

VISITINPS

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formazione, ricerca e innovazione

Collective Bargaining, Cost of Living and Urban Wage Premia

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The Urban Wage Premium

- Wide literature on the Urban Wage Premium (UWP)
- UWP estimates positive in basically all countries

- Possible explanations:
- **Urbanizations externalities and spillovers**
- **Learning and Human capital accumulation**
- **Sorting.** Best workers and best firms are more likely to be located in urban areas
- **Matching.** Better quality of the match in dense areas, due to thicker labour markets.

Goal of the paper

- Main goal: identifying the role played by centralized wage setting on the urban wage premium (UWP).
 - Centralized wage setting tends to make wages homogenous along the space dimension
 - Cost of living highly heterogeneous in the space dimension, between urban and rural areas
- to address the impact of centralized wage setting on the UWP it is crucial to derive measures of local cost of living

Hence, two additional pillars in the paper: centralized wage setting and local cost of living

1° Pillar: Collective Bargaining

- **Hot policy debate** in many countries:
 - Macron is reforming the French system.
 - Many recent reforms in Germany, Spain, Portugal, Greece.
- In around two-thirds of OECD countries, collective bargaining takes place mainly at firm level.
- Sector-level agreements play a significant role only in continental European countries. Still very high heterogeneity in Europe.

Collective Bargaining in Europe

- OECD (2017) identifies three main European groups:
- The Scandinavian countries: sectoral agreements define the broad framework but leave considerable scope for bargaining at the firm level.
- Countries like Germany, Austria and more recently Spain: sector-level agreements dominate but still firm-level agreements can apply less favourable terms for employees (opting out, ‘in peius’).
- Third group of countries (including Italy, Slovenia and Portugal) sectoral bargaining strictly dominates: firm level bargaining can only improve the standards set at sector level (**“in melius” or “favourability principle”**).

2° Pillar: Cost of living and the *urban wage premium*

- Most of the papers in the literature analyzes the urban wage premium assuming a **uniform cost of living across locations**
- This is surprising: local prices are very diverse across regions and between urban and non-urban areas.
- Very few papers in the literature: Glaeser and Mare (2001), Yankow (2006), Blien et al (2011): when controlling for cost of living UWP remain positive but decreases (even close to zero).

Why is Italy a perfect case study

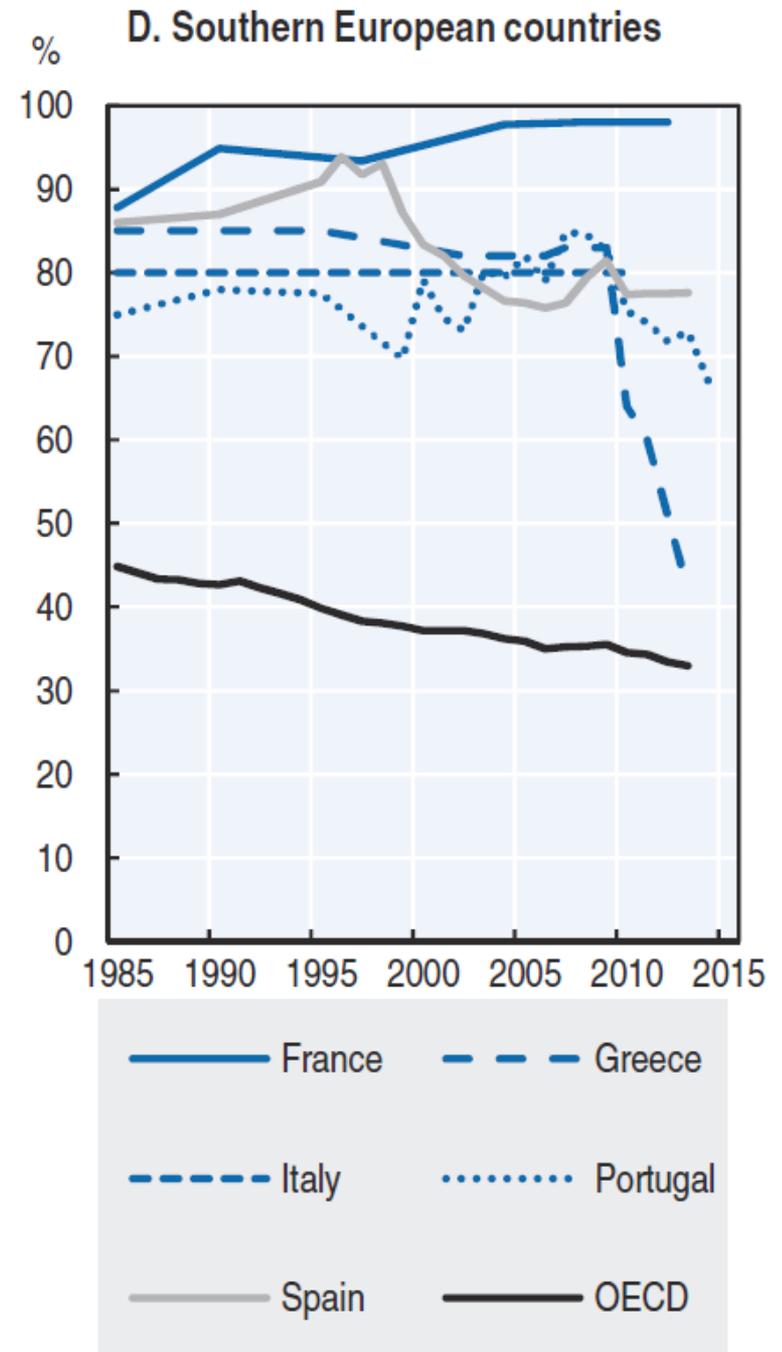
- **Collective bargaining plays a pervasive role.**
- **The most important component of wages is set by centralized collective bargaining at the industry level (and by occupation):** this component is uniform across space.
- There is a second level of decentralized bargaining (related to local productivity), that in Italy plays only a minor role, and that is subject to the **“in melius” or “favourability principle”**.

