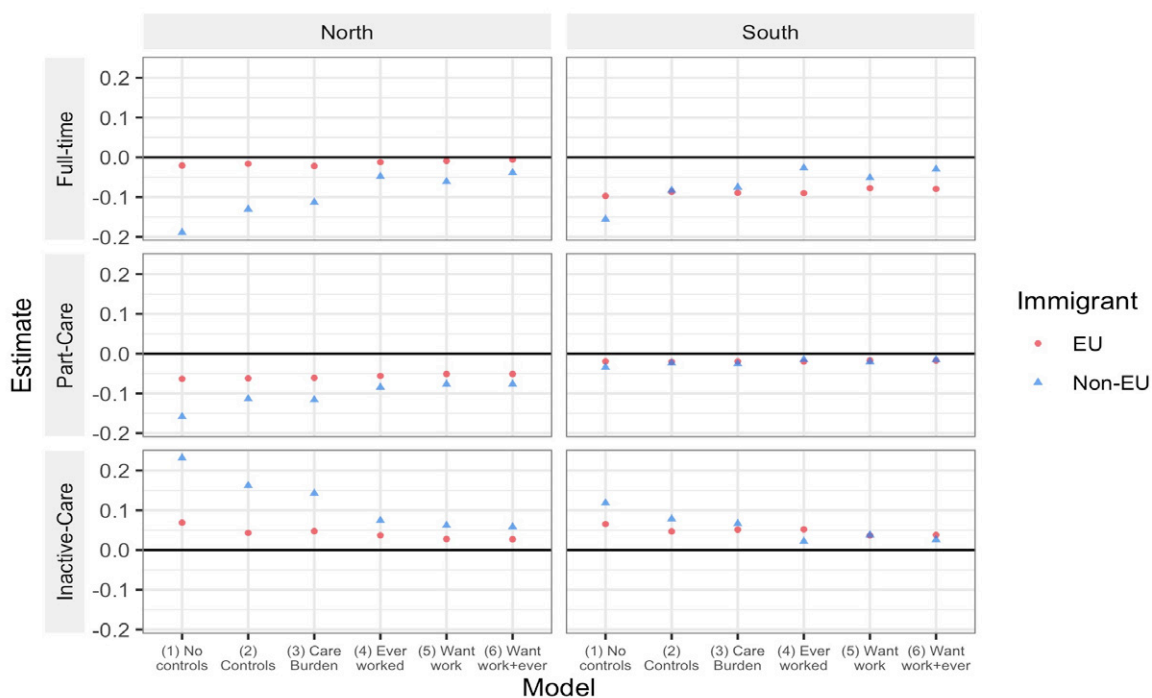
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: The dots represent (vertical axis) the estimated gap between native and immigrant in the probability of being in each status using the EU-LFS 2004-2019, and the vertical bands represent the 99% confidence intervals. The specification (1) No controls is the unadjusted gap, including only country-year intercepts; (2) Controls adjusts for differences in urban density, education, age, the presence of a partner in the household and its employment status; (3) Care Burden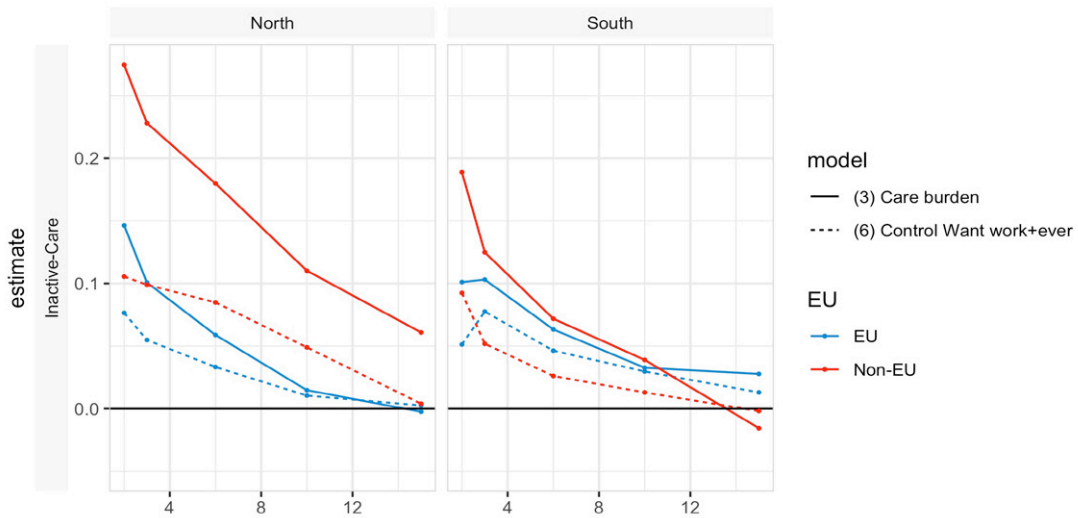 adds controls for the number of children and their age; finally, the last three specification adjusts for previous work experience —(4) Ever worked—reported willingness to work—(5) Want work—and both (6) Want work+ever. See Figure A1 (Appendix) for the numerical values of estimates and confidence intervals.

