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Bridging gaps: how investment in public childcare affects women's employment in Italy and Spain

Lara Maestripieri ⓘ, David Palomera ⓘ and Roberto Rizza ⓘ

ABSTRACT

This paper aims to establish whether, and to what extent, an increase in the public provision of early childhood education and care services (ECEC) has had a positive effect on women's participation in the labour market in Italy and Spain. It does so by compiling panel data using microdata from the European Labour Force Survey (2006–2018), together with secondary sources of information on public ECEC investment made in the two countries. After controlling for unit hetero-geneity and reverse causality, the estimated results indicate a positive correlation with the employment rates of women with children and the number of hours worked, in particular for those without a degree, thus indicating the need to address unequal access to publicly-provided ECEC services.

Social Investment (SI) has been the underlying approach of the most recent reforms carried out in European welfare states, including Southern European countries. Its focus on productive rather than protective policies (Hudson & Kühner 2009) has been presented as effective in achieving desirable social policy objectives, such as a reduction in intergenerational and class inequalities, including investment in children's wellbeing and better cognitive development for low-income children, as well as the promotion of gender equality (León & Pavolini 2014). Envisaging women primarily as workers rather than as mothers and carers represents one of the most important changes in this shift in the public policy discourse (Jenson 2015), and one that reconfigures the boundaries between public and private responsibilities for care provision (Saraceno 2015). However, empirical evidence shows that promoting policies based on a philosophy of social investment does not guarantee that the desired goals will be reached if the structural social requirements for success are not met (Kazepov & Ranci 2017). In this article, we aim to explore the extent to which Early Childhood Education and Care (ECEC) – one of the pillars of the SI approach – has favoured the participation of women in labour markets and

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the intensity of their working patterns in two Southern European countries, namely Italy and Spain. By intensity, we refer to the number of hours women work, assuming that full-time employment is a better scenario for women in terms of economic independence and career perspectives, as well as better in protecting households against economic insecurity and poverty (Maestripieri 2023).

Previous analyses of the effects of public investment in ECEC have consolidated the empirical evidence related to its desired outcomes in advanced capitalistic countries. On the one hand, they have demonstrated the importance of ECEC in favouring the cognitive development of children if certain conditions governing the quality of the service are met (Melhuish et al. 2015; van Huizen & Plantenga 2018). On the other, access to public childcare for young children improves women's participation in work as well as increasing the hours they work. However, in this case, the desirable effects occur more for highly-skilled employed mothers than for their low-income or unemployed counterparts, who only benefit when a certain threshold of accessibility, affordability and diffusion is met (Ferragina 2019; Hegewisch & Gornick 2013). Indeed, the extent to which ECEC services are available in different areas is key for understanding them being used by mothers with different educational levels: a service being available near a woman's home is one of the prerequisites for obtaining the desired outcome in terms of employment for the most disadvantaged mothers (Van Ham & Mulder 2005). However, there is limited empirical evidence of these positive outcomes in Spain and Italy.

In fact, up to now, only a number of these studies (Brilli, Del Boca & Pronzato 2016; Del Boca & Vuri 2007, Nollenberger & RodrÍguez-Planas 2013) have focused on Southern European countries. Analysing the effect that investment in publicly provided and financed ECEC services has had on women's employment in Southern Europe is particularly important in order to disentangle the possible shortcomings that the implementation of SI policies might face in these countries. In fact, investment in ECEC has come much later to Southern Europe than to Northern and Continental European countries. In addition, in Italy and Spain the framework for adopting SI policy is very different from in Northern Europe (Kazepov & Ranci 2017). The welfare states in Italy and Spain have a familialistic nature, thus social policies assume that households must carry the principal responsibility for the care of their members and subsidiarity principles have been used to justify the residual character of public childcare services there (León & Pavolini 2014). Furthermore, both countries are characterised by internal territorial differentiation, with their Southern regions lagging behind in terms of economic performance, social services and the labour-market integration of women (Bonoli 2013; Guerrieri & Iammarino 2006; Huertas, Ramos & Simon 2017). However, despite their similarities, publicly-provided ECEC has evolved differently in Italy and Spain over the last two decades. While Spain has witnessed substantial investment in childcare and a consistent rise in women's labour participation, Italy has not (Guillén et al.

2022) – thus constituting an excellent opportunity for assessing public ECEC policy implementation from a comparative perspective.

As argued by Ferragina (2019), ECEC is a policy with a potentially double scope. It can either be a liberal policy to support working mothers with stable jobs who can afford the services, or a more comprehensive care policy to promote gender equality policies that also support the social reproduction of low-income and non-working mothers. In this paper, we aim to assess the impact of expanding public ECEC coverage on the labour market participation and intensity of working patterns for mothers with young children in a context – Southern Europe – which scholars have considered as unfavourable for obtaining the desirable positive effects of SI policies (Kazepov & Ranci 2017).

Our key original contribution to the current debate is that we analyse the impact of ECEC according to the socioeconomic conditions of the mother and the different labour market and economic contexts where the ECEC service is implemented, including levels of economic growth. We have constructed a panel based on data from the European Labour Force Survey (2006–2018) and a series of secondary sources relating to investments in ECEC, which focus on rates of the availability of public childcare for children up to the age of 2. The analysis controls for unit heterogeneity at the regional level, as well as for reverse causality, and aims to answer the following research questions: what relationship exists between public investment in ECEC and female labour market participation rates in Italy and Spain? Do differences in the mother's education and type of employment affect this relationship?

Results show that after controlling for regional economic characteristics, the expansion of public childcare has been an important factor in increasing women's economic activity and employment rates in recent years. It has also had a positive impact on the intensity of their work patterns in terms of fewer part-time contracts and fewer involuntary part-time arrangements. One further key finding is that the employment effects are, in general, stronger in cases of women without a degree, thus indicating how effective public ECEC investment is in tackling inequalities between social classes in terms of labour market participation and working patterns, and thus highlighting the urgent need to tackle inequalities in access to public ECEC.

The issue of gender equality and the role of social investment

The labour market inequality suffered by women is clearly marked by family responsibilities (Saraceno 2015). Employment rates for women before they have children are similar to those of men. However, when women have children, the overload determined by the gendered distribution of unpaid work and the consequent reduction in these mothers' working hours create a gap between them and their partners, who, conversely, tend to increase the intensity of their working patterns, also in terms of hours (Bianchi & Milkie 2010).

SI aims to reverse this mechanism by investing public resources in childcare provision. Compared to the post-war welfare states, the SI perspective favours the defamilialisation of care based on the provision of in-kind services, mainly through early childhood education and care services. To be more precise, the term 'defamilialisation' refers to making services available that release women from the task of looking after dependent family members (small children and the elderly, first and foremost) and thus increasing their chances of pursuing a career which would otherwise be seriously threatened by the difficulty of balancing work and family commitments. SI advocates for investing in public ECEC to tackle gender equality, since it helps mothers maintain their employment status despite their family responsibilities. However, from an SI perspective that is centred on labour market outcomes, family policies can turn out to be productive policies whose primary aim is to favour the employment of women rather than to establish parity between men and women in private and public life, regardless of the working situation of the mothers and their type of employment. Thus, SI can enshrine a productivist vision of family policies as instrumental to the growth of employment (Knijn & Smit 2009; Jenson 2008; Mätzke & Ostner 2010; Kvist 2015; Saraceno 2017). That is, their primary objective is to improve women's labour market participation for favouring economic growth while achieving gender equality is only a secondary goal.

This interpretation of SI can actually amplify inequalities between social classes, especially if the design of policies does not take into account the various structural disadvantages that women suffer. On the one hand, women are more likely to be employed as part-time workers than men (Jenson 2015); in Southern Europe, in particular, increasing rates of involuntary part-time contracts given to female workers demonstrate how women's work and human capital are currently underutilised (Maestripieri & León 2019; Insarauto 2021). On the other hand, labour market outcomes are not equally distributed among women. In fact, women without degrees are the most exposed to non-standard work in Italy and Spain (Maestripieri & León 2019). Investing resources in public childcare – as argued by SI scholars – should help the women with more limited resources, as the more skilled can pay for private services to help juggle work and family responsibilities (Pavolini & Van Lancker 2018).

However, many studies have shown the opposite to be true (Abrassart & Bonoli 2015; Palomera 2022). What happens is that women with degrees are less likely to work part-time compared to lower-skilled women. Thus, their need for childcare services is more urgent. Studies have demonstrated that ECEC services in many European countries, including Spain and Italy, tend to be used more frequently by women with higher levels of income and education and with standard labour contracts (Abrassart & Bonoli 2015; Kazepov & Ranci 2017; Navarro-Varas & León 2024; Palomera 2022). This inequality in access to public services has been considered as part of the Matthew effect, defined as the phenomenon by which a social policy intervention favours individuals that

have already an advantaged position, thus limiting the capacity of public provision to reduce inequalities in society (Rigney 2010). Over time, this situation leads to greater inequality instead of mitigating class differences. For instance, having non-typical working schedules can make it very difficult for women to use standard public ECEC services designed for typical working schedules. There exist other inequalities in access to ECEC services depending on the mothers' characteristics, including their income, educational level, and place of birth (Pavolini & Van Lancker 2018; Palomera 2022). These differences among women help explain both participation in the labour market and access to public ECEC.

