Does immigration grease the wheels of European labor markets?

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Shortages in the labor market

- *Labor shortages* arise where the demand for workers in a particular occupation exceed the supply of workers who are qualified available and willing to do that type of work.

- An inflow of mobile workers from abroad into sectors suffering shortages can be a solution.

- Empirical evidence of this adjustment is scarce.

Motivation

- Firms may be forced to raise wages in order to attract relatively scarce skilled labor or firms fill high-skilled jobs by low-skilled workers, or do not fill them at all.

- The costs of these inefficiencies in Europe can be large. Lucifora & Origo (2002) estimate the costs generated by skill gaps at around 7% of GDP.

- Quintini (2011) underlines that skill shortages negatively affect labor productivity.

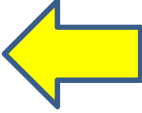# Immigration greases the wheels of the labour market

- Inflow of mobile workers from abroad into sectors characterized by shortages may offer an effective vehicle of adjustment.

- US labor market (Borjas 2001)

  newly arrived immigrants are much more likely to be clustered to those states which offer higher wages

- Dustmann, Frattini and Preston (2010)

  immigration reduces regional disparities between wages in the United Kingdom

Two research questions

- First, are migrants more, or less, responsive to labor shortages in EU labor markets than the natives?

- Second, are there any institutional or policy contexts under which migrants respond to labor market shortages better than under other contexts?

Measurement of labor shortages

The proposed measures include:

- wage premium increase ⬅

- unemployment-to-vacancies ratio

- labor demand elasticity

- difficulties to fill vacancies reported by employers

- self-declared skill mismatches

Measurement of labor shortages

- First labor shortages are measured separately for each year in the form of wage residuals W_{cell} across skill-industry-country groups after controlling for differences in the gender, educational and work-experience composition of workers across cells.

- Estimated wage indices represent the wage premium in the given skill-industry-country groups with respect to the average value in the European level.

- We employ EU-SILC data 2004-2012 (EU-15 countries).

- In the analysis we test if migrants are more responsive to those wage differences than native population.

The relative supply of migrants

- For each year and skill-industry-country cell we define an index of relative immigrant and native worker supply

$$Z_{cell} = \frac{M_{cell}/M}{N_{cell}/N}$$

- M, N stands for the number of migrants/natives

- An index higher than 1 indicates a relative over-concentration of immigrants in the given cell.

- Based on EU-LFS data 2004-2012, the final dataset includes 381 skill-industry-country cells.

Distribution of immigrants across occupations

	High skill	Intermed. General	Intermed. Specific	Low skill
Relative supply of immigrants				
2004	0.66	0.98	1.14	3.32
2005	0.71	0.99	1.22	3.18
2006	0.70	1.06	1.27	3.42
2007	0.66	1.09	1.32	3.61
2008	0.63	1.11	1.36	3.64
2009	0.62	1.09	1.32	3.99
2010	0.64	1.06	1.28	4.27
2011	0.61	1.06	1.25	4.11
Wage index				
2004	0.14	-0.14	-0.25	-0.37
2005	0.19	-0.10	-0.15	-0.31
2006	0.20	-0.12	-0.13	-0.32
2007	0.20	-0.11	-0.14	-0.35
2008	0.21	-0.10	-0.13	-0.33
2009	0.20	-0.11	-0.15	-0.39
2010	0.18	-0.14	-0.18	-0.39
2011	0.19	-0.14	-0.17	-0.41

- Migrants are concentrated in less skilled occupations
- Labor shortage remains stable in high-skill occupations
- Decreasing wage index indicates the an excess of labor putting downward pressure on wages.

Distribution of immigrants across industry groups

	Manuf.	Constr.	Trade	Tranport	Finance	Education	Health	Admin.	Agricul
Relative supply of immigrants									
2004	1.01	1.87	0.83	1.46	0.92	0.59	0.87	1.30	0.71
2005	1.04	1.81	0.84	1.67	0.98	0.57	0.92	1.31	0.77
2006	1.07	1.85	0.89	1.77	0.94	0.56	1.01	1.34	0.88
2007	1.07	1.98	0.94	1.86	0.99	0.51	0.94	1.28	0.91
2008	1.08	1.89	0.98	1.69	1.02	0.53	0.91	1.38	0.80
2009	1.03	1.73	0.97	1.70	1.00	0.54	0.92	1.55	0.95
2010	1.01	1.67	0.97	1.63	1.01	0.53	0.99	1.69	0.96
2011	0.97	1.60	0.92	1.60	1.02	0.57	0.94	1.60	0.95
Wage index									
2004	-0.03	-0.17	-0.17	-0.09	0.08	0.04	0.01	-0.06	-0.68
2005	0.03	-0.07	-0.11	-0.05	0.16	0.07	0.04	0.00	-0.56
2006	0.05	-0.05	-0.13	-0.06	0.14	0.09	0.03	0.01	-0.53
2007	0.06	-0.06	-0.12	-0.08	0.14	0.08	0.03	0.00	-0.64
2008	0.07	-0.05	-0.11	-0.01	0.13	0.08	0.04	0.01	-0.63
2009	0.06	-0.06	-0.11	-0.02	0.10	0.09	0.04	0.00	-0.67
2010	0.03	-0.09	-0.12	-0.04	0.07	0.06	-0.01	-0.01	-0.71
2011	0.06	-0.06	-0.14	-0.05	0.07	0.04	-0.02	-0.01	-0.59

- Migrants are primarily concentrated in construction, transportation and public administration and least in education.
- Labor shortage increased in trade and decreased in finance.