very similar results. These two variables are highly correlated, suggesting that reported low willingness to work and a lack of work experience both reflect the same internal constraints. As a result, while declared willingness to work is exposed to misreporting, previous employment experience is less sensitive, which validates our approach.

6.2.3 Results: Margin for childcare as an assimilation policy

We now turn to consider a specific form of constraint external to the household: access to affordable childcare. Figures 6 and 7 present the gaps resulting by the *Universal* (all mothers have access to care services) and *Targeted* (only immigrants are granted access) policy scenarios and compares them to the status quo. If a respondent reports a willingness to work longer hours if care services were available or affordable, the model is re-estimated by recoding the dependent dummy variable as 0.

Non-EU migrants in the North have the smallest margin for eradicating care-constrained inactivity (Figure 6, lower-left panel). Nonetheless, we estimate that their gap adjusted by observables (*(3) Care Burden*) could be reduced by 5 pp (*Universal* policy) to 9.5 pp (with *Targeted* policy), while the unadjusted gap (*(1) No controls*) could be reduce by 6.6 pp to 10.1 pp. Even when the policy is targeted, an adjusted gap of 4.7 pp would remain, suggesting that either constraints within the household or other external constraints are a hard limit to the effect of policy.

Figure 6: External constraints to labor supply in Europe, inactive due to care reasons

|		North			South		
		(1) No controls	(2) Controls	(3) Care Burden	(1) No controls	(2) Controls	(3) Care Burden
EU	Inactive-Care	0.069*** (0.001)	0.043*** (0.001)	0.047*** (0.001)	0.065*** (0.001)	0.047*** (0.001)	0.051*** (0.001)
	Inactive-Care: Universal	0.043*** (0.001)	0.026*** (0.001)	0.029*** (0.001)	0.045*** (0.001)	0.034*** (0.001)	0.037*** (0.001)
	Inactive-Care: Targeted	0.001 (0.001)	-0.023*** (0.001)	-0.019*** (0.001)	-0.022*** (0.001)	-0.038*** (0.001)	-0.034*** (0.001)
Non-EU	Inactive-Care	0.232*** (0.001)	0.162*** (0.001)	0.142*** (0.001)	0.118*** (0.001)	0.078*** (0.001)	0.066*** (0.001)
	Inactive-Care: Universal	0.166*** (0.001)	0.12*** (0.001)	0.108*** (0.001)	0.078*** (0.001)	0.055*** (0.001)	0.048*** (0.001)
	Inactive-Care: Targeted	0.131*** (0.001)	0.065*** (0.001)	0.047*** (0.001)	0.007*** (0.001)	-0.031*** (0.001)	-0.041*** (0.001)

Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: Estimates reflect the gap between native and immigrants in the probability of being inactive due to care reasons in each scenario. Each line reflects a different scenario: baseline (no intervention), Universal (free childcare for both natives and immigrants) and Targeted (only for immigrants). Each columns reflects a different specification (1) No controls is the unadjusted gap, including only country-year intercepts; (2) Controls adjusts for differences in urban density, education, age, the presence of a partner in the household and its employment status; (3) Care Burden adds controls for the number of children and their age.