Why is Italy a perfect case study

OCED (2017): Italy has a rather high coverage rate, around 80%.

More importantly, the coverage rate is constant over time, since no reforms have been applied.

By contrast, local prices are very heterogeneous in the spatial dimension.



Theoretical framework

- Boeri, Ichino, Moretti (2017): North-South labour market differences in Italy and West-East differences in Germany, focusing on collective bargaining and cost of living.
- Boeri, Ichino, Moretti (2017) develop a model to explain labour market differences across macro regions:
 - Collective Bargaining: wages are equal across locations.
 - the higher productivity, employment and cost of living in cities generates a lower real wage, with respect to the non-agglomerated location.
 - To have equality of utilities across locations, the unemployment rate has to be greater in the low productivity location.
 - The model predicts lower real wages in cities, that should be compensated by lower unemployment.

Theoretical framework: the role of amenities

- Lower real wage in agglomerated areas could also be related to the role of amenities (Roback, 1982, Moretti, 2011; Albouy, 2012).
 - For instance, Italian cities are often characterized by monuments, beautiful city centers, entertainment services (restaurants, theaters, cinemas, pubs, and so on).
 - Also, the quality of some important public goods, such as education and health, could be higher in cities (sorting of doctors and teachers, for instance).
- workers could be willing to accept lower real wages in cities in order to enjoy amenities and high quality public goods.

ESTIMATION OF A LOCAL PRICE INDEX, LOCAL CPI

Estimation of a local price index

- **Housing is one of the main driver of the variation in local cost of living:** housing costs incorporate economic and non economic factors that make individuals willing to pay more (less) for a given location.
- **Data from the Osservatorio Mercato Immobiliare (OMI)** provide detailed information on housing prices at the municipality level.
- Main intuition from Moretti (2013): computing **direct** and **indirect** impact of housing on local CPI.
- **Direct:** direct costs of housing
- **Indirect:** the effects of housing on other goods, think about a restaurant or having an haircut

How to compute a local price index

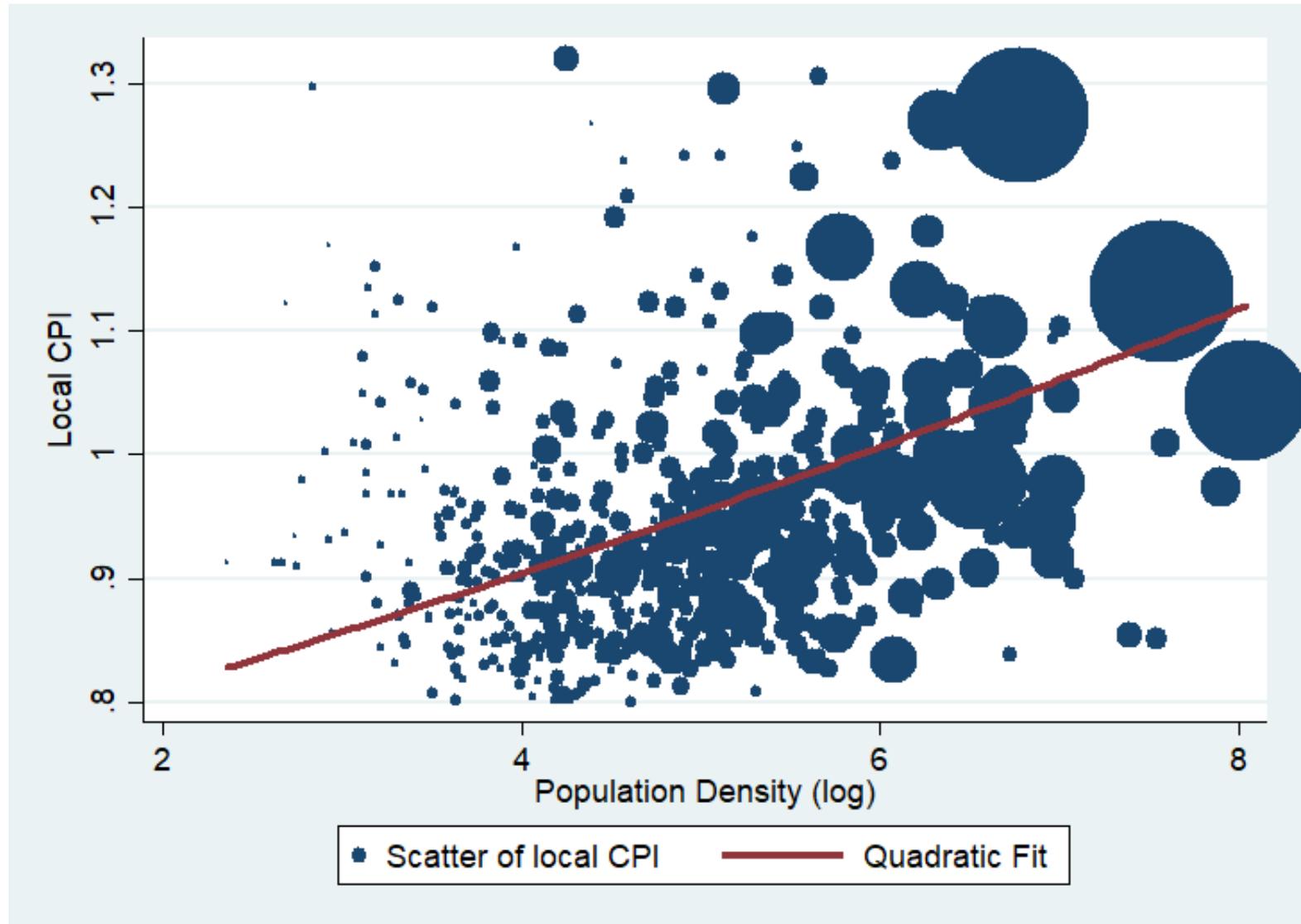
- Using the data from the Osservatorio Mercato Immobiliare (OMI) we compute Local Price indexes in Local Labour Market (LLM) c at time t as a weighted average of two price indexes: housing H (direct and indirect impact) and non housing NH :

