

Do Institutions Affect Labour Market Participation? The Italian case*

This work investigates empirically the relation between institutional quality and labour market participation. The authors use a spatial panel approach of the SLX (Spatial Lag of X) category on Italian official data at the provincial level (NUTS-3), covering the whole country over the 2004-2012 timespan. The results support the idea that institutional quality has a positive effect on local labour market participation, for both men and women but it does not affect the participation gap. However, institutions are found to generate a positive spatial spillover that increases female participation and reduces the participation gap in the neighbouring provinces.

Keywords: labour market participation; spatial spillovers; institutional quality; local labour markets; participation gender gap; spatial panel.

Subject classification codes: C21, J16, J21, R23

1. Introduction

The goal of this work is to establish an empirical relation between institutional quality and labour market participation at the local level. In particular, the purpose of this section is twofold: 1) to provide some basic information on the recent trends in labour market participation in Italy, and 2) to introduce the economic literature that explains the relationship between institutional quality and the labour market.

Female labour market participation increased largely from 1970 to 2013, going up from a meagre 27.4% to a more encouraging 53.6%. Over the same period, male participation

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decreased from about 90% to 73.3%. In spite of a consistent reduction, a gender participation gap – defined as the difference between male and female participation rates (Antecol, 2000) – still exists. A number of explanations have been proposed to account for this phenomenon, ranging from distortionary regulations that penalise second earners (Jaumotte, 2003) to cultural and historical factors (Fernandez & Fogli, 2009; Contreras & Plaza, 2010). Although all European countries have observed similar trends (Antecol 2003), participation rates for both genders are rather low in Italy, while the participation gap is outstandingly high, with only Serbia, Malta and Turkey faring worse in a ranking that includes the EU-28 and two accession countries, i.e. Serbia and Turkey Eurostat (2013).

A first argument accounting for the large participation gap in the labour market is the allocation of domestic production within families. Italy is the western European country where employed women spend the highest share of their time on housekeeping activities (cooking, household chores, childcare, etc.), absorbing as much as 3.53h per day, about 20 minutes more than the EU average (Istat, 2008). This Italian anomaly does not depend on a higher attention for housekeeping: the overall time devoted to such activities is consistent with the EU average, but the allocation between men and women within families is very different, with a huge disproportion towards women. This strong unbalance suggests the presence of social norms discouraging female participation. In other words, there seem to be unfavourable institutions worsening the labour market performance of women. Some scholars have highlighted the role of the cultural models prevailing in the society (OECD 2005, 2007; Pissarides et al. 2004). Others have pointed out the features of the public welfare system (Del Boca, 2001, 2002, 2006; Del Boca et al. 2005, 2008; Del Boca & Saraceno, 2005). In particular, the lack of public services in the field of childcare and care for the elderly would push

Italian families to produce such services internally, decreasing employment opportunities for the members who are less likely to obtain a high wage in the labour market, i.e. women. Both explanations are very likely to contribute significantly when trying to explain low female participation rates. However, neither argument leaves much room for optimism: cultural models are well known to be persistent, and so are the main characteristics of the welfare state. It is unlikely for both factors to undergo a significant change over the short run.

A relevant factor that has been little investigated in the literature is the role played by institutional quality in the labour market. Cross-country empirical works associate high institutional quality with industrial growth, investments in technology and high firm performance (Commander & Svejnar, 2011). Growth in turn brings about a rise in employment and welfare through an increase in the labour demand (Padalino & Vivarelli, 1997). As first defined by Douglas North (1990), institutions are humanly devised constraints that structure political, economic and social interactions. Institutions are in other words the rules of the game, incorporating both the formal and the informal prescriptions that limit individual behaviours. A relatively late strand of the economic literature has proved that institutions play an important role on economic development: high levels of corruption, or more generally, a poor institutional framework has been shown to be correlated with low growth rates (Mauro, 1995; Knack & Keefer, 1995). More interestingly, the institutional context influences GDP levels: the enforcement of laws defending property rights generates *ceteris paribus* a higher income per capita (Acemoglu, Johnson & Robinson, 2001, 2005). Similarly, societal norms discouraging large disproportions in the distribution of wealth and human capital turn out to be beneficial for the national income in the long run (Engerman & Sokoloff, 2002). An appealing idea is that institutions influence growth directly, playing a role in the

production function, via total factor productivity (Robert & Hall, 1999; Olson et al., 2000), thus simply rescaling capital and labour's contributions to growth. A different and less straightforward channel through which institutions operate is the size of the informal sector: poor institutions, like strict business rules, impose rigidities on firms, encouraging them to operate in the grey areas of informality (Loayza, Oviedo & Servén, 2005). Countries featuring a large informal sector are observed to grow more slowly *ceteris paribus*.

This last point constitutes a solid base to tackle the wide economic differences among macro-areas in Italy, as institutional quality may as well explain imbalances in the economic performance at the local level as a result of differences in the size of the informal sector. On the same line of reasoning, Torgler & Schneider (2006) work with Swiss data at the cantonal level, to show a significant relation between institutional quality and the size of the shadow economy. Although institutional quality is usually treated as a national feature, it is in fact easy to apply the same idea within countries, especially when cultural heterogeneity is deeply rooted in history, as is the case of Italy. The Italian state is pretty recent with respect to the other European countries, since its unification process took place as late as in 1861. It is then reasonable to hypothesise a persistent institutional heterogeneity at the local level, due to the different characteristics of the pre-unification states. Nonetheless, there are also reasons to think that institutional quality itself follows a dynamic trajectory influenced by economic conditions (Kim & Law, 2012), which poses a potential endogeneity problem when trying to assess the impact of institutional quality on economic growth, as we will discuss later on.