The margin for policy intervention is larger in the South: the gap in inactivity (Figure 6, lower-right panel) could be completely eliminated and even reversed for non-EU immigrants via a targeted care policy (a reduction of close to 10 pp) and reduced to a lesser extent (from 6.6 percent to 4.8 percent in the adjusted specification) via a universal policy. The disparity between these two policies in comparison to the North reflects, in part, the fact that a relatively larger proportion of natives are inactive due to a lack of affordable care-services.

The impact of care policies on the *Part-Care* gap is qualitatively different (Figure 7).

Given that native women outnumber immigrants in this category, a policy aimed at closing the gap with natives aggravate the already-existing one. This increase is interpreted as the potential gains in full-time rates from a relaxation of the part-time requirement. The largest reductions would be for EU (6.8 pp) and non-EU migrants (3.3 pp) in the North, while these would be smaller in the South, reflecting the comparatively lower share of immigrants in that status.

A "Universal" care policy, on the other hand, would reduce the size of all gaps. This reduction results because the share who would move from part-time to (presumably) full-time is larger for natives than for migrants. This can be interpreted as evidencing that for migrants, internal constraints played a larger role in explaining *Part-Care* status than for natives.

These counterfactuals do not necessarily reflect cost or politically feasible scenarios, but they show that a part of the gap can be closed by providing access to care services and is thus unequivocally driven by differences in constraints external to the households.

Figure 7: External constraints to labor supply in Europe, part-time due to care reasons.

		North			South		
		(1) No controls	(2) Controls	(3) Care Burden	(1) No controls	(2) Controls	(3) Care Burden
EU	Part-Care	-0.063*** (0.001)	-0.062*** (0.001)	-0.061*** (0.001)	-0.019*** (0.001)	-0.02*** (0.001)	-0.019*** (0.001)
	Part-Care: Universal	-0.057*** (0.001)	-0.054*** (0.001)	-0.053*** (0.001)	-0.015*** (0.001)	-0.015*** (0.001)	-0.014*** (0.001)
	Part-Care: Targeted	-0.131*** (0.001)	-0.13*** (0.001)	-0.129*** (0.001)	-0.042*** (0.001)	-0.042*** (0.001)	-0.041*** (0.001)
Non-EU	Part-Care	-0.159*** (0.001)	-0.114*** (0.001)	-0.116*** (0.001)	-0.034*** (0)	-0.024*** (0)	-0.026*** (0)
	Part-Care: Universal	-0.126*** (0.001)	-0.086*** (0.001)	-0.088*** (0.001)	-0.026*** (0)	-0.016*** (0)	-0.018*** (0)
	Part-Care: Targeted	-0.19*** (0.001)	-0.146*** (0.001)	-0.149*** (0.001)	-0.051*** (0)	-0.041*** (0)	-0.043*** (0)

Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: Estimates reflect the gap between native and immigrants in the probability of being working Part-time for care reasons. Each line reflects a different scenario: baseline (no intervention), Universal (free childcare for both natives and immigrants) and Targeted (only for immigrants). Each columns reflects a different specification (1) No controls is the unadjusted gap, including only country-year intercepts; (2) Controls adjusts for differences in urban density, education, age, the presence of a partner in the household and its employment status; (3) Care Burden adds controls for the number of children and their age. 0 standard errors arise from rounding.

6.3 Convergence with length of stay

Our previous estimates demonstrated how specific constraints —both internal and external to the household— reduce migrants' activity rate and access to part-time jobs. As previously stated, the assimilation hypothesis suggests that these gaps may disappear as workers stay in the country for longer periods of time. We now turn to distinguish the size of the gap by different lengths of stay (less than 3 years, 3 to 5 years, 6 to 9, 10 to 14 and above 15 years) estimating the *(3) Care constraint* and *(6) Want work+ever* specification separately for each of these groups.