Positive returns of public ECEC policies in terms of women's employment

Empirical quasi-experimental results show that ECEC has a relevant positive impact on women's labour market participation across various geographical contexts (Baker, Gruber & Milligan 2008; Bauernschuster & Schlotter 2015; Busse & Gathmann 2020; Geyer, Haan & Wrohlich 2015; Givord & Marbot 2015; Lefebvre & Merrigan 2008; Müller & Wrohlich 2020; Olivetti & Petrongolo 2017). In his review, Ferragina (2019) highlighted how ECEC is the family policy with the largest impact on maternal employment, favouring the return of women who have had a child back into the labour market more than any other alternative (such as leave or cash benefits). Hegewisch and Gornick (2013) found that when reasonable quality, affordable childcare is available, women are more likely to continue in employment and to hold better jobs. Among possible factors that intervene, costs particularly affect less-educated women, as they are more likely to hold jobs that do not ensure sufficient resources to pay for externalised childcare. A second factor that affects the positive return of childcare on women's employment is the service being available near the family home. Finally, opening times are also important: a full-time service is more likely to increase the participation and the intensity of women's working patterns (Brewer et al. 2022).

On the point of the effect of ECEC on the intensity of women's working patterns, Jaumotte (2003) stresses that research has not sufficiently investigated this issue. ECEC is sometimes provided on a part-time basis, and women working full-time are more constrained by reduced flexibility. Few studies have focused on ECEC's effects on women's hours worked. In a study on Quebec, Lefebvre and Merrigan (2008) demonstrated that the availability of affordable full-time childcare increases women's total annual working hours and number of weeks worked. Müller and Wrohlich (2020) found that the expansion of childcare in Germany favoured an increase in women's employment, concentrated in part-time employment with longer hours (20–35 hours per week) and for mothers with medium-level qualifications. Bettendorf, Jongen and Muller

(2015) demonstrated that a recent reform, in a context such as the Netherlands where ECEC is already quite diffused, only slightly increases maternal employment (2.3%) and hours worked by mothers (+1.1 hour/week). Thus, coverage also counts in this relationship, and better positive results might be expected in countries that have lower levels of coverage.

Only a minority of studies have taken women's social backgrounds into account. Kulic et al. (2019) include the mother's education as one of the most important predictors for a child attending ECEC in Europe: the studies they reviewed show that this occurs across countries and independently of a child's age. Children from more advantaged families are also more likely to access better quality ECEC. Del Boca, Pasqua and Pronzato (2009) found that, from a comparative perspective, increasing the availability of childcare increases women's employment, with the effect being stronger for less-educated women. Haeck, Lefebvre and Merrigan (2015) highlighted that highly-educated mothers were the first to take up subsidised childcare, while results were less pronounced for less-educated mothers.

Surprisingly, very few studies have focused on the question of whether ECEC policies have managed to achieve the expected positive results in terms of women's labour market participation and the intensity of their working patterns in Southern Europe. Empirical evidence from Spain demonstrates that for every ten additional children that benefit from publicly-provided childcare services, two mothers join the labour market (Nollenberger & RodrÍguez-Planas 2013). Similarly, in the case of Italy, Brilli, Del Boca and Pronzato (2016) estimated a 13% increase in female labour market participation for each 10% rise in the childcare rate. The comparative studies reviewed by Ferragina (2019) show that the strongest positive return of ECEC on women's employment occurs in conservative or Mediterranean countries; but within the same welfare regime, the availability of childcare in the vicinity of the mother's home is one of the most important factors to take into account. Del Boca and Vuri (2007) estimated that the availability of ECEC would need to reach at least 40% in Italy to be a driver for women's employment, but that the lack of flexibility in the services' opening hours hinders women's full-time employment. However, Kazepov and Ranci (2017) have shown that the impact of ECEC policies on women's employment is lower than expected, and is limited to women living in urban environments who have permanent jobs. In fact, access criteria do not favour low work-intensity households and in the majority of Italian cities, do not prioritise women with non-standard contracts.

In conclusion, the assumption that greater investment in ECEC increases women's participation in the labour market has only been partially analysed in Southern Europe. We found two main gaps in the literature: first, the role of the mother's education in mediating the positive returns of ECEC on women's employment. Secondly, the impact of ECEC on the intensity of mothers' working

patterns. Both issues are tackled in our analysis of the impact of ECEC on women's employment in Italy and Spain.

Study aims and hypotheses

The aim of this study is to provide empirical evidence related to the effects of ECEC being expanded in two countries in Southern Europe (Spain and Italy), and discuss the differences in how it has evolved over the last few years. The scope of this article, therefore, is to test firstly if increased public investment in child-care correlates to a corresponding increase in the labour market participation of women in terms of access to and intensity of working patterns. Secondly, it aims to investigate to what extent a woman's education plays a role in mediating ECEC yielding positive returns on women's employment.

The research questions addressed in this study are the following: what is the relationship that exists between public investment in ECEC and female labour market participation rates in Italy and Spain? Do differences in the mother's education and the intensity of her working patterns affect this relationship? We expect that the more publicly-provided ECEC there is, as long as it is affordable and meets a certain quality standard according to the mother, the greater the reduction in the opportunity cost of entering the labour force or looking for a job for the mother and, therefore, the greater the probability of being available for work or accessing a full-time job.

Based on the extant literature discussed above, we have highlighted that ECEC does have a positive return on women's work. This positive result seems consistent across different geographical contexts but stronger for those in which availability is low, as is the case in Southern Europe. For this reason, we would expect the following to hold:

H1: Higher levels of publicly-provided ECEC are positively correlated with higher levels of female employment and activity rates in Italy and Spain.

Secondly, as already mentioned, we would like to explore the relationship between increased public investment in childcare and intensity of working patterns. In terms of part-time and involuntary part-time work, we follow the same logic as in the first hypothesis, and we expect that if everything else is kept constant, more ECEC coverage in typical working hours will reduce the opportunity cost for mothers to take full-time jobs, and therefore decrease levels of part-time and involuntary part-time working. Here it is also crucial to control for the importance of labour market characteristics at regional and national levels, which could overshadow any potentially positive effects of higher investment being made in ECEC. In fact, the higher concentration of women in involuntary part-time employment also depends on other factors, such as horizontal segregation in sectors where full-time jobs are scarce (e.g. the retail, catering and

accommodation sectors). In the article, we control for these contextual vari-ables. Our hypothesis is the following:

H2a: Higher levels of publicly-provided ECEC are associated with lower part-time employment rates for women.

H2b: Higher levels of publicly-provided ECEC are associated with lower invo-luntary part-time rates for women.

Thirdly, we expect to see differing effects of increasing ECEC coverage for women from different social backgrounds, proxied with the educational level of the mother. On the one hand, women with degrees have a higher probability of being in higher-paid employment and, therefore, being more able to afford private services, irrespective of the availability of public ECEC. An increase in public ECEC could lead to these women changing from private to public ECEC, but this would not necessarily alter their labour participation or working condi-tions. Conversely, women with lower levels of education have higher chances of not being able to afford private services, and affordable public services signifi-cantly reduce the opportunity cost of working and of working more hours. On the other hand, as explained above, women with lower levels of education have been found to access ECEC services less due to various reasons (Palomera 2022). Existing inequalities in access and a lack of access criteria that favour mothers with low levels of income or/and education could hinder the positive impact of expanding public ECEC coverage for these women (León et al. 2022). In addi-tion, whereas women in high-income households can afford not to work and to stay at home to care for their children, low-income women need to work in order to contribute to paying for basic household needs, and therefore, an increase in public ECEC coverage could leave them indifferent in terms of their decision to participate in the workforce. However, in this case, more affordable public ECEC could help them take up full-time jobs, therefore increas-ing their earning power.

Therefore:

H3: The positive correlation of publicly-provided ECEC with labour participa-tion and the negative correlation with part-time rates are both stronger for women without than for women with a degree.

The context of ECEC policies in Italy and Spain

Spain and Italy have traditionally had similar welfare state systems (Ferrera 1996). From the institutional point of view, this equates to: i. pensions and labour market policies organised in accordance with a Bismarckian model of

social insurance in which the bulk of social expenditure is financed through employment-related contributions.; ii. a health system designed along universalistic lines; iii. limited state intervention in social care and family policies. In regard to this third aspect, expenditure on childcare policies has traditionally been lower than in all the other welfare state systems, with women being strongly penalised as a consequence (Guillén & León 2011; Pfau Effinger 1998; van Kersbergen & Manow 2009). However, over the last 20 years, there has been a certain divergence between Italy and Spain regarding approaches to care and family policies.

In the early 2000s, Italy was characterised by a supported familialistic model, with a medium-low level of total per capita expenditure on family policies and a moderate level of expenditure on care services. In 1997, Italian Law No. 285 was passed, introducing care service measures, albeit limited ones that failed to meet many families' requirements (Da Roit & Sabatinelli 2013).

Since the 2000s, a succession of Italian governments failed to introduce measures to modify the general nature of family policy, with parental leave, tax benefits and transfers remaining the key areas of most measures introduced. Up until 2006, the centre-right government led by Berlusconi adopted a traditional approach to welfare policy, and developed the idea of the welfare community in which family networks constitute the main recipients of assistance with regard to the provision of childcare.