$$CPI_{c,t} = \beta H_{c,t} + (1 - \beta)NH_t$$

- β is the weight of the *housing* (H), that we estimate
- β is estimated to be =0.34, much greater than the direct impact estimated by ISTAT (0.09)

LOCAL CPI
DESCRIPTIVE STATISTICS

Clear positive relation between Local CPI and Pop density, by LLM (2005): bubbles are LMM size, in big cities CPI is higher

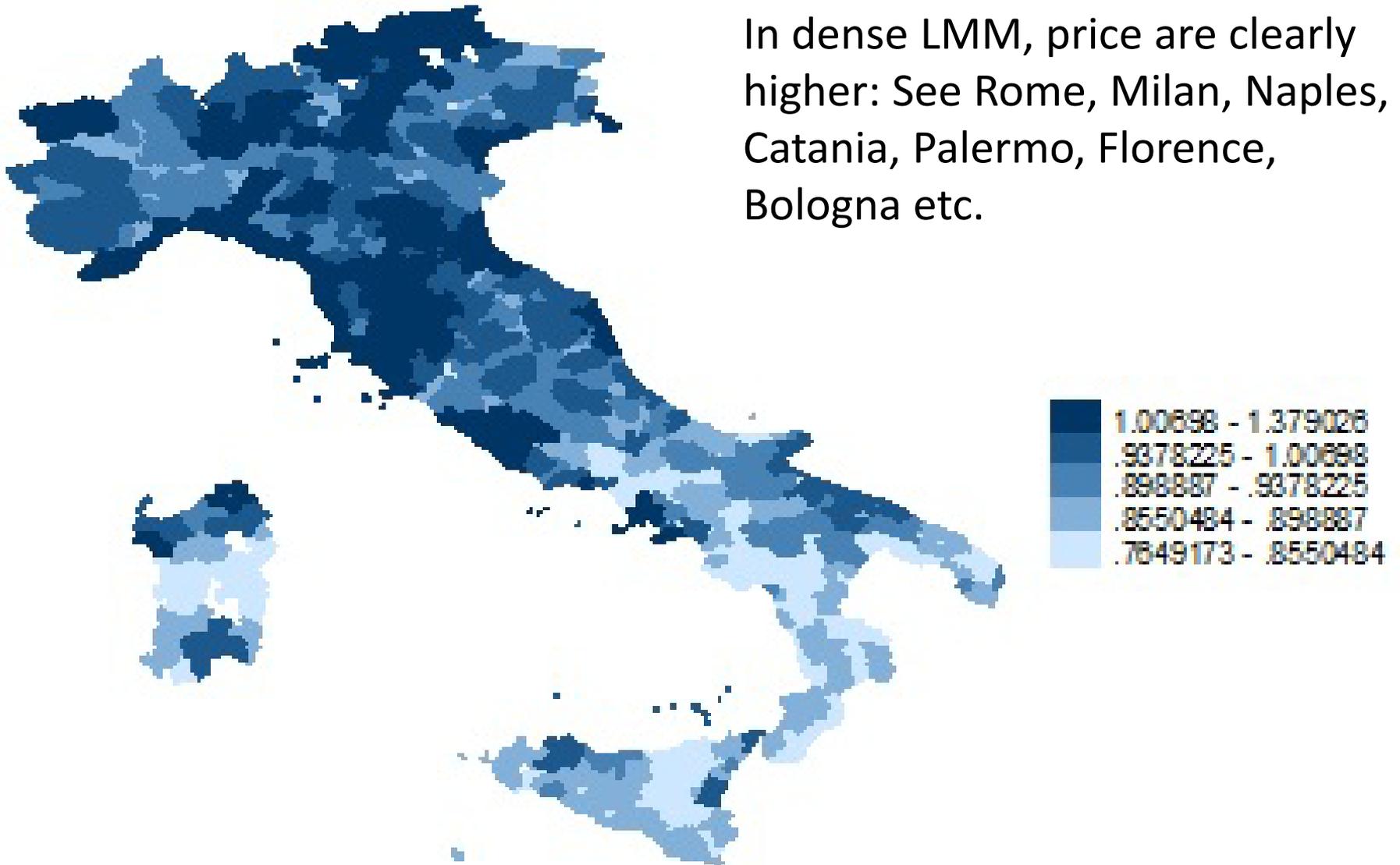


CPI

Italy, 2005

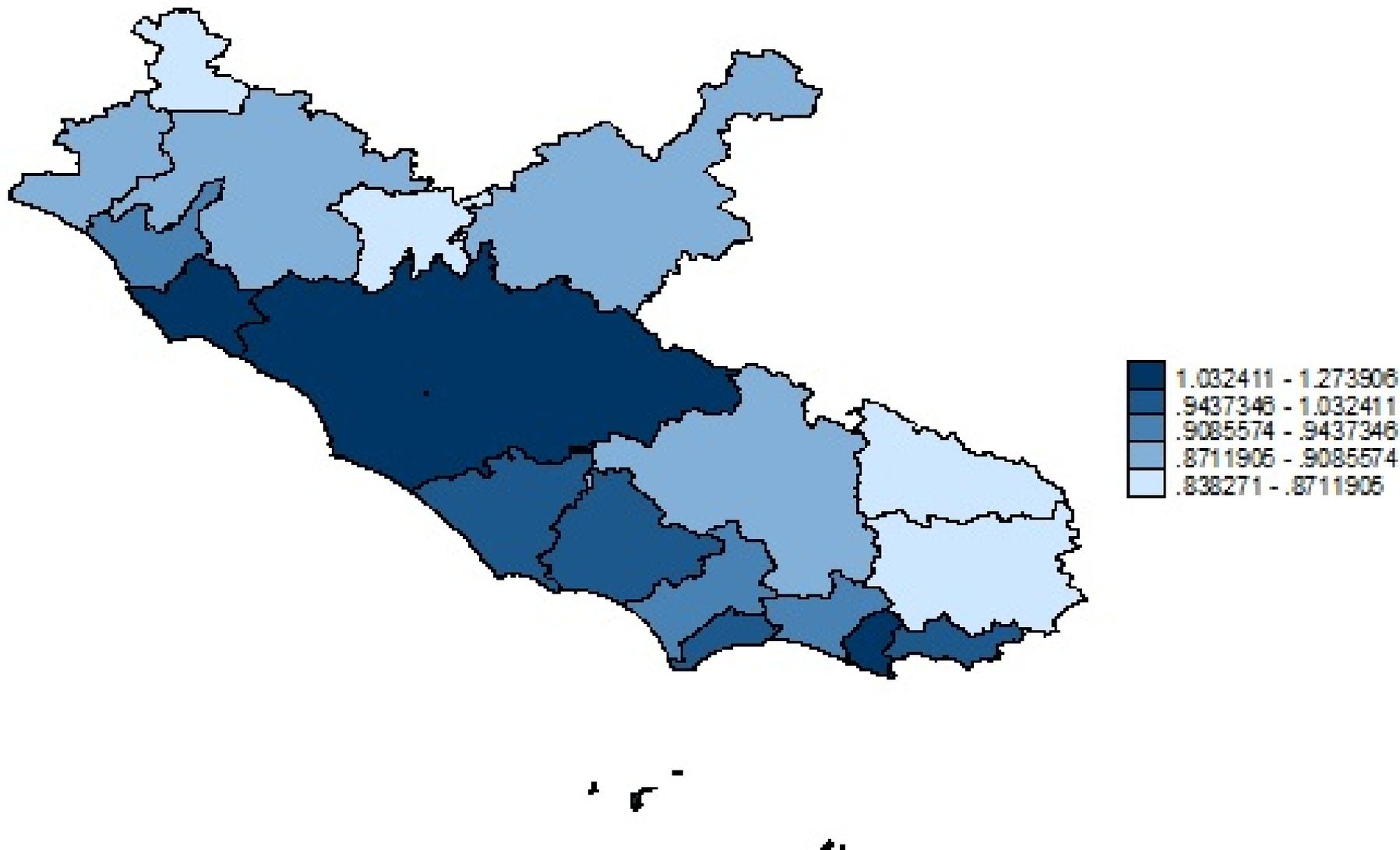
Data by LLM

In dense LMM, price are clearly higher: See Rome, Milan, Naples, Catania, Palermo, Florence, Bologna etc.



CPI
Lazio, 2005

Data by LLM



Agglomeration variable

- Agglomeration measure: **population density (ED)**, population by LLM (or municipality) out of surface in km² (Combes 2000, Combes et al, 2008, 2011, Mion and Naticchioni, 2009, Matano and Naticchioni, 2012).