Figure 8 portrays the inactivity contrast between the North and South. In the South, the average inactivity gap was 6.6 pp for non-EU immigrants and 5.1 pp for EU immigrants *((3) Care constraint)*. For non-EU immigrants, the gap is above 18 percentage points in the first three years of residence (10 pp for EU). The gap eventually closes after 15 years of stay for non-EU immigrants, but it remains at 2.5 pp for EU immigrants during that time.

In the North, the average inactivity (Figure 8) gap for non-EU immigrants was 14.2 pp *((3) Care constraint)* (4.7 pp for EU). Figure 8 shows, however, that in the first three years of stay, the rate exceeds 27 pp (14 pp for the EU) and remains at 10.9 pp for the first decade of stay. While the gap with the EU falls below 2 percentage points after 15, the gap with non-EU immigrants remains at 6 percentage points even for the longest-staying group.

Figure 8: Convergence in inactivity due to care reasons.

Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: Estimated native- EU and Non-EU immigrant gap in the probability of inactivity due to care reasons (vertical axis), as a function of the years of stay in the country (horizontal axis). We show two specifications: (3) Care burden is an estimate of both internal and external constraint after adjusting for differences in demographics, household composition, human capital and the age and number of children (6) Want work+ever adjust for differences in willingness to work (either reported, or approximated by previous work experience), and can be seen as a lower bound on external constraints.

Figure 9: Convergence in inactivity due to unequal access to childcare services.
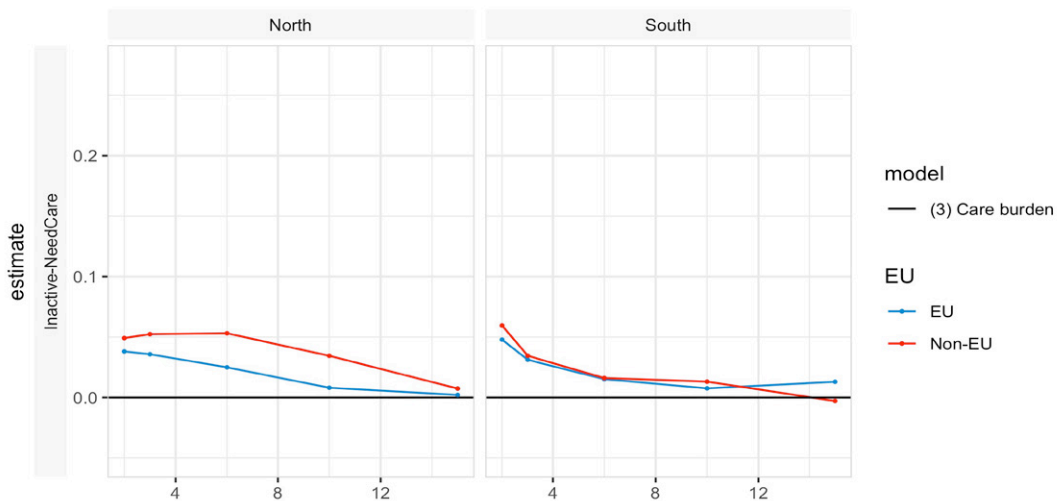
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: Estimated native- EU and Non-EU immigrant gap in the probability of inactivity due to lack of access to care facilities (vertical axis), as a function of the years of stay in the country (horizontal axis). We show the specification (3) Care burden which adjusts for differences in demographics, household composition, human capital and the age and number of children.