In more concrete terms, this meant a return to the traditionalistic view that public intervention in childcare policies should be limited, and merely gave minimal support to the informal self-organisation of households (Gori 2005). What is striking is the low level of investment in the services provided. In 2007, after the centre-left coalition returned to office, a 'Special Plan for Nursery Schools' was funded to develop a territorial system to increase existing services. The objectives also included mitigating the substantial imbalance between the north and south of the country, and the overall growth of the national system towards European standards, in order to achieve an objective of 33% territorial coverage by 2010. This goal, however, has not been achieved. The subsequent non-partisan government led by former European Commissioner Mario Monti failed to introduce any significant measures regarding family and care policies, mainly because the principal mandate of that government was cost containment.

The following centre-left government (in power from 2014 to 2018) introduced the so-called 'Integrated 0–6 System'. Its main aims were to promote continuity in education and schooling, help parents try to balance work and childcare, and enhance the quality of education through the qualification and retraining of the teaching staff. The 'Integrated 0–6 System' identified a basic level of diffusion and provision of ECEC, which has lagged way behind since that moment. Furthermore, the 'birth allowance' was introduced by Law No. 190/2014 for events occurring in the three-year period 2015–2017: a not strictly

means-tested provision covering the first three years of a child's life. Finally, in 2021, Law e No. 230 replaced the birth allowance through the introduction of a new measure for families with dependent children, called *Assegno Unico Universale* (Universal Allowance), a major, long-awaited policy change.

This dearth of childcare services has resulted in the significant marginalisation of women in terms of work. According to data from Istat (2022), the inactivity rate of Italian women in 2021 was over 40%. Labour market participation rates are significantly low and vulnerable to women having children. The female employment rate is 15–18 points lower than the EU average. Only around 55 per cent of women with one or two children work. In the south of Italy, the figure plummets to 35.3 per cent for mothers with nursery-school age children. The need for more available nursery-school places, the high prices, and the low prevalence of full-time nurseries contribute to this problem. In 2021, the childcare take-up rate in Italy was 26.6 per cent, well below the EU target. What is more, the national average hides a marked regional heterogeneity. In particular, while the centre-north regions reach, on average, around 30 per cent, and in some cases exceed 40 per cent, the coverage rate falls to just over 10 per cent in the south (Istat 2022).

In Spain the trend differed from that witnessed in Italy, at least up to the 2008–2009 financial crisis. The push to invest in care and family policies was derived both from the virtual inaction of the governments in power prior to the 1990s and from a cross-party political consensus on the need to introduce legislation that was more favourable to a rebalancing of the unpaid care workload between men and women (Valiente 2013).

As regards childcare provision for children under the age of three, the considerable increase in female participation in the Spanish labour market from the mid-1990s onwards has been accompanied by an increase in nursery-school enrolment rates. There has been increased investment made by both central and municipal governments, but also a rise in the number of private nursery-schools (León et al. 2022). However, as in Italy, staff pay and service quality in private childcare are lower than in public nurseries. Consequently, the growth in employment within this sector, in which nearly all employees are female, is characterised by strong wage discrimination and a prevalence of part-time workers.

As far as work-life balance policies are concerned, in the late 1990s, Spain's right-wing government introduced measures governing maternity and paternity leave, and regulated time off from work for employees who needed to care for dependent relatives. At the beginning of the 2000s, the conservative government introduced measures that provided financial support to mothers with small children, together with an incentive to businesses to employ female workers. The plan increased social security aid to help unemployed women return to work after having children, and prescribed a reduction of social security contributions for companies that recruited unemployed mothers with

dependent children. The socialist governments (2004–2011) passed legislation in support of gender equality and civil liberties, and as regards family policy, parental and maternity leave were further bolstered through maternity leave being granted to women under the age of 21 and to those who were not entitled to social insurance benefits. Paternity leave was increased to 13 days on full pay, and in 2013 a provision was made to raise the period of paid leave to 4 weeks. More recently, the Spanish government progressively expanded paternity leave to 16 weeks of individual, non-transferable leave on full pay for both fathers and mothers. The fully paid parental leave became equal for mothers and fathers and Spain has thus become the European Union country that provides the longest period of leave for fathers, with an equal period of parental leave established for both parents.

The percentage of women in work in Spain was 64 per cent in 2022, compared to 55 per cent in Italy. More significantly, over the past 25 years, Spain has witnessed a remarkable convergence of male and female participation in the labour market. While in the early 1990s, for every 100 men, only 50 women worked, this had risen to 88 by 2019. Despite this rapid convergence of participation rates, women still lag behind men in other key labour market indicators. By the end of the 2010s, women were over 27 per cent more likely to be unemployed than men, 10 per cent more likely to be in temporary work, and 2.4 times more likely to work part-time. This gender gap is even more pronounced for people with children. By the end of the 2010s, women with children aged up to 15 years were about 7.5 times more likely than men with children of the same age to work part-time, twice as likely to be unemployed, and about 25% per cent more likely to be in temporary employment. Overall, all these indicators reveal much wider gender gaps for people with children than for those without children.

In conclusion, in recent decades, Italy and Spain have both invested more in family policies; however, while Italy has preserved its familialistic profile, Spain has placed greater emphasis on the process of defamilialisation by investing in childcare services, thus supporting female employment, and encouraging fathers to share responsibilities for small children with more balanced legislation regarding the burden of care (Guillén et al. 2022). Nevertheless, in both countries, gender inequalities in the labour market and childcare continue to be significant.

Panel data analysis

Data and variables

Our dataset is based on aggregate data at the regional level for Italy and Spain from 2006 to 2018. Despite more recent data being available for certain variables, we use this time span due to the data available on public childcare

services at the time of conducting the empirical investigation. For labour market variables, we have used yearly data from the Labour Force Survey (LFS). This allows us to first disaggregate women's data according to their age and thus select only women aged between 25 and 49. Secondly, it enables us to identify the presence of a mother in a household and her educational level. However, we cannot analyse a sub-sample with both variables, being a mother and her education level, due to the resulting small sample size. For the purposes of our first hypothesis regarding how public childcare may be associated with labour market participation, we have constructed variables relating to employment rates and inactivity rates. In the case of our second hypothesis, we proxy intensity of working patterns using part-time employment rates and involuntary part-time rates. For our third hypothesis, we divide our sample into women who had completed higher education and those who had not. All employment variables are expressed in percentages.

Regarding our independent variable, we analyse the coverage rates for children aged 0 and 2 years that benefit from public childcare services. We use secondary data from the national statistics offices. In the case of Spain, the statistical office of the Ministry of Education, through its *Estadística de la Enseñanza en España. Niveles no Universitarios*, provides a database starting in 1998 of the number of children between 0 to 2 years in childcare services in each region, both private and public. In the case of Italy, the *Instituto Nazionale di Statistica* provides yearly reports of the number of children between 0 and 2 years in each region that attend publicly-funded centres or receive vouchers to attend private services (all integrated in one figure). Unfortunately, the Italian data do not provide information on private service coverage, while the Spanish data do not provide information on the availability of state vouchers for the payment of private services. Therefore, we cannot explore the association of either variable. In order to obtain data on only public childcare services, the Italian dataset had to be cleaned to remove the coverage provided by vouchers for private childcare facilities. However, no disaggregated data were available for 2006 or 2007 from the national statistical office, so an estimation had to be made based on existing data. One adjustment for those years consisted of subtracting the proportion of coverage of vouchers for 2008 for each region, while another method consisted of subtracting the average rate of vouchers for the whole period for each region. Given the small proportion of vouchers used in most regions, the results should not be significantly affected. Sensitivity tests were conducted with both extrapolation methods, and the results were consistent. The data presented here correspond to the subtraction of the average rate of vouchers.

In total, we have a dataset of labour market indicators and public childcare coverage rates over a period of 13 years for 38 regions, amounting to a total of 494 observations between the two countries. For Spain, we have 221 observations composed of 17 regions and 13 years, while for Italy, the number of

observations grows to 273 because it has 21 regions. In order to avoid omitted variable bias, in our models we control for economic variables that can be correlated with both labour market outcomes and public childcare coverage rates. Here, the LFS allows us to calculate aggregate data at the regional level, and we have included the rate of public employees over total employment, average company size (for different size categories but capped at 100 employees for companies with over 100 employees), the rate of women between 25 and 49 years old with university-level educations over the total population of women in that age span, and the ratio of skilled workers to unskilled workers.

Additionally, we wanted to include other factors relating to female employment in the region. We included the weight of employment in economic sectors where female workers prevail (i.e. where over 70% of employees are women). These sectors include education, health and social work, and domestic services. We have also included a variable concerning the share of sectors with high part-time employment figures (i.e. where part-time jobs account for more than 20% of total employment). Here, two additional areas join the three sectors already included in the variable regarding prevalently female sectors: the accommodation and catering sector, and the wholesale and retail trade. None of the five categories was modified with the change in 2009 in the National Classification of Economic Activities (NACE) categorisation. Finally, we also include a variable for GDP per capita measured in thousands of euros, and the total fertility rate, with both variables taken from Eurostat.