Most empirical works dealing with institutions use national level data, failing to capture the actual peculiarities and specific features of the local labour markets. Intuitively,

individuals are only willing to cope with a limited amount of commuting time per day (van Ham, 2002) which means that each local labour market should be analysed as a single unit rather than as a part of the national labour market. Concerning Italy moreover, within-country variation is of particular importance, as Northern regions perform far better with respect to those of the South in terms of wages, unemployment and participation.

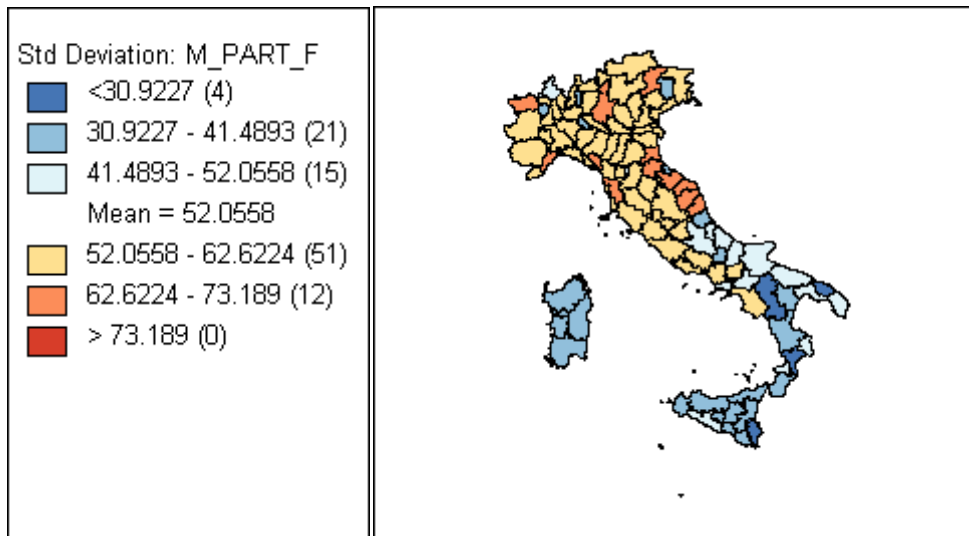
The rest of this paper proceeds as follows: Section 2 presents a handful of stylised facts concerning labour market participation in Italy, with particular regard to the North-South dualism. Section 3 describes the fairly recent methodological framework we selected and discusses the actual and potential problems of endogeneity. Section 4 introduces and comments our dataset, built upon figures provided by two national official sources, Istat (National Institute of Statistics) and INPS (National Social Insurance Agency). Section 5 shows and comments our results in the light of the economic theory and of the recent literature. Section 6 underlines the policy implications of our findings and offers our concluding remarks.

2. Stylised Facts

Figure I and **Figure II** map the labour market participation rates among the Italian provinces. A clear gap emerges, between the provinces of the South on the one hand, ranking consistently below the national average, and those of the North and Centre on the other hand, ranking above the national average. A key factor explaining this gap is the decline of the labour market conditions in the South, due to a continuous collapse of the secondary sector which started in the late Seventies and grew faster and faster over time (Svimez, 2015). Sector-wise the South of Italy has witnessed a massive decrease in

industrial investments, which fell by 59.3% from 2008 to 2014. Over the same period industrial investments in the North and Centre fell too, but only by 17.1%. Investments decreased largely also in the construction sector, by 47.7% in the South and 55.4% in the North and Centre, as well as in the field of agriculture, where the drop was 38% in the South and 10.8% in the North and Centre. A decrease is observed also for investments in the service sector, by 33% in the South and 31% in the North. The large decrease in investments in the South has eroded the production base and increased the competitiveness gap. In 2014 the national added value of the manufacturing sector dropped by 0.4% with respect to 2013, but the severity of this drop varied widely among areas, as the North and Centre witnessed a 0.1% decrease while the South suffered from a 2.7% fall, as opposed to EU-28 trend, which resulted in a 1.6% increase. In the same year, Germany's added value of the manufacturing sector grew by 2.1% and the UK fared even better, with a 2.8% increase. Over the 2008-2012 period, Italy saw its added value fall by 16.7% while the EU average recorded a decrease by 3.9%. The manufacturing sector in the South lost more than half of its investments (59.3%) and about one third of its production (34.8%). The bottom-line of this argument is that for some reason, the South of Italy has performed poorly with respect to the Centre and the North when it came to encouraging investments. And a key explanation is to be found in the different degree of institutional quality that characterises the macro-areas. Good institutions attract investments (Commander & Svejnar, 2011) and end up improving labour market conditions from the demand side.

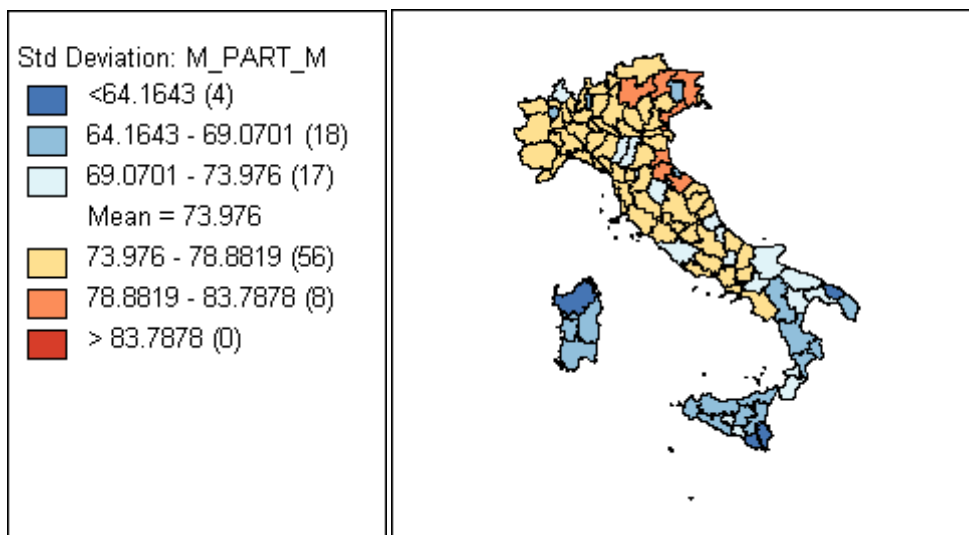
Figure I. Standard Deviation Map of Female Labour Market Participation at the provincial level. Annual averages (2004-2012)



Source: our elaboration on ISTAT data.