Figure 10: Convergence in part-time due to care reasons
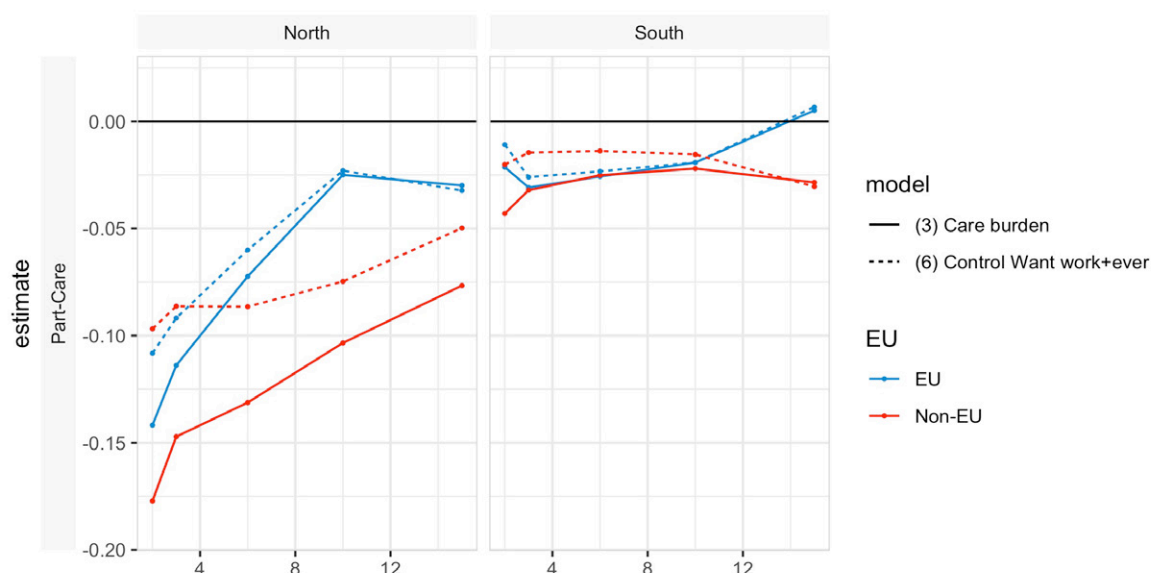
Source: EU-LFS 2004-2019. Only working age mothers living in households with children under 14 years old are included. Note: Estimated native- EU and Non-EU immigrant gap in the probability of being employed Part-time due to care reasons (vertical axis), as a function of the years of stay in the country (horizontal axis). We show two specifications: (3) Care burden is an estimate of both internal and external constraint after adjusting for differences in demographics, household composition, human capital and the age and number of children (6) Want work+ever adjust for differences in willingness to work (either reported, or approximated by previous work experience), and can be seen as a lower bound on external constraints.

Given the large and persistent gaps in inactivity —especially for non-EU immigrants in the North— to what extent are these due to the resilience of constraints internal to the household—e.g., a failure of cultural assimilation? Figure 8 shows that once previous experience and willingness to work are taken into account, the 6 pp long run gap with non-EU immigrants vanishes in the North. Even when only women with comparable levels of work experience and willingness to work are considered, non-EU immigrants in the early stages of migration face particularly severe external constraints in the North, with inactivity gaps ranging between 7 and 5 percentage points during the first five years of stay.

Figure 9 confirms the importance of external constraints in the early stages of migration. It shows the proportion of the total gap that is due to unequal access to care —taking only those who declare their willingness to work if care services were affordable as care constrained. Unequal access to care services is responsible for a 5-pp inactivity gap between natives and non-EU in the North during the first decade of stay, while the gap remains at that level only for the first three years in the South.

Figure 10 shows that in the North, convergence in part time is never complete. For non-EU immigrants, the gap in access to part-time work is 17.5 percentage points in the early years but remains at 7.5 percentage points after 15 years of stay. The gap is particularly stable in the South for the first 15 years of stay, and it is comparable for EU and non-EU immigrants.

7. Conclusion

This paper asked how care responsibilities affect the labor market integration of immigrants. While these are known to be the major constraint on female labor supply and the driving force behind

the persistence of the gender gap, its effect on immigrant mothers (and on their convergence with natives) was less well understood.

This constituted a gap in the debate on the implications of ageing. Countries are prompted to adapt their institutions to meet the challenges of reconciling women's new roles with fertility and integrating an increasing number of female immigrants into the labor force. We argued that these two challenges are inextricably linked. As a result, a major goal of our research was to assess how countries' care and labor regimes stood in their ability to integrate female migrants into the labor force.