Empirical strategy

Our estimation strategy consists of panel data analysis designed to control for idiosyncratic regional and annual factors that are not captured by our variables. After using the Hausman test and rejecting the possibility of using the random effects model, we decided to use the within-group estimator (or 'fixed-effects' estimator), which subtracts the average value of a given variable from each period of that variable. By eliminating time-invariant variables, the resulting model to estimate is:

$$Y_{it} = \beta X_{it} + a_i + \varepsilon_{it},$$

where Y is our dependent variable of labour market variables, X are time varying variables including our independent variable of childcare coverage rates, a refers to a unit-specific error term, and ε to the idiosyncratic error term. However, a potential problem of reverse causality could exist between the dependent and independent variables. Since we are measuring public childcare coverage rates as a proxy for public childcare investment, employment and inactivity rates could be expected to affect coverage since they impact the demand for childcare services. Reverse causality produces biased estimates of our within-group estimator by violating the strict exogeneity assumption of this

estimator. If contemporaneous values of employment levels (our dependent variable) affect contemporaneous or future coverage rates (independent variable), then the error term is necessarily correlated with contemporaneous and future values of our dependent variable. Using public expenditure would have been a better option, but unfortunately it is difficult to find disaggregated ECEC expenditure data at the regional level, and in particular, historical series of such data. Another reason for reverse causality may lie in the fact that higher levels of female employment lead to greater pressure on governments to invest in childcare services and facilities. Nevertheless, Bonoli (2013, p. 147) plays down the importance of this effect in the case of Southern European countries such as Italy. Due to familialistic traditions and a lack of public childcare facilities, empirical evidence shows that families rely more on the alternatives to the state-funded pre-school services for 3–6 years old that are available. In addition, increased public childcare might increase women's employment rates by directly creating new jobs in the ECEC sector. However, this effect should be marginal relative to global female employment and women benefitting from ECEC services, especially taking into account that in both Spain and Italy public ECEC teacher-to-child ratios are relatively high.

In the case of our variables relating to the intensity of working patterns, reverse causality problems could also be possible, but be less relevant than with the previous variables. There are reasons to imagine that moving to a full-time job could increase demand for formal childcare, since informal care will become less feasible, a full-time job pays more, and that part-time childcare is not available, especially in public services. However, compared to employment and activity rates, moving from part-time to full-time employment will only increase demand for public childcare services under certain conditions. A person's previous part-time job would have to have been sufficiently flexible to leave time for looking after children during the day, something that is not always the case. On the other hand, the part-time work would have had to be outside the hours covered by the childcare service, and the subsequent full-time job would have to involve working hours that coincide with the availability of public childcare services.

In order to control for reverse causality between employment and inactivity levels and public childcare coverage rates, we need to relax the assumption of strict exogeneity for their estimation models (Leszczensky & Wolbring 2019). One option is to include lagged values of the dependent variable in the model on the right-hand side of the equation, in order to map the relationship between the dependent and the independent variable. However, by including this new variable we induce correlation of the idiosyncratic error and the lagged-dependent variable, again violating the strict exogeneity assumption. One solution proposed under the Arellano-Bond (AB) model is to take the first difference of the model to remove time-invariant unobserved heterogeneity (Anderson & Hsiao 1981; Arellano & Bond 1991 in Leszczensky & Wolbring 2019).

Then, time-lagged variables are used for the first-differenced model as internal instruments. Using the Generalized Method of Moments (GMM) estimation increases efficiency by allowing the estimation of a set of equations with varying numbers of instruments depending on the number of previous waves (Leszczensky & Wolbring 2019).

As explained by these authors, by using the AB model, we can relax the exogeneity assumption, allowing us to differentiate between strictly exogenous variables (which cannot allow correlation of the independent variables with past, present, and future values of the error term) and sequentially exogenous variables (which allow the error term to be correlated with future values of the independent variable). Therefore, with the AB model, even if reverse causality is present, we estimate consistent coefficients if we correctly specify the type of exogeneity of each variable and endow sequentially exogenous variables with the same lagged values as the independent variables. In the present study, using the Stata command xtabond2 (Roodman 2009), we perform the AB model's two-step estimation using first-differences for all our variables and multiple-period lagged variables. In our case, in order to avoid model misspecifications, we treat all the variables as sequentially exogenous. We also test for the serial autocorrelation of the instruments used.

We include three types of regression models for each independent variable under study: one without a lagged independent variable, another with the one-period lagged dependent variable, and a last one with the one-period lagged independent variable. The results of the AB model, while controlling for reverse causality, are very sensitive to model misspecification and induce other problems, such as problems of weak instruments and poor finite-sample performance (Bun & Windmeijer 2010 and Newey & Windmeijer in Leszczensky & Wolbring 2019). Therefore, it should be seen as a complementary estimation and robustness check of the unbiasedness of our within-group estimator.

What our data say about women's work and ECEC

Time series of our main variables

A first glance at the aggregate time series in Figure 1 (and individual regional data in Figure A1 in the Appendix) shows a clear positive trend in Spain in the coverage rates of public childcare services for children aged 0–2 years over the period between 2006 and 2018, including the convergence of less affluent Spanish regions towards the levels of the richer ones. If in 2006, coverage rates in the more affluent regions stood at around 12%, compared to 5% in the poorer regions, in 2018 these figures stood at 20% and 15% respectively. Less affluent regions such as Galicia, Asturias, Extremadura or Andalusia have seen a constant increase in coverage rates, in the same way as have certain more affluent regions such as Catalonia or the autonomous community of Madrid.[1]
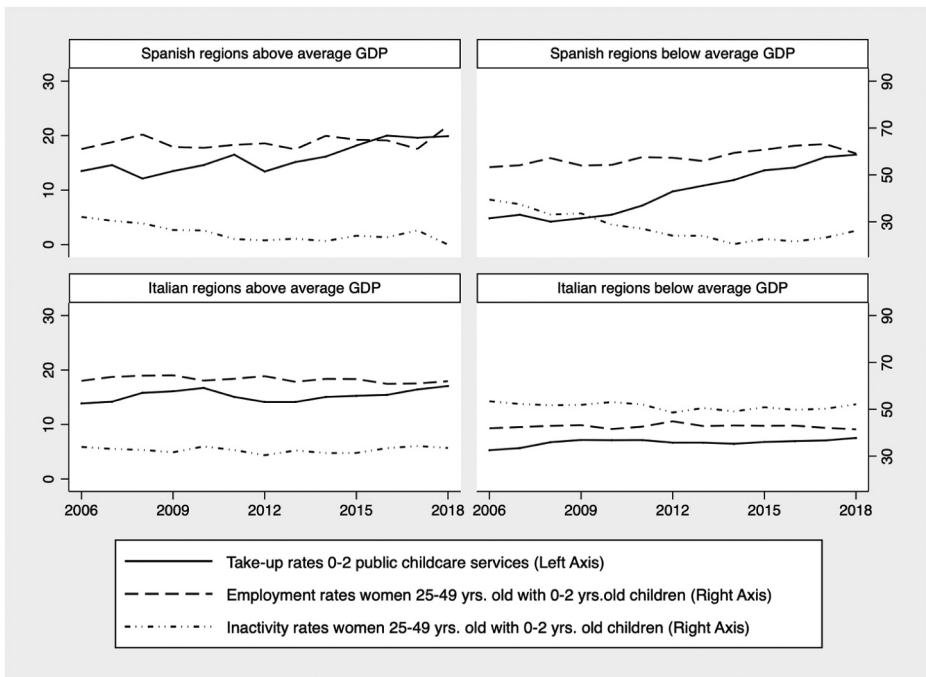
Figure 1. Evolution of average public ECEC coverage, and average employment and inactivity rates for women between 25 and 49 years of age with children aged between 0 and 2 years – by those regions above, and below, the average regional GDP per capita for the year 2006. Source: own elaboration with European Labour Force Survey microdata 2006–2018 (only women 25–49 years of age with children aged 0–2 years), Education Ministry of Spain, and ISTAT.

This has not been the case in Italy, where there has generally been policy stability in this area. More affluent regions saw slightly increased coverage rates (up from 12% to 17%) over the period concerned, whereas less affluent Italian regions, after a slight increase prior to the 2008 economic crisis, subsequently maintained this figure at around 8%. An increase was recorded in some regions such as in Molise or in the autonomous province of Trento, but in general all regions tended towards stability during the years in question.

Looking now at labour market variables, Figure 1 shows that between 2006 and 2018, the employment rates for women in households with children between the ages of 0 and 2 years have remained stable throughout Italy, with higher levels in the richer regions (around 60%) than in the less affluent ones (approximately 40%). In Italy, this stability, and the persisting differences, are also present at the individual regional level. In the case of Spain, the less affluent regions have caught up slightly with the more affluent ones, with women's employment rising from around 50% in 2006 to over 60% in 2016 (with a slight decrease between 2016 and 2018). The situation in the more affluent Spanish regions has remained relatively stable, with rates around 65% and 68% in the years in question, but increasing to 70% by 2016. If we look at

the figures for individual regions, we see significant increases in the less affluent regions of the south, such as Andalusia, with figures up from 40% in 2006 to 50% in 2017, in Extremadura (up from around 40–50% to more than 60%), and in Castilla-La Mancha (up from around 50% to 60% by 2018).