Note: The figure in parentheses next to each range indicates the number of Provinces for which Female Labour Market Participation falls within that range

Figure II. Standard Deviation Map of Male Labour Market Participation at the provincial level. Annual averages (2004-2012)



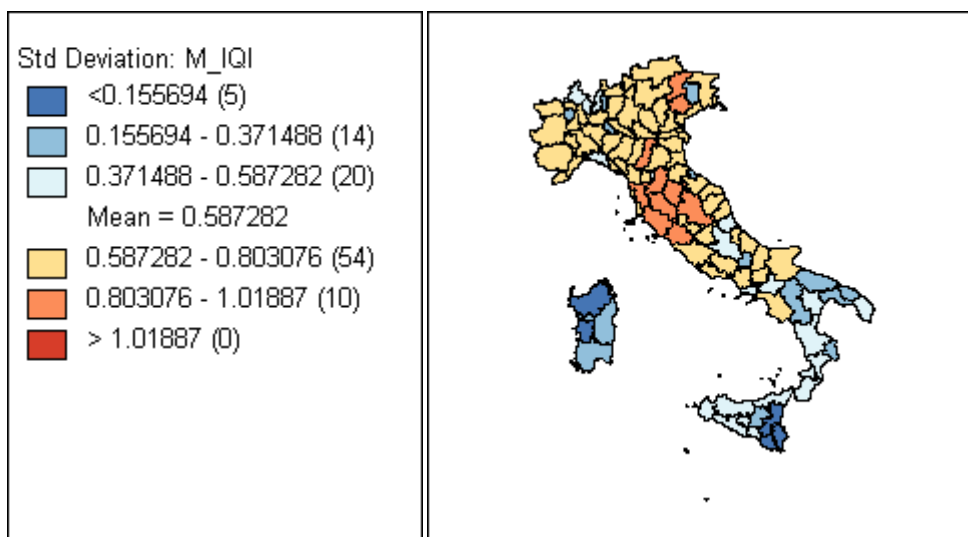
Source: our elaboration on ISTAT data

Note: The figure in parentheses next to each range indicates the number of Provinces for which Male Labour Market Participation falls within that range.

Recent applied works have tried to measure empirically the quality of national and local institutions. Within this branch of the literature, an interesting proposal by Charron, Dijkstra and Lapuente (2013, 2014) is the European Quality of Government Index (EQI), based on survey data on corruption and governance at the regional level within the EU. It is available for 2010 and 2013. Such index focuses on the general perception about the public sector, corruption and the extent to which citizens believe various public services are of good quality and impartially allocated. It covers all the 28 EU member states plus two accession countries (Serbia and Turkey). Unfortunately, it does not allow for a longitudinal analysis since it is available only for two years and its disaggregation level only covers regions (NUTS-2), which are as few as 20 all over Italy. On the same line of reasoning however, Nifo and Vecchione (2014) propose an Institutional Quality Index (IQI), worked out for several years (2004-2012), and available at the NUTS-3 level, i.e. encompassing provinces. Disaggregated data at the local level are more appropriate when it comes to trying to identify the relation between institutional quality and economic performance (Kim & Law, 2012).

Figure III indicates that the Institutional Quality Index (IQI) in the North and Centre is higher than the national average. Southern Italian provinces, except a few in Campania, feature IQI values lower than the average, which is consistent with the idea that poor institutional quality and low participation rates are associated. **Figure IV** shows a clear and positive relation between the IQI and participation rates.