Our main finding is that the care constraint on labor supply is the core cause of both the male-female and native-immigrant employment gaps. Most of the difference in hours worked between men and women with children can be attributed to caregiving, while other factors, such as unemployment or disability, play only a minor role. The same is true for native-immigrant gap. Of the large employment gaps (35 pp in the North, 17 pp in the South) between non-EU immigrants and natives, about two thirds (24 pp and 12 pp respectively) are due to the childcare constraint. Even after controlling for observable differences in human capital, household composition, and the number of children in different age intervals, the gap remains large (14.2 pp in the North, 6.6 pp in the South).

These findings prompted two questions: what is the origin of the immigrant childcare constraint, and why does it vary so much across contexts? Does it reflect the influence of the receiving context on the opportunity cost of paid work for immigrants, or instead differences in their willingness to work compared to natives? We found substantial evidence that these gaps are partly driven by the comparatively higher opportunity costs faced by immigrant households face, which are closely linked to country-specific care and labor regimes.

Firstly, we found, that the incidence of care varied geographically for natives. The impact of care in the North translated in a large proportion of mothers working part-time, resulting in a *"1.5 earner"* model. In the South, the burden of care polarized mothers into those who worked full-time and those who were inactive, while the portion who worked part-time remained marginal. We hypothesized that this could be due to the well-documented North-South differences in care and labor regimes, and particularly dual labor markets.

Secondly, we showed that the unequal access to care facilities and part-time jobs for immigrants could explain why the inactivity gap is smaller in the South. Although childcare is generally more available in the North, immigrants' relative exclusion widens the gap with natives, particularly in the early stages of migration. Contrary to our expectations, we did not find that more familistic societies imposed greater barriers to immigrants' integration due to the separation from their extended family networks.

Finally, we tested and rejected the hypothesis that differences in willingness to work—as proxies for internal constraints—could account for the gaps in native-immigrant employment. While these effects accounted for a substantial size of the effect, inactivity gaps persisted and were larger in the North than in the South (6 pp and 3 pp for non-EU immigrants respectively).

Our analysis thus revealed that countries' care and labor regimes are a key determinant of assimilation, even in the long run. Examining these gaps from a dynamic perspective, we found that these were particularly persistent in the North, where employment rates did not converge over time. The analysis of assimilation found that external constraints were especially important in the early years of stay – a lack of access to care facilities accounted for 5 pp in the adjusted inactivity gap. This is consistent with our hypothesis that immigrants' irregular legal status is a barrier to accessing public services and suggests that providing care services could potentially have a large

impact on their integration in their early years. These effects could be magnified if we consider that labor-force participation can serve as a steppingstone out of traditional motherhood roles and that investing early in family integration can have dynamic complementarities with assimilation.

A key implication of our findings (consistent with Kanas and Steinmetz 2021) is that care and labor regimes that are, in principle, more supportive of mothers, may intensify the native-immigrant gap if the latter are excluded from them. This is what we called "the dual labor market paradox" for flexible work arrangements but is also valid for the access to care facilities. By design, more regulated environments are more demanding in terms of integration. At the early stages of migration, legal and bureaucratic requirements make immigrant households institutional *outsiders*. When more natives are protected (by labor regulation or care facilities), immigrants must achieve the status of *insiders* to close the gap, which often takes time. In contrast, in more dualized environments, a large share of natives lack access to public childcare and stable employment and the assimilation of immigrants is smoother.

A final question is whether immigrant selection is endogenous to the receiving country's arrangements. Our analysis does not simply suggest that family policies are important for integrating existing immigrants. We acknowledge that, to some extent, our findings on the North-South divide could be influenced by the unobserved heterogeneity in the selection of immigrants, because migration is the outcome of a choice (Borjas, Kauppinen and Poutvaara 2019), and immigrants are known to emigrate where employment opportunities exist. However, given the feminization of migration flows, we can speculate that work-oriented immigrant women will emigrate and settle in countries where balancing work and family is easier. This is particularly relevant to the debate about assimilation and the role of family policies in the integration policy mix. Where care arrangements impose significant constraints on immigrant women, coming immigrant households will stay traditional, and those who want to adopt a dual earner model may leave. Immigrant families who are more interested in the dual-earner model may be attracted and retained if more equal family policies are implemented. According to this argument, the selection of immigrants is likely to be endogenous to the restriction of care, rather than the other way around. This is a question that will be researched in the future.