In the case of the inactivity rates for these groups of women, in both countries, the within-country differences were even starker. In 2006, Spain's less affluent regions displayed an average inactivity rate of 30% for women, compared to 20% in the country's more affluent regions. In Italy, these differences were around 45% and 22%, respectively. In subsequent years, while the less affluent regions in Italy never displayed figures of less than 40%, Spain's poorer regions had a female inactivity rate of less than 20% in 2016 (in 2018 this trend was reversed, with a slight increase in the corresponding figure that year). The cases of Andalusia, Castilla-La Mancha and Extremadura were astonishing during that period, with inactivity rates down by 20 percentage points (and by almost 30 percentage points in Andalusia). In sum, as Sánchez-Mira and O'Reilly (2018) have pointed out, the 2008 economic crisis had a more significant impact on the entry of women with children into the labour market in Spain than in Italy, as women in Spain had to compensate for the loss of household income due to rising male unemployment there. However, the additional worker effect led to an increase in the number of households with female unemployment. In addition, as the authors point out, this effect was evenly distributed across educational categories. The time plots would seem to endorse our argument that the entry of women into the labour force was facilitated by greater investment in public childcare provision.

Turning now to the question of employment conditions, what we see is that for all of the variables studied, Spain's regions have generally witnessed improvements, while Italy has seen stability or indeed a worsening of such conditions. Various trends emerge from the part-time employment rates shown in Figure 2. Italy's less affluent regions witnessed an increase in part-time employment rates, from 25% to 38% over the period from 2006 to 2018, with these rates converging towards those of the country's more affluent regions, which experienced stability. In Spain this kind of convergence has also taken place. The less affluent regions have maintained stability around 30%, while the richer regions have experienced a slight downward trend towards this figure.

With regard to involuntary part-time employment rates, both countries and both types of regions displayed a general increase following the 2008 crisis and up until 2013–2014, in line with Insarauto (2021). However, after 2013–2014 these rates fell in Spanish regions, and in 2018 the corresponding figures in Spain's more affluent regions fell to 10%, and in its less affluent regions to 14%. Even at the peak of the crisis, Spain's less affluent regions never reached the levels of involuntary part-time employment seen in Italy's poorer regions, where the rate stabilised at around 25% between 2014 and 2018. Indeed, Spain's less
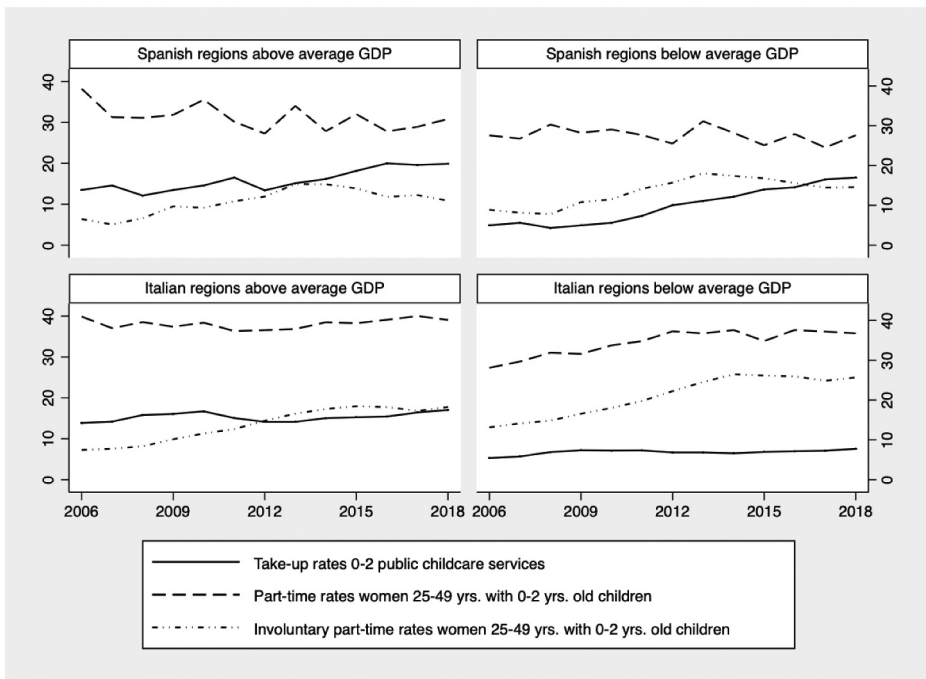
Figure 2. Evolution of average public ECEC coverage, and average part-time and involuntary part-time, for women aged between 25 and 49 years of age and with children aged between 0 and 2 years – for those regions above and below the 2006 average regional GDP per capita. Source: own elaboration with European Labour Force Survey microdata 2006–2018 (only women 25–49 years of age with children aged 0–2 year), Education Ministry of Spain, and ISTAT.

affluent regions displayed a slightly lower rate than Italy's more affluent regions. Here, the differences among women should be mentioned. As Maestripieri and León (2019) have shown, involuntary part-time work significantly affects young women in Italy and less-educated people in Spain.

Estimation result

As mentioned above, for the multivariate analysis we first investigate the relationship between coverage rates and female participation in the labour market. All our variables are measured in percentages, and therefore the estimated coefficients can be interpreted as the percentage points of change of our dependent variable for a one percentage point change in the independent variable, *ceteris paribus*. If we look at the results of the within-group estimator in Table 1, the first column shows that for women with children aged 0–2 years, a 1% increase in public childcare coverage has an estimated effect of a 0.16% rise in the mean women's labour market participation. Nevertheless, statistical significance is at the lower level of 10%. Now, if we subdivide women between those with degrees and those without, while there is a lack of significant results

Table 1. Within-group regressors for employment and inactivity rates for women with children, and according to their education.

VARIABLES	(1) Employment rate for women with children 0–2 years old at home	(2) Employment rate for women with degrees	(3) Employment rate for women without degrees	(4) Inactivity rate for women with children 0–2 years old at home	(5) Inactivity rate for women with degrees	(6) Inactivity rate for women without degrees
Public childcare services coverage rates	0.159*	−0.0799	0.105***	−0.230**	−0.0171	−0.223***
	(0.0923)	(0.0523)	(0.0300)	(0.0848)	(0.0246)	(0.0445)
Rate for women 25–49 with degrees	0.278*	0.149	0.132**	−0.267	−0.0283	0.0239
	(0.156)	(0.102)	(0.0599)	(0.185)	(0.0517)	(0.0760)
Average Company size	0.0686	0.0996	0.0300	−0.216	−0.185**	−0.250**
	(0.206)	(0.108)	(0.0911)	(0.194)	(0.0875)	(0.100)
Rate for public employees over total employment	0.218	−0.140	0.00222	−0.497***	−0.125	−0.468***
	(0.158)	(0.130)	(0.106)	(0.145)	(0.0815)	(0.0974)
Rate for knowledge-based workers over non-knowledge-based workers	0.280	0.402	−0.870***	−0.495	−0.376**	0.202
	(0.516)	(0.321)	(0.282)	(0.294)	(0.139)	(0.233)
Rate for sectors with a workforce comprised of over 70% women	−0.376*	0.188	−0.341***	0.158	−0.109	0.218
	(0.212)	(0.143)	(0.108)	(0.251)	(0.120)	(0.141)
Rate for sectors with a workforce comprised of over 20% part-time workers	0.385**	0.0907	0.290***	−0.554**	−0.197**	−0.415***
	(0.154)	(0.126)	(0.0864)	(0.215)	(0.0825)	(0.0872)
GDP per capita (in thousands)	3.133***	1.528*	2.314***	−2.257**	0.436	0.105
	(1.066)	(0.877)	(0.537)	(1.112)	(0.659)	(0.608)
GDP per capita squared	−0.0425***	−0.0170	−0.0272***	0.0327**	−0.00561	0.00298
	(0.0134)	(0.0107)	(0.00687)	(0.0137)	(0.00811)	(0.00666)
Total fertility rate	10.16	10.26***	9.004***	6.541	−0.124	2.033
	(7.966)	(3.742)	(3.045)	(6.782)	(3.388)	(4.424)
Constant	−30.12	25.13	−1.082	104.1***	25.47**	51.08***
	(21.48)	(15.95)	(10.29)	(20.28)	(10.69)	(12.48)
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
Region Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Errors	No	Yes	Yes	No	Yes	Yes
Observations	494	494	494	494	494	494
R-squared	0.135	0.445	0.441	0.351	0.138	0.513
Number of regions	38	38	38	38	38	38

Robust standard errors in brackets, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.
Data: European Labour Force Survey, aggregated microdata 2006–2018, only women aged 25–49 according to their education and if they have children aged 0–2 years at home

for the former, in the case of women without degrees, their use of public childcare facilities is affected in a statistically significant manner: it is estimated that a 1% increase in coverage is associated with a 0.1% mean increase in the employment of women without degrees. Assuming a linear relationship between both variables, this would mean that a region increasing its public ECEC coverage rates from 15% to 50% is estimated to increase its employment rate for women without degrees 3.5 percentage points. This is a relatively strong effect considering that, first, we are just analysing only one single public policy, and second, since 2005 many regions in Spain and Italy have only seen very small changes in women employment rates. The results indicate that the positive correlation of public ECEC investment with employment is mostly concentrated among women without degrees.