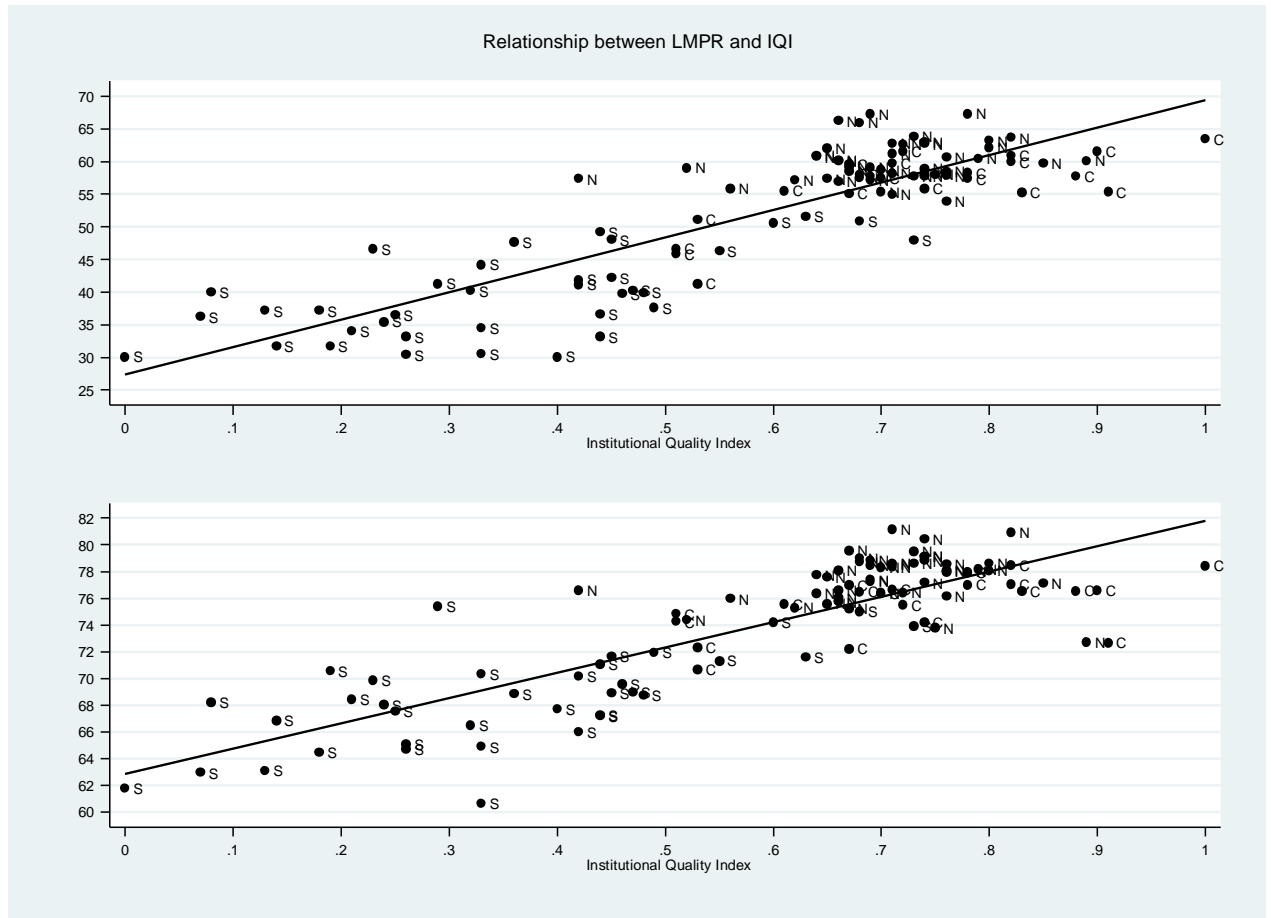
Figure III. Standard Deviation Map of the Institutional Quality Index (IQI) at the provincial level. Annual averages (2004-2012)



Source: our elaboration on the data provided by Nifo & Vecchione (2014).

Note: The figure in parentheses next to each range indicates the number of Provinces for which the IQI falls within that range

Figure IV. Relationship between Male Participation, Female Participation and the IQI, annual averages (2004-2012)



Source: our elaboration on ISTAT and Nifo & Vecchione's (2014) data.

Note: We denote with N, C, and S, the northern, central and southern Italy provinces, respectively; Male Participation = $62.8 + 18.9 * IQI$ ($R^2 = 0.69$) [the IQI coefficient is significant at 1%]; Female Participation = $27.4 + 41.9 * IQI$ ($R^2 = 0.73$).

3. Method

Our goal is to measure the impact of institutional quality on labour market participation.

A new and hopefully interesting aspect of this work is the explicit treatment of spatial spillovers. The model we propose is a Spatial Lag of X (Vega & Elhorst, 2015), which means we run a panel data regression where the explanatory variables include not only our original choice of covariates, but also the spatial lags of each of the covariates.

3.1 Model

SLX models entail two sets of regressors, i.e. the usual covariates, contained in matrix X , plus their spatial lags, obtained by pre-multiplying X by the spatial contiguity matrix W .

$$Y = X \beta + W X \theta + \varepsilon \quad (1)$$

Y is an $N \times 1$ vector containing one observation per each unit in the sample. In each regression Y is the dependent variable, i.e. in turn male participation, female participation and participation gap. X is an $N \times k$ matrix whose first column is made up of ones while every other column represents a covariate. Our covariates are the IQI, the male and female unemployment rates and their difference, the dependency ratio and the day-care coverage. β and θ are both $K \times 1$ coefficient vectors representing respectively the direct and spatial effect of the covariates. W is the square $N \times N$ weight matrix.

Unlike other spatial models, like SDM, SAC and SAR, this functional form poses no special estimation concern, because if the covariates are exogenous, so are their lags. Moreover, no restriction is imposed on the ratio between the direct and the spillover effect. A practical advantage is the fact that once the model is implemented, the spillovers need no further calculations and are easy to compare. The paramount problem raised by spatial models in general however is the definition of the contiguity matrix used to generate spatial lags. There is no well-established rule in the literature for choosing a specific contiguity matrix. For the sake of completeness and robustness, as suggested by Case, Rosen & Hines (1993), we run our model with different definitions of contiguity. Namely: 1) Queen's binary matrix, 2) a Commuting-based matrix, 3) an Economic Proximity matrix and 4) an Institutional Proximity matrix. Queen's matrix features as usual only ones or zeros before standardisation, namely a one if two

provinces have a border in common and a zero otherwise. The Commuting matrix we built is based on Istat town-to-town commuting data and each element ij represents the number of people who are resident in province i and work in province j . It is not symmetric, but this fortunately poses no estimation problem. The Economic Proximity matrix shows for element ij the inverse of the per capita GDP distance between province i and province j . Similarly, Institutional Proximity is defined as the inverse of the IQI distance between two provinces. We tested various reasonable minimum value thresholds against the no-threshold assumption to guarantee the robustness of the estimation and the results show little variation if any. For each contiguity matrix, we run three distinct regressions: one for male participation, one for female participation and one for the participation gap. The covariates we include are male and female unemployment rates, IQI and dependency ratio. As in Case (1991), we choose random over fixed effects, since the former method is more efficient and our Hausman tests suggest orthogonality between individual characteristics and the regressors.