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Appendix

Table A1: Sample size and time interval by country of destination (women living in household with children under 15)

Country	Number of observations	Time interval
AT	742,611	2004-2019
DE	478,153	2004-2019
ES	372,430	2004-2019
GR	1,027,458	2004-2019
PT	696,029	2004-2019
IT	1,573,550	2005-2019
NL	157,820	2006-2019
BE	262,477	2007-2019
UK	118,279	2009-2019
FR	999,869	2013-2019
IE	346,341	2013-2019

Figure A1: Sociodemographic and internal constraints of care among immigrants in Europe

Source: Author's calculations from the EU-LFS 2004-2019. Note: This table depicts the numerical estimates (coefficients and standard errors) of the models visualized in Figure 5.

Missing data and imputation

This appendix documents the pattern of missing data for the existence of care facilities, its imputation, and the robustness of the analyses performed.

As explained in the main text, we use the item NEEDCARE included in the EU-LFS to measure the effect of the availability of care services on labor supply. This item is present only as a follow up of two others when respondents are working part-time or inactive for care reasons (*Part-Care* and *Inactive care* respectively) —which is our identification of the care constraint.

In our selection of the data (see Table A1), we excluded all countries and years for which the items *Part-Care* and *Inactive care* were not simultaneously available with sufficient quality, these included Belgium before 2006, France and Ireland before 2012, Italy before 2005, the Netherlands before 2006 and UK before 2008, and for which NEEDCARE was naturally not available.

We noticed, however, that even after performing this selection, the item NEEDCARE exhibited a substantial amount of missings. Figure A2 shows that missing values did not affect the follow up of the *Part-Care* and *Inactive care* equally and were concentrated in particular years and countries. For example, in the UK the proportion of missings for Part-Care is consistently around 75% of the sample, and non-existent for *Inactive-Care*. In other cases (the early years of *Part-Care* in Italy, Austria, Germany, and Spain) it is apparent that the question was simply not asked, as the portion of missings is 100%.

Figure A2: Pattern of missings
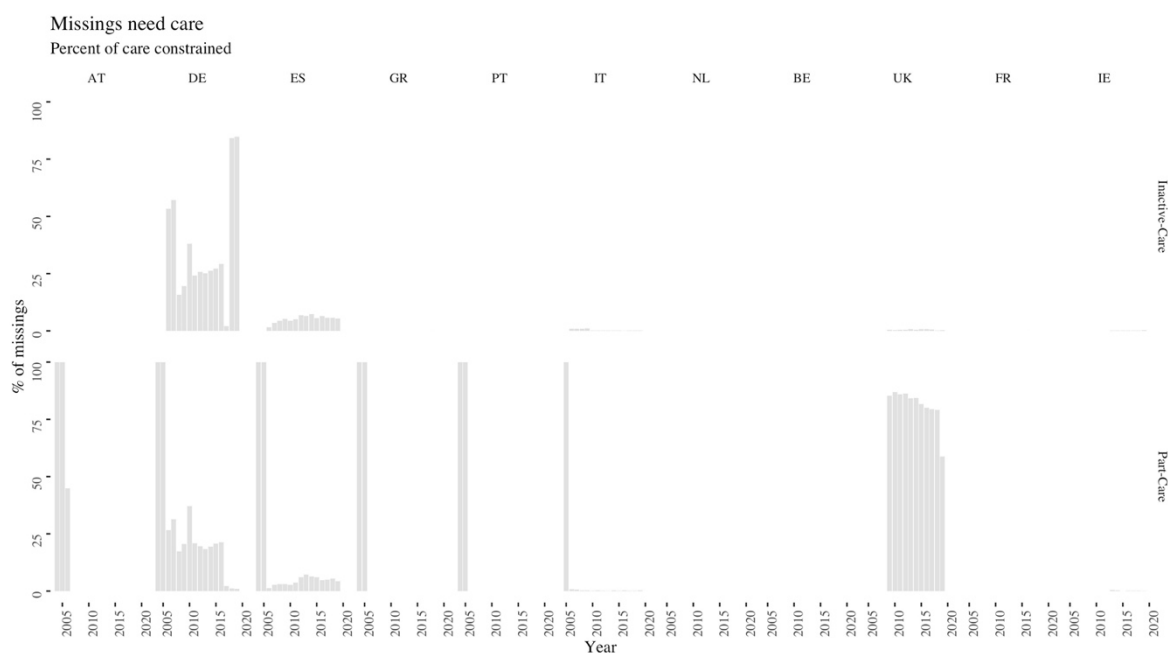
This pattern is not, to our knowledge, documented by Eurostat, and thus the nature of the missings cannot be known with certainty. In our analysis, we opt for an imputation, which allowed us to preserve the same sample used in rest of the analysis.