- As a check we also use *employment density*: similar results

Population density
Italy, 2005



Data by LLM



Worker data: VisitINPS

- Universe of the dependent workers in Italy (male).
- Period: 2005-2015.
- Information of the Municipality where the job is carried out.
- One observation per worker per year (highest earnings).
- Dropping the outliers in the tails (0.5% by year), and workers attached to the labour market for less than two months per year.
- Final sample: around **75 millions of observations**.

Nominal and Real Wages definition

Two weekly wage variables:

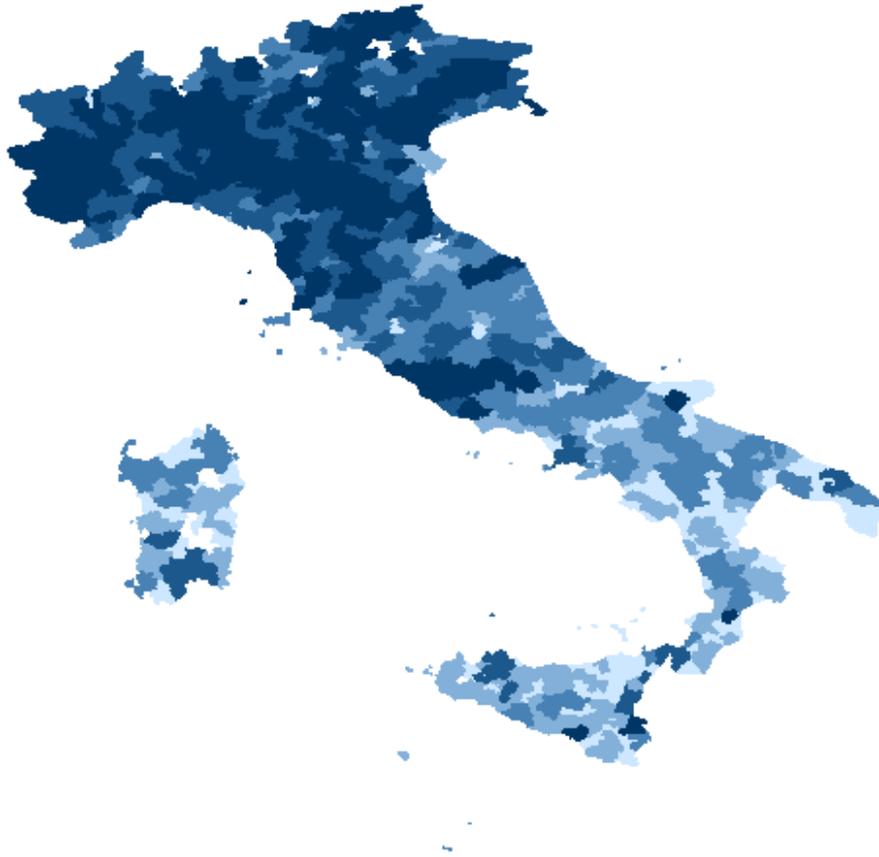
- **Weekly Nominal Wage;**
- **Weekly Spatial Real Wage:** deflated by using the local CPI.