3.2 Dealing with Endogeneity

Since the unemployment rates appear among the covariates, there is an endogeneity problem, as both unemployment and participation are likely to be simultaneously determined by some underlying factor, e.g. the general economic trend. To tackle this matter, we instrument both male and female unemployment rates with a set of variables that includes: 1) GDP and Consumption, both in logs, 2) the time lags, the spatial lags and the spatiotemporal lags of GDP, Consumption and unemployment rates (both male and female). Introducing time lags implies losing one period, but this is not a big deal, since there are eight left. An important advantage of SLX models is that all the lags are exogenous by definition, hence resulting as good instruments. We use the familiar 2SLS estimator, that is especially convenient due to its generality and ease of implementation.

It is always, consistent, even in a spatial panel context.

To make sure our estimates are reliable, we also consider the endogeneity problem that might arise with the IQI, as mentioned in the last part of Section 1. It is possible to test for IQI exogeneity and to do so, we introduce a new variable that works as a proxy for cultural background: language. Although Italian is the only official national language, Italy features a number of minor languages. It is estimated that in 1861 less than 10% of the Italian population was familiar with standard Italian (Repetti, 2000). Obviously nowadays Italian far more popular, but minor languages are still relevant at the local level. It is then reasonable to use minor languages as a proxy for culture, which is related to institutions but not to labour market participation. Local languages make a fine instrument, which we use to check the robustness of our results.

4. Data

All the data we employ are drawn from institutional sources, i.e. the National Institute of Statistics (Istat)[†] and the National Institute of Social Services (INPS)[‡]. The data cover a nine-year period, spanning from 2004 to 2012 and are disaggregated at the NUTS-3 level throughout the 103 Italian provinces.

Over the period of our analysis, reforms at the national level created a handful of new provinces by parcelling some municipalities out of some of the largest or most densely populated previous provinces. So the total number of provinces rose from 103 to 107 in 2005 and then to 110 in 2009. In 2016, three of the new provinces created in Sardinia

[†] <http://dati.istat.it/>, consulted in April 2016

[‡] <https://www.inps.it/webidentity/banchedatistatistiche/menu/dipendenti/main.html>, consulted in April 2016

were abolished, resetting the total amount to 107. We tackle this problem in the data by considering only the original 103 Italian provinces, established by the national law in 1995. Namely we are excluding the provinces of Fermo, Monza-Brianza and Barletta-Andria-Trani created in 2009, plus the province of Olbia-Tempio created in 2005 in Sardinia (along with the others that were later suppressed).

As in Noback, Broersma, & Van Dijk, (2013), we use three different independent variables in our analysis, i.e. the female and male participation rates and their difference, dubbed participation gap. The covariates we introduce are the unemployment rates, institutional quality, dependency ratio and day-care coverage.

Table I shows the main features of our dataset. As discussed in *Section 1*, the participation rates are rather low and they differ widely, especially for women, across provinces. All the variables listed below are drawn from Istat. In addition to the dependent variables and the regressors, we also use per capita GDP and Consumption at the provincial level, which we express in natural logs. Although these are not closely related to the functioning of the labour market, they will be useful instruments to tackle the problem of endogeneity (see Section 3.2).

Table I. Variables, Descriptive Statistics

Variable	Obs	Mean	Std Dev	Min	Max
IQI	927	0.587168	0.218297	0	1
Male Participation	927	0.739759	0.052071	0.553603	0.841126
Female Participation	927	0.520556	0.107193	0.2409	0.701744
Participation Gap	927	0.219203	0.069208	0.080791	0.421521
Male Unemployment	927	0.065063	0.041007	0.010226	0.254442
Female Unemployment	927	0.10248	0.054735	0.018653	0.296559
Unemployment Gap	927	-0.03742	0.064734	-0.25894	0.152983
Dependency Ratio	927	0.530279	0.037792	0.4066	0.6549
Day-care coverage	927	0.104542	0.064919	0.003	0.336
GDP	927	9.978143	0.257373	9.399614	10.742430
Consumption	927	8.739536	0.742793	6.922250	11.288680

Following the definition proposed by Istat, we consider only active participation, thereby excluding people who are not currently looking for a job or those who are temporarily inactive due to an injury or illness. An individual, aged 15 or older, is considered employed if he/she has carried out at least one hour of paid work over the last week. Individuals aged 15-74 are instead considered unemployed if they have spent at least one hour searching for a job during the last month and are immediately available for work (Istat, 2006). Participation is defined as the sum of the employed and the unemployed over the total population. The unemployment gap is defined as the difference between male and female unemployment rates. To measure institutional quality, we use the data provided by Nifo and Vecchione (2014), i.e. the Institutional Quality Index (IQI), ranging between 0 and 1. We use the dependency ratio to control for the local age distribution (similarly to Noback, Boesma and Van Dijk, 2013). It is defined as the ratio between the sum of the population aged under 15 and over 64 and the sum of the population aged 15-65. Intuitively, a province populated by relatively few adults offers higher chances of finding a job and should encourage participation. If a high share of the population is either young or old however, a certain amount of family care will likely be needed. Women typically take care of the dependent members of their families, but on the other hand women in retirement age may decide to stay longer in the labour market when they see that there are many members of their family out of the working age, so the overall effect on female participation is not trivial to assess theoretically. Day-care coverage is defined as the percentage of families with children that use the free public nursery schools available in the province (if any). Intuitively, the availability of free day-care facilities encourages female participation.