Empirical model

$$\Delta Z_{cell} = \beta_1 \Delta W_{cell} + \beta_2 GDP\_growth + \beta_3 U + \delta_c + \delta_t + \varepsilon_{cell}$$

- We estimate model in differences, including country and year fixed effects.

- All explanatory variables are lagged by one year.

- Unemployment rate and GDP growth control for conditions in the countries' labor markets.

- Observations are weighted by the total number of workers in the skill-industry-country group.

The responsiveness of immigrants to labor shortages

	Total		EU15		non-EU15		Total		EU15		non-EU15	
	(1)		(2)		(3)		(4)		(5)		(6)	
Labor shortage	0.196	**	0.202		0.183	**	0.175	**	0.208	*	0.16	*
	(2.469)		(1.589)		(2.014)		(2.135)		(1.739)		(1.686)	
GDP growth (annual %)							0.01	**	0.009		0.012	**
							(2.343)		(1.122)		(2.406)	
Unemployment rate							-0.012	***	-0.002		-0.013	***
							(-3.165)		(-0.406)		(-3.098)	
R2	0.014		0.015		0.015		0.022		0.016		0.027	
N	2452		2452		2452		2452		2452		2452	

Source: Based on EU-SILC, EU-LFS, and WDI data.

Note: Dependent variable is the supply of migrants relative to natives in the particular skill-industry-country group expressed in first difference. The labor shortage for the same group is also expressed in first difference. The relative supply of immigrant of EU-15 and non-EU15 origin is tested separately. Because the observations represent averages the estimation employs weights that are the number of elements over which the average was calculated. All variables are lagged by one year and models include time and country fixed effects.

t-statistics in the parenthesis, * p<0.1, ** p<0.05, *** p<0.01

Findings

- Findings illustrate that migrants are more responsive to the changing patterns of scarcity across European industries, occupations and countries than the native populations of those countries.

- A positive increase of wages within skill-industry-country group by 10 percentage points leads to an increase in the relative supply of migrants by 1.2 percentage point.

Relative supply of migrants under different conditions

	GDP		UR		MR		SOCX	
	(1)		(2)		(3)		(4)	
Labor shortage (below median)	0.188		0.084		0.12		0.219	
	(1.132)		(0.638)		(0.789)		(1.211)	
Labor shortage (above median)	**0.18**	*	**0.342**	**	**0.25**	**	**0.155**	
	(1.674)		**(2.44)**		**(2.058)**		**(1.574)**	

Note: The interaction dummy (above median) is created based on the level of GDP per capita (in PPP constant prices), unemployment rate (UR), migration rate (MR), the level of social expenditure (SOCX) over the studied period.

- The effect of labour shortage on migrant responsiveness in countries with above-median unemployment rates is particularly statistically significant at 0.342 , which is double that found with the baseline model. This finding indicates that immigrants respond particularly fluidly to labour shortages in countries which need that response the most.
- The type of welfare state does not have influences the responsiveness.

Immigrant integration policies in the EU

	Labor mobility		Family reunion		Citizenship		Anti-discrimination	
Labor shortage (low integration)	0.098		0.237	**	0.27	**	0.174	
	(0.525)		(1.964)		(2.245)		(1.008)	
Labor shortage (high integration)	0.244	**	0.138		0.105		0.193	**
	(2.441)		(0.953)		(0.699)		(2.006)	

Note: We divide the countries into two groups, using the median integration score as the threshold based on MIPEX 2010 (www.mipex.eu).

- Migrant Integration Policy Index (MIPEX) uses the same standards across EU to measure the level of integration policies towards immigrants.
- We find that immigrants are more responsive to labour shortages in countries with better MIPEX scores for labour market access and anti-discrimination.
- Family reunion integration policies and legislation that facilitates the access to citizenship make migrants less mobile in the labor market.

Concluding remarks

- We empirically test that immigrants help to reduce labor shortages in the EU labor market.

- The immigrants' responsiveness depends on the countries' economic and institutional context.

- Migrants generally grease the wheels of receiving labor markets, but this potential is not fully realized due to extant barriers to mobility.

We define four skill and nine industry groups

Table 1 Skill categorization

ISCO-1	Skill group
1 Legislators, senior officials and managers	high
2 Professionals	high
3 Technicians and associate professionals	high
4 Clerks	high intermediate
5 Service workers and shop and market sales workers	high intermediate
6 Skilled agricultural and fishery workers	low intermediate
7 Craft and related workers	low intermediate
8 Plant and machine operators and assemblers	low intermediate
9 Elementary occupations	low

Table 2 Industry categorization

Group	Nace
1	Manufacturing, mining and quarrying and other industry
2	Construction
3	Wholesale and retail trade
4	Transportation and storage, accommodation and food service
5	Information and communication, Financial and insurance activities
6	Education
7	Human health
8	Public administration, defence, and social work activities
9	Agriculture, forestry and fishing