Nominal and Real weekly wages for employee. Year 2005.

quantiles	Nominal Wages	Real Wages
1	401	446
2	428	459
3	444	458
4	472	465
5	511	443

- Clear evidence. Real wages are more compressed

nominal wages
Italy, 2005



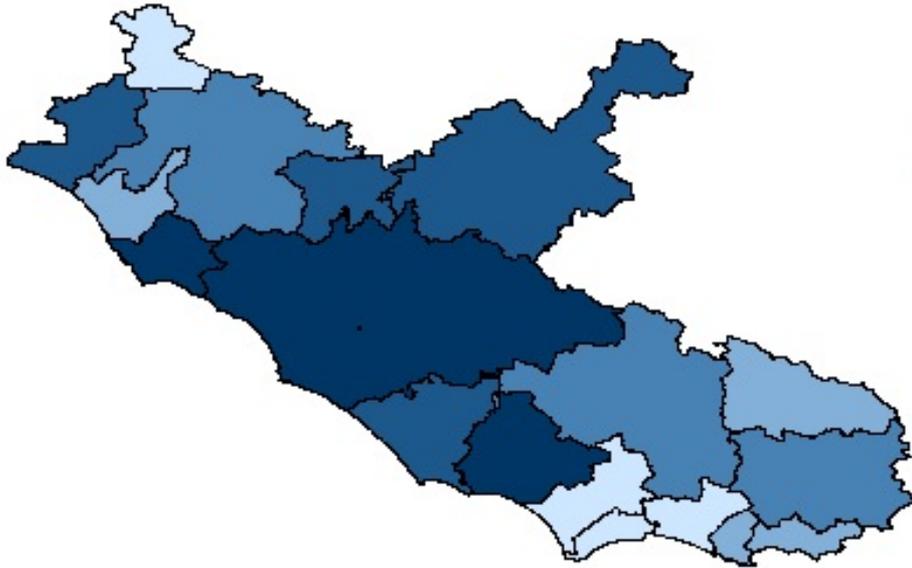
real wages
Italy, 2005



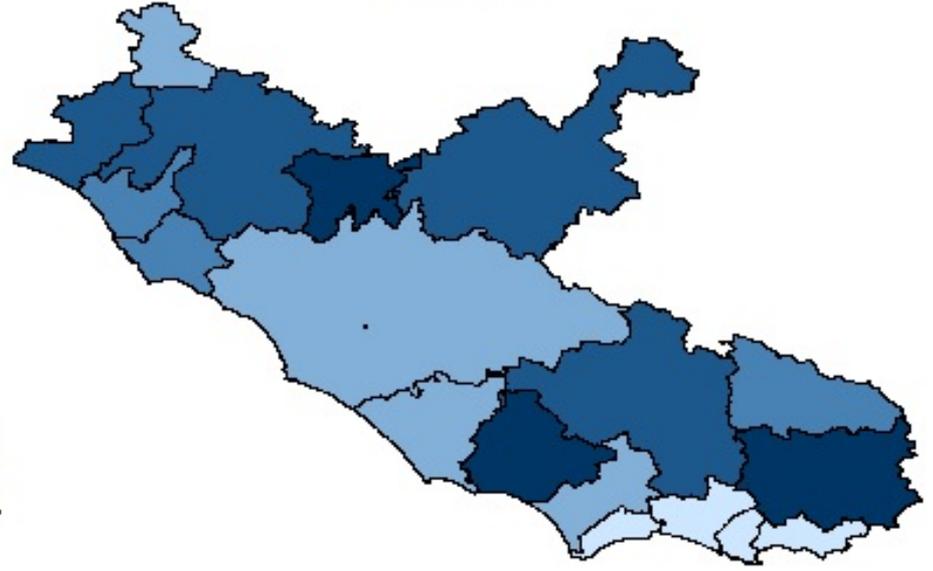
- Example. Real wage in Rome are not dark, as nominal wage.
- And real wages are greater in the South, consistently with Boeri et al (2017).

Data By LLM

nominal wages
Lazio, 2005



real wages
Lazio, 2005



THE ECONOMETRIC PART

Econometric specification

- The main specification is:

$$\ln(W_{i(c),t}) = \alpha + \rho * \ln(\text{PopDen}_{i,t}) + \beta * X + \delta_r + \delta_t + u_i + \varepsilon_{i,t}$$

- ρ : **estimate of the UWP elasticity**: variables are in log.
- Matrix X : individual controls (age, occupation, part time, fixed term); firm controls (size).
- To control for the **centralized national bargaining** we include (250) dummies for all national contracts (roughly industries)
- Year and Regional dummies;
- Standard errors clustered at the LLM level.