5. Results

All the estimates produced by our analysis are resumed in **Table II**, displaying a different column for each of the contiguity matrices employed. *Section 5.1* contains our comments on the direct effects, whereas *Section 5.2* covers the spillover effects. The penultimate row of Table II shows Sargan-Hansen's J-statistic for the heteroscedasticity-robust overidentification test. In every single case, the J-statistic is far from being significant and the test fails to reject the null hypothesis that our instruments are valid. The last row displays the F-statistic of the first stage. Staiger & Stock (1994) suggest an empirical rule of thumb for the recognition of weak instruments: if the F-statistic is lower than 10, researchers should be concerned. This is not our case. We also tested for IQI endogeneity, using local languages as instruments and it results to be exogenous, since the first stage residuals end up having a null coefficient in the second stage.

5.1 Direct Effects

The regression coefficients associated with female participation are consistently larger than their male counterparts overall. This first point depends on the higher sensibility of the female workers to macroeconomic variables, meaning their labour supply elasticity is higher, in line with the empirical literature (Evers, De Mooij and Van Vuuren, 2008). Not surprisingly, female unemployment discourages both men and women from participating. As women are more sensible to the labour market conditions, they are hit more severely by an increase in female unemployment, which means the participation gap increases. More surprisingly, male unemployment does not affect male participation, while it encourages female participation, hence reducing the gap. This is consistent with the idea that men supply work inelastically, while women tend to enter

the labour market to compensate for the lower household income caused by male unemployment (added worker effect). Institutional quality is shown to have a positive impact on labour market participation, both for men and for women. No significant effect however is found on the participation gap, which means institutions are gender-neutral. In line with our findings, the empirical literature associates a high quality of local institutions with a larger growth of the industrial sector, of production and hence of employment (Lasagni, Nifo & Vecchione, 2015).

Table II. Results

Variable	Queen		Commuting		Economic Proximity		Institutional Proximity	
	Men	Women	Men	Women	Men	Women	Men	Women
Male Unemployment	-0.1008	1.6324**	0.0828	0.7340*	-0.0839	0.7887**	0.3232	1.2998***
Female Unemployment	-1.2989***	-1.7454***	-1.3297***	-1.8019***	-1.0094***	-1.7068***	-1.4229***	-1.7775***
Unemployment Gap		-1.6048***		-1.3756***		-0.9452***		-1.19***
IQI	0.0582**	0.0944**	0.0564**	0.0800**	0.0504***	0.0759***		
Dependency Ratio	0.0756	0.3228*	-0.1807	0.4482**	-0.0097	0.3735***	-0.1174	0.6052***
Daycare		-0.1433*		-0.1496**		-0.1615***		-0.1660***
W_Male Unemployment	-0.0499	-1.4849**	-0.2171	-0.6233*	-0.1990	-0.8035***	-0.7284***	-1.6801***
W_Female Unemployment	0.9933***	0.9909***	0.9096***	0.9901***	0.8916**	1.1779**	1.8482***	1.9895***
W_Unemployment Gap		1.1396***		0.9493***		0.6304***		1.00***
W_IQI	0.0435	0.0991**	0.0360	0.0881**	0.0699**	0.1349**		
W_Dependency Ratio	0.3733***	0.4088*	0.5636***	0.3986*	0.7726***	0.9023***	1.0245**	1.4711***
W_Daycare		-0.1815*		0.0945		-0.0450		0.2379
Sargan-Hansens J	3.518	0.871	4.054	3.391	2.349	2.204	0.392	2.824
1 st stage F-statistic	462.5	233.6	24.7	208.2	188.0	191.9	264.9	164.7
	77.9	90.0	14.4	67.0	127.1	69.3	54.4	68.4
		200.9		137.7		123.8		115.4

Spatial Panel IV2SLS Random Effects Estimator

* Significant at 10%
 ** Significant at 5%
 *** Significant at 1%

The Dependency Ratio has no effect on male participation, but it influences positively female participation, thus decreasing the participation gap. This result means that when the share of the population that needs family care is high, women participate more in the labour market. At a first sight this idea might sound counterintuitive since women usually bear the burden of family care provision, however there are some reasonable explanations accounting for this phenomenon: 1) if youngsters and elders are numerous relative to the population, there is a relatively low share of people in their working age, which lowers the supply side competition in the labour market. In other words, the job-to-worker ratio is higher. Men supply work more inelastically, and are not affected by this unbalance. On the other hand, women actually are affected and end up being more prone to participate. 2) family care is not necessarily provided internally by family members; baby-sitters and caregivers may as well be hired to look after children and elderly people, and they are most commonly female workers, which means a high dependency ratio creates more jobs for women. A close look at the official data provided by INPS (Istituto Nazionale per la Previdenza Sociale) corroborates this idea: the ratio of the average caregiver's wage to the average female worker's wage at the national level in 2012 is about 0.35 which means female workers can on average afford to externalise the provision of family care. Of course, cross-province variation exists, with southern regions displaying higher ratios, and hence a lower incentive to externalise family care – the provinces of Messina (Sicily) and Salerno (Campania) hold the national record, with a notable 0.46 implying that the average woman would need to spend almost half of her wage to hire caregivers.

The availability of free day-care facilities also has a positive influence on female participation and reduces the participation gap. We decided not to include this particular variable in the male case, both on the grounds of common wisdom and based on the fact

that the coefficient was far from significant. Day-care coverage is however a variable of particular interest, because its geographical distribution is highly asymmetric, with an imbalance that favours Northern and Central regions (Del Boca, Pasqua & Suardi, 2016). Moreover, it is one of the few levers that the government may actually resort to when seeking immediate remedial actions to undesired labour market outcomes.