If we now look at inactivity rates, Table 1 confirms the negative correlation between public investment in childcare provision and women without degrees. As the last three columns show, it is estimated that a 1% increase in coverage rates will have a negative association of 0.23%. Furthermore, this correlation is equally strong across the whole population of women aged 25–49 without degrees. Again, we can reject the null hypothesis at a 1% significance level. For women with degrees, the association is neither significant nor relevant. With regard to the control variables, it is important to note the relationship between inactivity and the sectorial composition of labour. The increase in the weight of sectors where over 70% of the labour force is made up of women (education, health and domestic services) on total regional employment does not have a significant estimated relationship with inactivity. However, we find a strong correlation in the case of the variable relating to sectors with significant levels of part-time employment, such as education, health, domestic services, accommodation and hospitality, and the wholesale and retail trade. It is the increase in demand for labour in the last two sectors that offers women the best opportunities for becoming part of the labour force. Furthermore, the increase in public sector jobs seems to mostly benefit women without degrees and represents the most dominant of all the variables included.

Studying the two countries separately, we find that in the case of Spain, the increase in public childcare facilities is negatively associated with employment rates for women with degrees (see Table A1 in the Annex). This is not true for Italy (see Table A2). This divergence is analysed in the next section. Moreover, the estimated correlation of the occupational levels of women without degrees is much lower in Spain than in Italy. In Spain, a 1% increase in childcare coverage is estimated to correlate with a 0.08% rise in mean employment rates, whereas in Italy the estimated effect is 0.245%. Regarding inactivity rates, the estimated correlation of increased childcare provision on women in the two countries is similar, although it is much stronger in Italy with regard to women who have children. However, while for Spain we can reject the null hypothesis at the 1% level, in the case of Italy we can only do so at the 10% level. Then, for Italy, an

increase in public ECEC provision is associated with higher employment rates of women without degrees, and leaves their inactivity rates unchanged. This means that public ECEC investment is correlated with an increase in the transition from unemployment to employment for women without degrees, but leaves the status of inactive women unchanged. In Spain the correlation with employment is not as strong, but there is a decrease in women's inactivity rates, meaning that public ECEC investment is correlated with a transition of women without degrees from inactive to active, especially to become job seekers. It is anyway important to put in evidence that in Spain and Italy the type of support offered by public employment services to registered unemployed people in the two countries differs. That is, there might be an institutional explanation behind different trends related to inactivity in the two countries.

As mentioned when discussing the methods adopted, childcare coverage rates and female workforce participation rates can be affected by reverse causality and can skew our estimates. Table A3 shows the GMM estimators of the AB model for both the employment and inactivity rates of women without degrees as dependent variables, as well as models using the lagged dependent and independent variables. In the case of employment, the first model without lagged variables shows that the association is not only still relevant and significant but is now estimated to be stronger. Therefore, our estimators could even be skewing our results downwards, meaning that the true correlation could be stronger than the one predicted by the within-group estimator. Similar results emerge with regard to inactivity, and with stronger estimated correlations than in the within-group estimator. In all models we can reject the null hypothesis of having second-order serial correlation, and thus reduce the risk of having used endogenous instruments.

Moving on now to our proxies for intensity of working patterns, in Table 2 we follow the same procedure as in Table 1: on the one hand taking all women aged 25–49 with children and, on the other hand, subdividing the whole sample of women aged 25–49 (with and without children) between those with degrees and those without. Firstly, looking at part-time rates, a 1% increase in coverage rates is associated with a strong 0.32% drop in mean part-time employment for women with children. For the whole sample of women aged 25–49 there are no statistically significant correlations for either those with degrees or for those without, which is probably due to the size of the sample that includes all women regardless of whether they have children or not. When studying the two countries separately, we find that in Spain there exists a strong estimated negative and significative correlation of part-time work with public ECEC coverage rates (see Table A4). A 1% increase in coverage rates is associated with a 0.29% drop in part-time rates of women with children. This is not true for Italy, where the effect is small and non-significant (see Table A5).

Secondly, when studying the whole sample, involuntary part-time employment is predicted to be lower in regions with higher public childcare coverage rates for

Table 2. Within-group regressors for part-time and involuntary part-time rates for women with children, and according to their education.

VARIABLES	(1) Part-time employment rate for women 25–49 yrs. old with children 0–2 yrs. old at home	(2) Part-time employment rate for women 25–49 yrs. old with degrees	(3) Part-time employment rate for women 25–49 yrs. old without degrees	(4) Involuntary part-time employment rate for women 25–49 yrs. old with children 0–2 yrs. old at home	(5) Involuntary part-time employment rate for women 25–49 yrs. old with degrees	(6) Involuntary part-time employment rate for women 25–49 yrs. old without degrees
Public childcare services coverage rates	−0.321***	−0.00787	−0.0780	−0.193**	−0.0948**	−0.129*
	(0.0871)	(0.0293)	(0.0806)	(0.0806)	(0.0410)	(0.0721)
Rate for women 25–49 with degrees	0.159	0.152**	−0.0183	−0.0341	−0.107	−0.133
	(0.231)	(0.0681)	(0.138)	(0.114)	(0.0650)	(0.112)
Average company size	−0.551*	−0.186	−0.439**	−0.248	−0.321***	−0.336***
	(0.282)	(0.112)	(0.178)	(0.151)	(0.0590)	(0.109)
Rate for public employees over total employment	0.0372	0.0970	−0.186*	−0.0706	−0.0639	−0.0835
	(0.353)	(0.0943)	(0.0974)	(0.0867)	(0.0520)	(0.0710)
Rate for knowledge-basedworkers over non-knowledgebased workers	−0.511	−0.389	0.192	−0.376*	−0.167	0.0994
	(0.569)	(0.340)	(0.283)	(0.202)	(0.115)	(0.171)
Rate for sectors with a workforce comprised of over 20% part-time workers	−0.117	−0.211*	0.128	−0.119	−0.00554	0.0917
	(0.166)	(0.106)	(0.110)	(0.0984)	(0.0762)	(0.102)
GDP per capita (in thousands)	−1.627	−1.643***	−1.561*	−0.905	−1.110***	−1.339**
	(1.246)	(0.571)	(0.799)	(0.656)	(0.401)	(0.572)
GDP per capita	0.0220	0.0232***	0.0196*	0.0104	0.0125**	0.0125
	(0.0152)	(0.00752)	(0.0101)	(0.00767)	(0.00563)	(0.00822)
Total fertility rate	−4.200	2.687	−5.201	−13.80**	−7.584***	−7.153*
	(7.262)	(4.215)	(4.819)	(5.520)	(2.685)	(4.046)
Constant	87.36***	51.39***	72.79***	56.52***	53.54***	56.88***
	(22.28)	(11.61)	(13.92)	(13.32)	(6.884)	(10.57)
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
Region Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Errors	Yes	Yes	Yes	Yes	Yes	Yes
Observations	494	494	494	494	494	494
R-squared	0.099	0.479	0.513	0.466	0.852	0.786
Number of Regions	38	38	38	38	38	38

Robust standard errors in brackets, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.
Data: European Labour Force Survey, aggregated microdata 2006–2018, only women 25–49 years old according to their education and if they have children aged 0–2 years at home

all groups of women, although there are mixed results in terms of relevance and statistical significance: there is a strong estimated correlation (−0.19%) in the case of women with children at a 5% significance level, compared with −0.09% for women with degrees at a 5% significance level, and −0.13% for women with no higher education, but only at a 10% significance level in this case. If we repeat the

estimations for each country separately, there is no statistically significant correlation for either country, and only a relevant effect in Italy for women without degrees. The difference in significance levels between the whole sample and subsamples is probably due to the smaller sample size of the subsamples.

With regard to the control variables for the whole sample including all regions, the estimated negative association of having children on involuntary employment could be accounted for by an increase in part-time working due to care responsibilities. The strongly negative relationship with company size should also be noted, indicating the lack of capacity of small companies to offer full-time jobs.In the case of involuntary part-time work, we have also used the GMM estimator in the AB model in order to control for reverse causality (the results have not been included here but are available upon request). Results for part-time employment are robust and even stronger both for women with degrees and those without. There is also a significant estimated coefficient for the lagged independent variable.

Publicly-provided ECEC: a key factor in improving labour market outcomes and inequalities

The results section provides evidence in favour of our hypotheses. As regards our first hypothesis, the descriptive analysis and the findings from the estimation models show that higher investment in public ECEC is associated with a higher labour market participation of women with children. Regarding our second hypothesis, the findings also show that an increase in public childcare take-up rates is associated with a decrease in part-time rates by women with children. That is, for women with children, increases in childcare coverage rates are correlated with reductions in part-time and involuntary part-time rates. However, for our second hypothesis there's mixed evidence due to sample design and size, and results should be taken with more caution.