UWP Estimates : Nominal Wages

VARIABLES	(1) OLS	(2) + worker charact.	(3) + firm charact.
log pop dens	0.046*** (0.017)	0.006*** (0.002)	0.002 (0.002)
part time		-0.154*** (0.007)	-0.072*** (0.006)
fixed term		-0.103*** (0.008)	-0.119*** (0.004)
log firm size			0.023*** (0.002)
occupational dummies	no	yes	yes
age dummies	no	yes	yes
contract dummies	no	no	yes
province fe	no	yes	yes
year fe	yes	yes	yes
Observations	77,015,891	77,015,891	77,015,891
R-squared	0.041	0.515	0.608

UWP Estimates : Nominal vs Real Wages

VARIABLES	nominal wages			real wages		
	(1) OLS	(2) + worker charact.	(3) + firm charact.	(4) OLS	(5) + worker charact.	(6) + firm charact.
log pop dens	0.046*** (0.017)	0.006*** (0.002)	0.002 (0.002)	-0.006 (0.017)	-0.041*** (0.012)	-0.051*** (0.004)
part time		-0.154*** (0.007)	-0.072*** (0.006)		-0.185*** (0.010)	-0.070*** (0.006)
fixed term		-0.103*** (0.008)	-0.119*** (0.004)		-0.120*** (0.008)	-0.124*** (0.004)
log firm size			0.023*** (0.002)			0.022*** (0.002)
occupational dummies	no	yes	yes	no	yes	yes
age dummies	no	yes	yes	no	yes	yes
contract dummies	no	no	yes	no	no	yes
province fe	no	yes	yes	no	yes	yes
year fe	yes	yes	yes	yes	yes	yes
Observations	77,015,891	77,015,891	77,015,891	77,015,891	77,015,891	77,015,891
R-squared	0.041	0.515	0.608	0.005	0.444	0.591

Standard errors clustered at the LLM level. *** p<0.01, ** p<0.05, * p<0.1

Main estimates and refinements

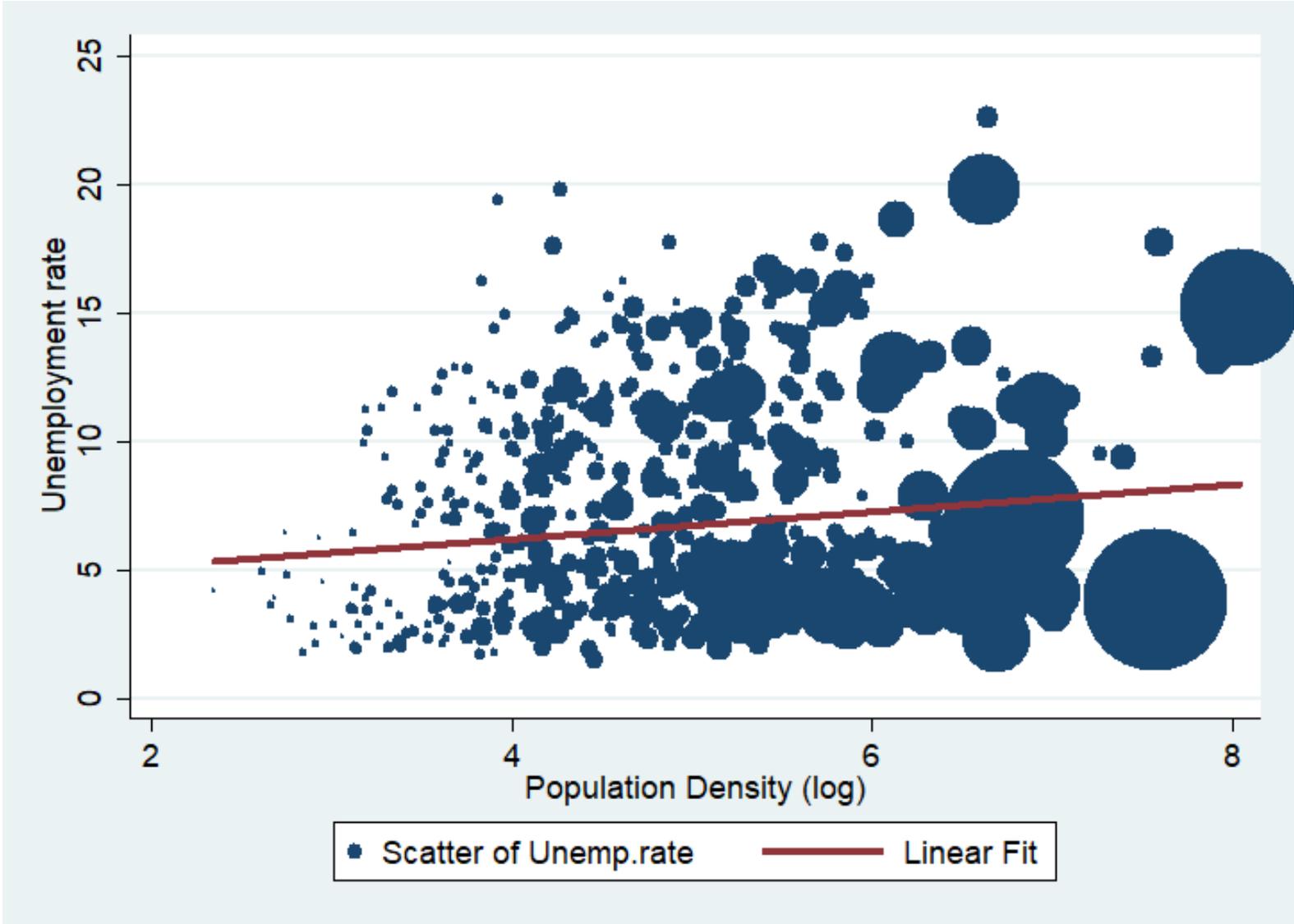
- Preferred UWP estimate: including all controls of individuals and firms