5.2 Spatial Spillovers

The most original contributions of this work concern the spatial effects of the variables we consider. As in Patacchini, & Zenou (2007), we find evidence that spatial spillovers are a consequence of worker flows at the local level, consistent with the economic theory. However, we isolate and highlight the spatial effect of institutions.

As one might think, the local labour market participation in a province decreases with an increase in the male unemployment rate of the contiguous provinces. This is because higher unemployment means that the nearby labour markets grow less attractive and their workers will be more likely to commute, in search for better working conditions. Male workers typically display a higher mobility degree than females (Loprest, 1992; Fitzberger & Kunze, 2005), particularly in Italy (Chelli & Rosti, 2002), so some of the men from the nearby areas will migrate to the local province and increase the competition among workers, discouraging locals from participating in the labour market. This effect is significant for women, regardless of the contiguity matrix chosen, while for men the negative sign does hold, but the impact is smaller and its significance depends on the definition of contiguity. What we find here is a spatially lagged ‘discouraged worker’ effect. Conversely, an increase in the female unemployment rate in the contiguous provinces pushes few to no women to leave their provinces and does not add any supply side pressure on the local labour force. However, the local workers

who are considering commuting will read this signal as a proxy of bad labour market conditions in nearby areas and will decide to stay, hence increasing the local labour market participation rate. This result holds for both male and female workers. On the other hand, an increase in the unemployment gap of the contiguous provinces intuitively has a positive effect on the local participation gap.

Spatially lagged institutional quality affects participation positively, although for men the coefficient is not always significant. This phenomenon may be explained as a consequence of the migration flows triggered indirectly by the institutional quality differentials. In other words, an increase in the institutional quality in nearby provinces fosters economic growth in those areas, pushing local workers to migrate towards the more appealing markets (Nifo & Vecchione, 2014). This flow decreases the supply side pressure on the local labour market, hence making the local labour force more likely to find a job, which in turn elicits labour market participation in the area. While this holds for women, for men the impact of spatially lagged institutions is smaller and not always significant, since the male labour force is less sensible to variations in the labour market conditions. Consequently, the participation gap decreases with the lag of institutional quality. This result is of particular interest, implying that institutions, though gender-neutral locally, end up bridging the gap spatially. The rationale for this phenomenon is that good local institutions on the one hand improve female participation but on the other attract male workers from the neighbouring provinces, thus leaving the gap not significantly affected. Conversely, good institutions in the nearby provinces attract male workers from the local province but fail to attract female workers. The outflow of male workers leaves more job opportunities for locals and women are more responsive than men to changes in the labour market conditions, thus the overall effect is an increase in female labour market participation and a reduction in the participation gap.

The lagged Dependency Ratio has a positive impact on labour market participation, but it does not affect the gap. This is because the relative scarcity of people in their working age in the neighbouring provinces, just like a good institutional quality, attracts local workers towards those provinces. Men are more willing to commute *ceteris paribus*, but a relevant share of the jobs available will be related to the provision of family care and women are most likely to fill those vacancies. Day-care facilities display – not surprising – no spatial spillover on participation at all. As briefly stated in the first part of *Section 5*, overidentification is not a problem in our regressions. The excluded instruments we introduced are GDP and Consumption, plus all the spatial lags, time lags, spatiotemporal lags of the unemployment ratios. We carefully proceeded to select the most suitable set of instruments for each regression and for each contiguity matrix. The Sargan-Hansen overidentification test (robust for heteroscedasticity) never yields high p-values, the lowest being as high as 0.2 in the male regression with the Commuting matrix.

6. Concluding Remarks

Institutions matter, as in the words of Acemoglu, Johnson & Robinson (2005). Our work uses official Italian data at the local level to highlight the role played by institutions when it comes to labour market participation. We propose a spatial panel model that treats spatial spillovers explicitly. Our results show that institutions affect positively labour market participation, not only in the local labour market but also in the neighbouring provinces, regardless of how the concept of proximity is declined. A high institutional quality has a positive impact on the participation rates of men and women, but it does not affect the participation gap, meaning institutions should be thought of as a gender-neutral factor.

The overall picture in the Italian peninsula displays a wide geographic variation, penalising Southern regions, where low quality institutions are paired with low participation rates, especially among women. Our analysis shows that a key governmental challenge in the next years will be to tackle and mitigate the problem posed by inefficient and corrupted institutions in the South. It also points out to the relevance of day-care facilities when it comes to female labour market participation, advocating for more governmental funding of public nursery schools at the local level.

References

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). *The colonial origins of comparative development: An empirical investigation* (No. w7771). National bureau of economic research.

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. *Handbook of economic growth*, 1, 385-472.

Antecol, H. (2000). An examination of cross-country differences in the gender gap in labor force participation rates. *Labour Economics*, 7(4), 409-426.

Antecol, H. (2003). Why is there cross-country variation in female labor force participation rates? The role of male attitudes toward family and sex roles. *Claremont McKenna College Working Paper*, (3).

Case, A. C. (1991). Spatial patterns in household demand. *Econometrica: Journal of the Econometric Society*, 953-965.

Case, A. C., Rosen, H. S., & Hines, J. R. (1993). Budget spillovers and fiscal policy

interdependence: Evidence from the states. *Journal of public economics*, 52(3), 285-307.

Charron, N., Dijkstra, L., Lapuente, V. (2014). Regional governance matters: quality of government within European Union member states. *Regional Studies*.

Charron, N., Dijkstra, L., Lapuente, V. (2015). Mapping the Regional Divide in Europe: A Measure for Assessing Quality of Government in 206 European Regions. *Social Indicators Research*. 122(2), 315-346.