In line with our third hypothesis, the association of public ECEC with employment and part-time rates is stronger for women without than for women with degrees, i.e. women without degrees are estimated to benefit more from public ECEC services. This result is probably due to price effects (Hegewish & Gornick 2011), with public ECEC allowing low-income mothers to access affordable childcare services and reduce their opportunity cost of working for wages that are potentially lower than those earned by more highly educated mothers. Our results are in line with the selective women's labour market participation model that takes place in Southern Europe: highly educated women tend to remain in the labour market after the birth of their children, while this is far more rarely the case for less-educated women. Public ECEC provision helps to bridge the gap between both groups by lowering the cost of ECEC services for low-income mothers.

At the country level, the analysis produces other interesting results. In Italy, despite the lack of investment in childcare and notwithstanding the variation in

coverage rates in most regions over the last decade, we see that variation in public childcare is more associated to changes in employment rates, while in Spain is more associated to changes in inactivity rates. This result can be better explained if we consider the impact of the crisis that took place during the period covered by our analysis. Apart from the well-known structural differences between the two countries, the crisis impacted Spain more than Italy (Sánchez-Mira & O'Reilly 2018). One reason for the different impact of public ECEC investment could be that while public investment in childcare has allowed women, especially in Spain's less affluent regions, to look for work, the economic crisis and high levels of unemployment may have hindered any rise in employment rates, as indicated by Sánchez-Mira and O'Reilly (2018). In the case of Italy, the greater levels of informal labour in southern regions might distort the impact that investment in childcare provision may have on inactivity rates, since many women are probably already working but do not appear in official figures.

It is also important to mention here that our statistical analysis shows that the characteristics of local productive systems might have a role in mediating the association between public ECEC and women's labour market participation. In regions with larger companies and public sector jobs we expect to find higher employment rates and lower part-time rates for women. On the other hand, the more there are small and medium businesses in the region, the worse women's labour outcomes will be. Our results confirm the importance of contextual conditions for the positive outcomes of SI policies (Kazepov & Ranci 2017).

Conclusions

This article offers empirical evidence that a policy inspired by social investment, such as publicly-provided early childhood education and care, can positively impact women's labour market participation, both in terms of women's access to the labour market and the intensity of their working patterns. In particular, this article contributes to the debate on SI by offering two important findings. Firstly, investment in public ECEC services is estimated to benefit, first and foremost, women without degrees, by helping them increase their labour market participation (in Italy) and by reducing their inactivity (in Spain). Second, public ECEC could also benefit this group by lowering part-time and involuntary part-time rates.

This is an important result in terms of the debate over the Matthew Effect that SI policies like public ECEC may have. Mothers with lower income and formal education benefit more from public ECEC but, as mentioned in the introduction, they are also those who access less these services. Therefore, our results call for strong public policies that close this gap in service access. SI policies can help reduce inequalities in Southern European societies, but they need to specifically target women without degrees in order to avoid the

possible Matthew Effect connected to their implementation. One important tool is eligibility criteria (decided at regional and municipal levels) for access to childcare services, which actually often favour mothers in permanent full-time employment, who are usually more highly educated (León et al. 2022). On the contrary, mothers who are unemployed or inactive, in temporary work or even in part-time jobs are penalised more than mothers who have *good jobs* (Da Roit, Sabatinelli & Arlotti 2019; Kazepov & Ranci 2017; Palomera 2022). Cost reduction policies are also necessary. Actually, a recent study shows how different regional governments are making public ECEC services free (León et al. 2022). However, this policy could subsidise higher-income mothers if there is a lack of prioritising low-income mothers at the cost of limiting the budget capacity to increase service supply. A system of sliding scale prices could help to both prioritise and lower the cost for lower-income mothers while leaving budget space for further investment in new public ECEC facilities. Further research should study the direct correlation and, if possible, the causal effect on the employment of vulnerable mothers of introducing cost reductions and priority access criteria. However, data collection on public ECEC policies is complex due to significant decentralisation and variation at the regional and local level. Nevertheless, availability and territorial distribution counts, as already stressed by previous research (Ferragina 2019): future investments in ECEC should target regions that lag behind the 40% threshold considered as beneficial for women's labour activation (Del Boca & Vuri 2007).

In conclusion, SI offers a vision of advanced capitalist societies in which a dual-earner family model is promoted in the public sphere, but where the gendered distribution of work in people's private lives remains unquestioned (Saraceno 2015). Thus, while SI advocates equal opportunities as the means through which the true value of women's human capital can be affirmed, equality rarely represents anything more than simply improving the female labour supply through childcare provisions (Kvist 2015), as if women's access to the labour market in itself is a guarantee of positive labour market outcomes (Jenson 2015; Saraceno 2015). In fact, we show evidence that public ECEC investment can not only improve women's access to the labour market, but it can also have a positive impact on women's labour market outcomes. However, although this is an important finding in terms of effective policy, the size of the estimated effects is not large enough to argue for the capacity of ECEC to mitigate gender inequalities, as claimed by supporters of Social Investment. Also, as previously pointed out by scholars such as Saraceno (2015), Jenson (2015) and Mätzke and Ostner (2010), a stronger female presence in the labour market does not necessarily imply reversing the current gendered distribution of unpaid work, as this is not questioned by the broader system of family policies.

The present study suffers from certain limitations. Firstly, certain Spanish regions possess data characterised by measurement errors over the years that may impact our estimations. Secondly, comparable data for Italy and Spain are

only available for publicly-provided childcare. Consequently, we might foresee a different impact when private childcare is included in the picture. Thirdly, although we have controlled for potential reverse causality, the possible presence of other variable biases calls for caution when making statements regarding causality. Despite controlling for the economic nature of individual regions, more refined models could be used, including difference-in-difference estimation under a quasi-experimental approach at the regional or individual level and/or including further variables concerning labour demand factors that may help account for employment outcomes. This could constitute a future development of this line of research. Furthermore, it would be advisable to include other public childcare services (not just school-based ones) that may improve female employment as well and that are correlated to publicly-provided childcare services. One improvement could consist of a more refined method of comparing regions, focused on regions that are similar economically but have different levels of investment in ECEC. Focusing on lower administrative levels could allow us to identify the varying levels of investment made by different municipalities. This would also increase the sample size, which is rather limited at the regional level. Fourthly, our analysis only focuses on women's labour market outcomes, without taking men into account, and this prevents us from making any bold statements concerning changes in gender equality with regard to employment outcomes. Finally, the data available only allows us to include public ECEC coverage rates, leaving for further research the impact of access criteria and other configurations of ECEC on labour market outcomes.

Disclosure statement

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References

Abrassart, A. & Bonoli, G. (2015) 'Availability, cost or culture?: Obstacles to childcare services for low-income families', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 44, no. 4, pp. 787–806.

Anderson, T. W. & Hsiao, C. (1981) 'Estimation of dynamic models with error components', *Journal of the American Statistical Association*, vol. 76, no. 375, pp. 598–606.

Baker, M., Gruber, J. & Milligan, K. (2008) 'Universal child care, maternal labor supply, and family well-being', *Journal of Political Economy*, vol. 116, no. 4, pp. 709–745.

Bauernschuster, S. & Schlotter, M. (2015) 'Public childcare and mothers' labor supply— evidence from two quasi-experiments', *Journal of Public Economics*, vol. 123, pp. 1–16.

Bettendorf, L. J., Jongen, E. L. & Muller, P. (2015) 'Childcare subsidies and labour supply— evidence from a large Dutch reform', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 36, pp. 112–123.

Bianchi, S. M. & Milkie, M. (2010) 'Work and family research in the first decade of the 21st century', *Journal of Marriage and Family*, vol. 72, no. 3, pp. 705–725.

Bonoli, G. (2013) *The Origins of Active Social Policy. Labour Market and Childcare Policies in a Comparative Perspective*, Oxford University Press, Oxford.

Brewer, M., Cattan, S., Crawford, C. & Rabe, B. (2022) 'Does more free childcare help parents work more?', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 74, pp. 102100.

Brilli, Y., Del Boca, D. & Pronzato, C. D. (2016) 'Does childcare availability play a role in maternal employment and children's development? Evidence from Italy', *Review of Economics of the Household*, vol. 14, no. 1, pp. 27–51.

Busse, A. & Gathmann, C. (2020) 'Free daycare policies, family choices and child development', *Journal of Economic Behavior & Organization*, vol. 179, pp. 240–260.

Da Roit, B. & Sabatinelli, S. (2013) 'Il modello mediterraneo di welfare tra famiglia e mercato', *Stato e Mercato*, vol. 25, no. 2, pp. 267–290.

Da Roit, B., Sabatinelli, S. & Arlotti, M. (2019) 'Explaining subnational variations in early childhood education and care. A fuzzy-set analysis of the Italian case', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 53, no. 7, pp. 1136–1156.

Del Boca, D., Pasqua, S. & Pronzato, C. (2009) 'Motherhood and market work decisions in institutional context: a European perspective', *Oxford Economic Papers*, vol. 61, no. Supplement 1, pp. i147–i171.

Del Boca, D. & Vuri, D. (2007) 'The mismatch between employment and childcare in Italy: the impact of rationing', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 20, no. 4, pp. 805–832.

Ferragina, E. (2019) 'The political economy of family policy expansion: fostering neoliberal capitalism or promoting gender equality supporting social reproduction?', *Review of International Political Economy*, vol. 26, no. 6, pp. 1238–1265.