- Still, we carry out:
 - Individual FE regressions to control for sorting on unobservables
 - IV regressions to control for endogeneity

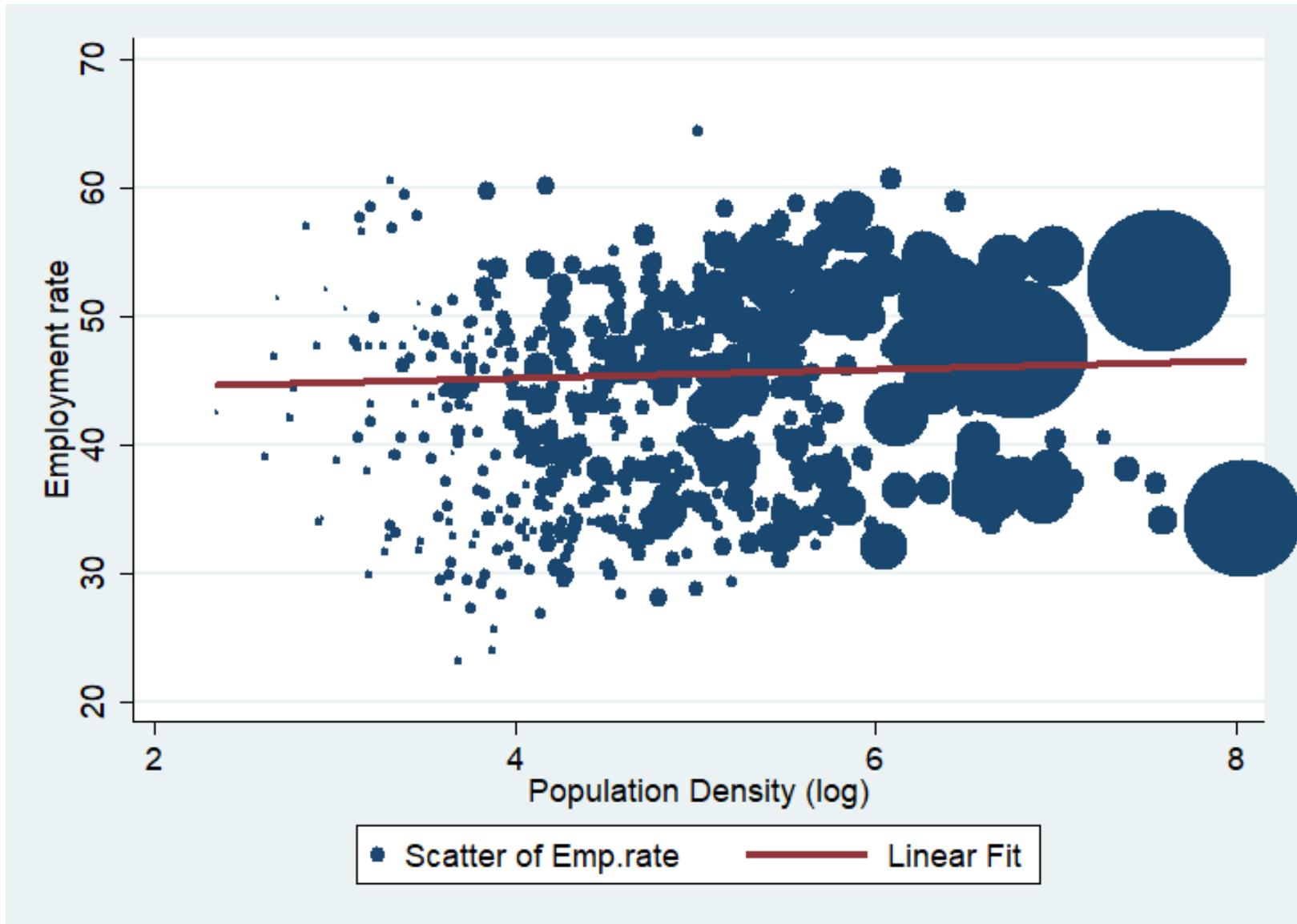
Interpretation

- **Workers are penalized in terms of real wage when living in big cities.**
- According to Boeri et al (2017), lower real wages in cities should be balanced by lower unemployment rate.
- It is the case?
- We merge our data with data by Istat on unemployment, employment and inactivity rate by LLM (2006-2015)
- Next slides: unemployment rate increases in population density, and employment rate has a flat pattern.

Unemployment rate and Population density – by LLM - 2006



Employment rate and Population density – by LLM - 2006



Baseline estimates adding Unemployment Rate: results do not change, i.e. unemployment is not much correlated with density