Chelli F. & Rosti L. (2002), 'Age and gender differences in Italian workers' mobility', *International Journal of Manpower*, 23(4), 313-325

Commander, S., & Svejnar, J. (2011). Business environment, exports, ownership, and firm performance. *The Review of Economics and Statistics*, 93(1), 309-337.

Contreras, D., & Plaza, G. (2010). Cultural factors in women's labor force participation in Chile. *Feminist Economics*, 16(2), 27-46.

Del Boca, D. (2001) L'offerta di lavoro, in Brucchi Luchino (a cura di), *Manuale di economia del lavoro*, Bologna, Il Mulino.

Del Boca, D. (2002) The effect of childcare and part time opportunities on participation and fertility decisions, *Iza*, n. 427.

Del Boca, D. (2006) The mismatch between employment and childcare in Italy: the impact of rationing, *Working paper Child*, n.8.

Del Boca, D. & Saraceno, C. (2005) *Le donne in Italia tra famiglia e lavoro*, in «Economia e lavoro», a. XXXIX, n. 1, gennaio-aprile.

Del Boca, D., Pasqua, S. & Pronzato, C. (2008) *Market work and motherhood decisions in contexts*, Iza, Discussion paper n. 3303.

Del Boca, D., Pasqua, S. & Pronzato, C. (2005) *Employment and fertility in Italy, France and the U.K.*, in «Labour», vol. 4.

Del Boca, D., Pasqua, S., & Suardi, S. (2016). Child care, maternal employment, and children's school outcomes. An analysis of Italian data. *European Journal of Population*, 1-19.

Engerman, S. L., & Sokoloff, K. L. (2002). *Factor endowments, inequality, and paths of development among new world economics* (No. w9259). National Bureau of Economic Research.

Evers, M., De Mooij, R and Van Vuuren, D. (2008). The wage elasticity of labour supply: A synthesis of empirical estimates. *De Economist* 156 (1), 25-43

Fernandez, R., & Fogli, A. (2009). Culture: An empirical investigation of beliefs, work, and fertility. *American Economic Journal: Macroeconomics*, 1(1), 146-177.

Fitzenberger, B. and A. Kunze, (2005). Vocational Training and Gender: Wages and Occupational Mobility among Young Workers, *Oxford Review of Economic Policy*, 21, 392-415.

Hall, R. E., & Jones, C. I. (1999). *Why do some countries produce so much more output per worker than others?* (No. w6564). National bureau of economic research.

Istat (2006), 'La rilevazione sulle forze di lavoro: contenuti, metodologie, organizzazione'

Istat (2008), Time Use in Daily Life.

Jaumotte, F. (2004). Labour force participation of women. OECD Economic studies, 2003(2), 51-108.

Kim, S. and Law, M. (2012), History, Institutions, And Cities: A View from The Americas, *Journal of Regional Science*, 52 (1), 10-39.

Kim, C., & Zhao, Y. (2014). Are Asian American women advantaged? Labor market performance of college educated female workers. *Social Forces*, sou076.

Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics*, 7(3), 207-227.

Lasagni, A., Nifo, A., & Vecchione, G. (2015). Firm productivity and institutional quality: Evidence from Italian industry. *Journal of Regional Science*, 55(5), 774-800.

Loayza, N., Oviedo, A. M., & Servén, L. (2004). Regulation and Macroeconomic Performance. *World Bank Policy Research Working Paper*, 3469.

Loprest J. (1992), Gender Differences in Wage Growth and Job Mobility, *American Economic Review*, 82(2) 526-32

Mauro, P. (1995). Corruption and growth. *The quarterly journal of economics*, 681-712.

Nifo, A., & Vecchione, G. (2014). Do institutions play a role in skilled migration? The case of Italy. *Regional Studies*, 48(10), 1628-1649.

Noback, I., Broersma, L., & Van Dijk, J. (2013). Gender-specific spatial interactions on Dutch regional labour markets and the gender employment gap. *Regional Studies*, 47(8), 1299-1312.

North, D. C. (1990). *Institutions, institutional change and economic performance*.

Cambridge university press.

Oecd (2005). *Society at glance*, Paris

Oecd (2007). *Babies and Bosses. Reconciling work and family life*, Paris

Olson Jr, M., Sarna, N., & Swamy, A. V. (2000). Governance and growth: A simple hypothesis explaining cross-country differences in productivity growth. *Public Choice*, 102(3-4), 341-364.

Padalino, S., & Vivarelli, M. (1997). The employment intensity of economic growth in the G-7 countries. *International Labour Review*, 136, 191-213.

Patacchini, E., & Zenou, Y. (2007). Spatial dependence in local unemployment rates. *Journal of Economic Geography*, 7, 169-191

Pissarides, C. et al. (2004) 'Women in the labour force: How well is Europe doing?', in Boeri, T., Del Boca, D. e Pissarides, C. (eds.), *Women at work: an economic perspective*, Oxford, Oxford University Press.

Repetti, L. (2000). *Phonological theory and the dialects of Italy*. Amsterdam Studies in the Theory and History of Linguistic Science, Series IV Current Issues in Linguistic Theory 212. Amsterdam/Philadelphia: John Benjamins Publishing.

Staiger, D. O., & Stock, J. H. (1994). *Instrumental variables regression with weak instruments*. NBER Technical Working Paper No. 151

SVIMEZ (2015). *Rapporto 2015 sull'Economia del Mezzogiorno*, Rome

Torgler, B., & Schneider, F. (2007). *Shadow economy, tax morale, governance and*

institutional quality: a panel analysis. CESifo Working Paper No. 1923

Van Ham, M., (2002), *Job Access, Workplace Mobility, and Occupational Achievement*, Eburon Publishers, Delft.

Vega, S. H. & Elhorst, J. P. (2015). The SLX model. *Journal of Regional Science*, 55(3), 339-363.