Ferrera, M. (1996) 'The "southern model" of welfare in social Europe', *Journal of European Social Policy*, vol. 6, no. 1, pp. 17–37.

Geyer, J., Haan, P. & Wrohlich, K. (2015) 'The effects of family policy on maternal labor supply: combining evidence from a structural model and a quasi-experimental approach', *Labour Economics*, vol. 36, pp. 84–98.

Givord, P. & Marbot, C. (2015) 'Does the cost of child care affect female labor market participation? An evaluation of a French reform of childcare subsidies', *Labour Economics*, vol. 36, pp. 99–111.

Gori, C. (2005) 'Le politiche sociali nell'Italia delle diseguaglianze', *Il mulino*, vol. 6, pp. 1101–1110.

Guerrieri, P. & Iammarino, S. (2006) 'Euro-commentary: the rise of 'many Mezzogiorni': an empirical assessment of the internal differentiation of Italian Southern Regions', *European Urban and Regional Studies*, vol. 13, no. 2, pp. 167–178.

Guillén, A. & León, M. (2011) *The Spanish Welfare State in European Context*, Ashgate, Aldershot.

Guillén, A. M., Jessoula, M., Matsaganis, M., Branco, R. & Pavolini, E. (2022) 'Southern European welfare systems in transition', in *Mediterranean Capitalism Revisited. One Model, Different Trajectories*, in eds L. Burroni, E. Pavolini & M. Regini, Cornell University Press, Ithaca and London, pp. 149–171.

Haeck, C., Lefebvre, P. & Merrigan, P. (2015) 'Canadian evidence on ten years of universal preschool policies: the good and the bad', *Labour Economics*, vol. 36, pp. 137–157.

Hegewisch, A. & Gornick, J. C. (2011) 'The impact of work-family policies on women's employment: a review of research from OECD countries', *Community, Work & Family*, vol. 14, no. 2, pp. 119–138.

Hegewisch, A. & Gornick, J. C. (2013) 'The impact of work-family policies on women's employment: a review of research from OECD countries', *Procedia - Social and Behavioral Sciences Elsevier BV*, pp. 3–22.

Hudson, J. & Kühner, S. (2009) 'Towards productive welfare? A comparative analysis of 23 OECD countries', *Journal of European Social Policy*, vol. 19, no. 1, pp. 34–46.

Huertas, I., Ramos, R. & Simon, H. (2017) 'Regional differences in the gender wage gap in Spain', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 134, no. 3, pp. 981–1008.

Insarauto, V. (2021) 'Women's vulnerability to the economic crisis through the lens of part-time work in Spain', *Work, Employment and Society*, vol. 35, no. 4, pp. 621–639.

Istat. (2022) *Offerta di nidi e servizi integrativi per la prima infanzia*, Istituto Nazionale di Statistica, Roma.

Jaumotte, F. (2003) 'Female labour force participation: past trends and main determinants in OECD countries', in *OECD Economics Department Working Papers*, No. 376, OECD Publishing, Paris.

Jenson, J. (2008) 'Writing women out, folding gender in: the European Union "modernises" social policy', *Social Politics*, vol. 15, no. 2, pp. 131–153.

Jenson, J. (2015) 'The fading goal of gender equality: three policy directions that underpin the resilience of gendered socio-economic inequalities', *Social Politics*, vol. 22, no. 4, pp. 539–560.

Kazepov, Y. & Ranci, C. (2017) 'Is every country fit for social investment? Italy as an adverse case', *Journal of European Social Policy*, vol. 27, no. 1, pp. 90–104.

Knijn, T. & Smit, A. (2009) 'Investing, facilitating, or individualizing the reconciliation of work and family life: three paradigms and ambivalent policies', *Social Politics*, vol. 16, no. 4, pp. 484–518.

Kulic, N., Skopek, J., Triventi, M. & Blossfeld, H.-P. (2019) 'Social background and children's cognitive skills: the role of early childhood education and care in a cross-national perspective', *Annual Review of Sociology*, vol. 45, no. 1, pp. 557–579.

Kvist, J. (2015) 'A framework for social investment strategies: integrating generational, life course and gender perspectives in the EU social investment strategy', *Comparative European Politics*, vol. 13, no. 1, pp. 131–149.

Lefebvre, P. & Merrigan, P. (2008) 'Child-care policy and the labor supply of mothers with young children: a natural experiment from Canada', *Journal of Labor Economics*, vol. 26, no. 3, pp. 519–548.

León, M., Palomera, D., Ibáñez, Z., Martínez-Virto, L. & Gabaldón-Estevan, D. (2022) 'Between equal opportunities and work-life balance: balancing institutional design in early years education in Spain', *Papers*, vol. 107, no. 3, pp. e3084.

León, M. & Pavolini, E. (2014) "Social investment" or back to "familism": the impact of the economic crisis on family and care policies in Italy and Spain', *South European Society and Politics*, vol. 19, no. 3, pp. 353–369.

Leszczensky, L. & Wolbring, T. (2019) 'How to deal with reverse causality using panel data? Recommendations for researchers based on a simulation study', *Procedia - Social and Behavioral Sciences Elsevier BV*, pp. 0049124119882473.

Maestripieri, L. (2023) 'Women's involuntary part-time employment and household economic security in Europe', *Feminist Economics*, vol. 29, no. 4, pp. 223–251.

Maestripieri, L. & León, M. (2019) 'So close, so far? Part-time employment and its effects on gender equality in Italy and Spain', in *Dualization of Part-Time Work. The Development of Labour Market Insiders and Outsiders*, in eds H. Nicolaisen, H. C. Kavli & R. Steen Jensen, Policy Press, Bristol, pp. 55–85.

Mätzke, M. & Ostner, I. (2010) 'Introduction: change and continuity in recent family policies', *Journal of European Social Policy*, vol. 20, no. 5, pp. 387–398.

Melhuish, E., Ereky-Stevens, K., Petrogiannis, K., Ariescu, A., Penderi, E., Rentzou, K., Tawell, A., Leserman, P. & Broekhuisen, M. (2015) 'A review of research on the effects of early childhood education and care (ECEC) on child development', *Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care.*

Müller, K. U. & Wrohlich, K. (2020) 'Does subsidized care for toddlers increase maternal labor supply? Evidence from a large-scale expansion of early childcare', *Labour Economics*, vol. 62, pp. 101776.

Navarro-Varas, L. & León, M. (2024) '¿Quién gana y quién pierde? El acceso desigual a los recursos de educación y cuidado en la temprana infancia', *Revista Española de Investigaciones Sociológicas*, vol. 182, no. 182, pp. 81–96.

Nollenberger, N. & Rodríguez-Planas, N. (2013) 'Full-time universal childcare in a context of low maternal employment: Quasi-experimental evidence from Spain', *Labour Economics*, vol. 36, no. 36, pp. 124–136.

Olivetti, C. & Petrongolo, B. (2017) 'The economic consequences of family policies: lessons from a century of legislation in high-income countries', *Journal of Economic Perspectives*, vol. 31, no. 1, pp. 205–230.

Palomera, D. (2022) 'A welfare state for all? An analysis of social inequalities in applications for and use of public childcare services, and the role of social policy in alleviating them', *Papers*, vol. 107, no. 3, pp. e3068.

Pavolini, E. & Van Lancker, W. (2018) 'The Matthew effect in childcare use: a matter of policies or preferences?', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 25, no. 6, pp. 878–893.

Pfau Effinger, B. (1998) 'Gender cultures and the gender arrangement—a theoretical framework for cross-national gender research', *Innovation: The European Journal of Social Science Research*, vol. 11, no. 2, pp. 147–166.

Rigney, D. (2010) *The Matthew Effect: How Advantage Begets Further Advantage*, Columbia University Press, Nueva York.

Roodman, D. (2009) 'How to do xtabond2: an introduction to difference and system GMM in Stata', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 9, no. 1, pp. 86–136.

Sánchez-Mira, N. & O'Reilly, J. (2018). 'Household employment and the crisis in Europe', *Work, Employment and Society*, pp. 095001701880932.

Saraceno, C. (2015) 'A critical look to the social investment approach from a gender perspective', *Social Politics*, vol. 22, no. 2, pp. 257–269.

Saraceno, C. (2017) 'Family relationships and gender equality in the social investment discourse: an overly reductive view?', in *The Uses of Social Investment*, in ed. A. Hemerijck, Oxford University Press, Oxford, pp. 59–65.

Valiente, C. (2013) 'The feminist movement and the reconfigured state in Spain 1970-2000', in *Women's Movement: Facing the Reconfigured State*, in eds A. Branazak, K. Backwith & D. Rucht, Cambridge University Press, Cambridge, pp. 30–47.

Van Ham, M. & Mulder, C. H. (2005) 'Geographical access to childcare and mothers' labour-force participation', *Procedia - Social and Behavioral Sciences Elsevier BV*, vol. 96, no. 1, pp. 63–74.

van Huizen, T. & Plantenga, J. (2018) 'Do children benefit from universal early childhood education and care? A meta-analysis of evidence from natural experiments', *Economics of Education Review*, vol. 66, pp. 206–222.

van Kersbergen, K. & Manow, P. (2009) *Religion, Class Coalition and Welfare State*, Cambridge University Press, Cambridge.