VARIABLES	nominal wages			real wages		
	(1) OLS	(2) FE	(3) IV-FE	(4) OLS	(5) FE	(6) IV-FE
log pop dens	0.003 (0.002)	0.000 (0.001)	0.001 (0.002)	-0.052*** (0.004)	-0.055*** (0.004)	-0.101*** (0.011)
part time	-0.072*** (0.006)	0.046*** (0.003)	0.046*** (0.003)	-0.070*** (0.006)	0.046*** (0.003)	0.047*** (0.003)
fixed term	-0.119*** (0.004)	-0.048*** (0.003)	-0.048*** (0.003)	-0.124*** (0.004)	-0.049*** (0.003)	-0.050*** (0.003)
log firm size	0.023*** (0.002)	0.016*** (0.001)	0.016*** (0.001)	0.022*** (0.002)	0.016*** (0.001)	0.017*** (0.001)
unemployment rate	-0.001*** (0.001)	-0.002*** (0.000)	-0.002*** (0.000)	0.001 (0.001)	-0.002 (0.001)	-0.001 (0.001)
occupational dummies	yes	yes	yes	yes	yes	yes
age dummies	yes	yes	yes	yes	yes	yes
contract dummies	yes	yes	yes	yes	yes	yes
province fe	yes	yes	yes	yes	yes	yes
year fe	yes	yes	yes	yes	yes	yes
worker fe	no	yes	yes	no	yes	yes
Observations	77,015,891	77,015,891	77,015,891	77,015,891	77,015,891	77,015,891
R-squared	0.608	0.892	0.892	0.591	0.886	0.885
K-P rk Wald F statistic			125.423			125.423

Is Collective Bargaining driving our results?

- Urban Economics literature: lower real wages in cities could be due to, at least, three different factors:
 - Amenities and/or quality of public goods
 - Idiosyncratic preferences for locations
 - Collective bargaining
- How is it possible to isolate the role of Centralized Bargaining if any?
- Our strategy: considering a group of self-employed:
 - located in the same areas and sharing the same amenities, quality of public goods, average preferences for locations
 - but are not subject to the national bargaining.

An Analysis on Self-Employment

- A group of self-employed workers, the so called '*Collaborazioni*', which are:
 - not subordinate employees but anyway associated to a firm;
 - usually act as a consultant, as external staff
 - temporary
 - both skilled and unskilled labour
- These workers are not subject to the Centralized Wage Setting: their earnings are just bargained between employees and employers.

Self-Employment: collaboratori in INPS data

- The INPS archives include the universe of *collaborazioni*.
- The information available are as follows:
 - Earnings
 - Age and Gender
 - Duration of the contracts
 - Type of Contract, which refer to the type of *collaborazioni* (general contract, statutory auditor, company administrator, legal representative, etc).

Econometric specification

- The specification is the same as before:

$$\ln(W_{i(c),t}) = \alpha + \rho * \ln(Ed_{i,t}) + \beta * X + \delta_r + \delta_t + \varepsilon_{i,t}$$

- **Dependent variable: daily wage.**
- **ρ : estimate of the UWP.**
- Matrix X : individual controls (age, type of contract); firm controls (size, sectoral dummies at 2 digits)
- Year and Regional Fixed effects
- Standard errors clustered at the LLM level.

Employees vs Self-Employed: Nominal Wages

	Employees		Self Employed	
	OLS	FE	OLS	FE
ln(pop. density)	0.002*** (0.009)	0.002*** (0.003)	0.049*** (0.009)	0.009*** (0.003)
Observations	77,015,891	77,015,891	5,828,279	5,828,279
R-squared	0.600	0.892	0.209	0.783
Year Dummies	YES	YES	YES	YES
ALL Controls	YES	YES	YES	YES
Individual FE	NO	YES	NO	YES

*, **, *** stand for 10%, 5%, 1% statistical significance. Controls include age fixed effects, industry fixed effects, province fixed effects. Regressions for all self-employed include also type of contract fixed effects.

- Controlling for all observable characteristics, nominal UWP around 20 times bigger for self-employed
- Sorting more at work for self-employed: when wages can adjust there are more incentives for skilled workers to sort in a city.

Employees vs Self-Employed: Real Wages

	Employees		Self Employed	
	OLS	FE	OLS	FE
ln(pop. density)	-0.051*** (0.004)	-0.056*** (0.004)	-0.010 (0.009)	-0.057*** (0.008)
Observations	77,015,891	77,015,891	5,828,279	5,828,279
R-squared	0.892	0.885	0.216	0.785
Year Dummies	YES	YES	YES	YES
ALL Controls	YES	YES	YES	YES
Individual FE	NO	YES	NO	YES

*, **, *** stand for 10%, 5%, 1% statistical significance. Controls include age fixed effects, industry fixed effects, province fixed effects. Regressions for all self-employed include also type of contract fixed effects.

- No penalty in full OLS for self-employed;
- Sorting still more at work for self-employed

Policy implications

- Is there a need to reform the collective bargaining rules?
- Reforms applied in Germany, Spain, Portugal, Greece, have favoured the bargaining at the local/firm level.
- Cons: reducing the protection and the bargaining power of workers in SME against the monopsonistic power of firm
- Pros: relating more closely wages and productivity at the local/firm level; providing the right incentives for firm and workers in the location choices.

Policy implications

- Existing proposal: Boeri, Ichino, Moretti (2017)→ collective bargaining at the firm level; introduction of a national minimum wages to protect workers, especially in SME.
- Possible alternative: applying reforms similar to other countries, such as Germany:
 - Giving more space to the local/firm productivity
 - Allowing the possibility to derogate 'in peius', with a stronger role of unions at the local/firm level.

Policy Discussion

- The unions might play a stronger role more at local level, in order to:
 - Ask for higher wages in high productive and high cost of living areas (or firm)
 - Bargaining lower wages in exchange of higher employment rates in area with low productivity/cost of living
- Issue: How to apply this scheme in small firms, over represented in Italy?
- Could they refer to some local contracts?

Conclusion

- First paper addressing the impact of collective bargaining on UWP, in nominal and (spatial) real terms
- In Real Terms the UWP is negative and substantial, non compensated by lower unemployment rate
- This is not the case when considering Self-Employed, with greater UWP : this suggests collective bargaining is driving the results
- Policy discussion