Our imputation is based on the assumption that the data is missing at random. We argue that this assumption is justified. Firstly, given that the annual sample of EU-LFS results from an aggregation of quarterly national surveys, our hypothesis is that portions of missings above 25% result from the choice of statistical agencies not to collect that item, or do it only in selected quarters. Secondly,

it may reflect their choice of how to deal with those missings. The missings consistently positive by below 10% contrast with the 0% of Austria or the Netherlands for most years, suggesting that the former makes the data available with missings, while the latter opts for an imputation by national agencies.

We imputed the missing values based using each country's pooled sample of care-constrained individuals. The imputation is based on the main demographic variables of our analysis –age, education, EU, Native or Non-EU status, and the number of children below 14 in the household- using the classification algorithm (cart) implemented in the R package *mice* (van Buren, Groothuis-Oudshoorn 2011).

Robustness checks

To assess the validity of the imputation, we compare the estimate obtained through it (Figure A3) reported in the main text, with those omitting missing values (Figure A4). We regard these two results as describing the bounds of the uncertainty associated with our choice to impute, and thus the validity of the estimates. We thus estimated native-immigrant gap attributable to the unequal access to care services for specification *(1) No controls, (2) Controls (3) Care Burden.*

Figure A3: Estimates of the native-immigrant gaps using the imputed sample

The results obtained in Figure A3 and A4 are qualitatively identical –i.e., the sign of all coefficients coincides--, and all are equally statistically significant. Quantitatively, results are almost indistinguishable for the South, where the largest divergence of the coefficient estimates is of 0.001. For the North, differences are slightly more pronounced, and the imputed sample shows slightly larger gaps, especially for Non-EU immigrants and for Part-Care.

We read these robustness checks as supporting our imputation choice. The larger gaps in the imputed sample are likely the larger number of missings for the North, and its concentration in specific countries, which is visible in Figure A2. Therefore, the results that omit missings should reflect the change in the weight of these countries in the sample. Figure 5 showed that the native-

Figure A4: Estimates of the native-immigrant gaps deleting missing values

		North			South	
	(1) No controls	(2) Controls	(3) Care Burden	(1) No controls	(2) Controls	(3) Care Burden
Part-NeedCare — Non-EU	-0.008*** (0)	-0.006*** (0)	-0.007*** (0)	-0.008*** (0)	-0.006*** (0)	-0.007*** (0)
Part-NeedCare — EU	-0.004*** (0)	-0.005*** (0)	-0.005*** (0)	-0.004*** (0)	-0.005*** (0)	-0.005*** (0)
Inactive-NeedCare — Non-EU	0.04*** (0)	0.023*** (0)	0.018*** (0)	0.04*** (0)	0.023*** (0)	0.018*** (0)
Inactive-NeedCare — EU	0.02*** (0.001)	0.012*** (0.001)	0.014*** (0.001)	0.02*** (0.001)	0.012*** (0.001)	0.014*** (0.001)

immigrant gap was indeed large in these countries (Germany and UK) with a larger portion of missings, which arguably should affect the pooled estimates.

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