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Migration in Europe

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Lesson 8 – What Migration Policy for Innovation?

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The objective of this section is to understand

- if migration policies can spur innovation
- if research results and common wisdom match

- In the European debate the role played by migrants in strengthening the competitiveness seems the last resort to find a positive contribution of migrants in the destination economy.

- Claims on the larger use of the welfare state by migrants, their potential competitive role in the labour market, the difficult integration has diverted the attention versus policies restricting the immigration and of limiting the inflows not only to the workers in demand but only to highly skilled which could reduce the negative effect previously mentioned and spur the competition .

The debate on the Highly Skilled migrants legislations is very rich

- In the USA H1B visa for STEM if you are not Stem a lottery
- EU Blue Card, no regional preferences (NRP)
- Dutch Highly Skilled Migrants Scheme (NRP)
- Belgian Permit B
- Swedish HSM

What is the Common wisdom?

- Low skilled migrants   cope with the drawbacks of an aging society working in agriculture, construction, care and health sector

- Highly skilled migrants favour innovation and growth

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Why migrants should spur innovation?

- ## Quantity interpretation
- ### *Migrants are equal productive than natives*
- Excess demand for labour in quantity or prices; more flexible

- ## Quality as individual and as group
  ### *Migrants are different from natives*
- (Human capital, self selection, motivation, soft skills, network, brain waste),
- **Migrant as group- diversity of migrants,** Jackobs 1968,Complementarity beween sectors

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Definition of innovation

"An innovation is the implementation of a new or significantly improved product (good or service) or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations

(OSLO Manual, OCDE 2005, pag 12)"

•**HOW to measure?** **Innovation is a multi-faced phenomenon**
popular indicators of innovation are

1. **The number of Patent applications**

   Innovative capacity of a country

   It provides valuable information on technological activities of inventors and companies are a **good proxy for the technological effort of companies and non-firm organizations aiming to create new products and processes limited to the manufacturing sector**

2. **Total Factor Productivity**

Technical progress in its broadest sense

   It is the residual after subtracting from the growth rate of value added the growth rates of capital and labour, weighted by their respective shares in the aggregate value added. **FOR ALL THE ECONOMY**

3. **Firms' Survey as the Community Innovation Survey**

Figure 1: Trend in patent applications at the top five offices, 1983-2010.
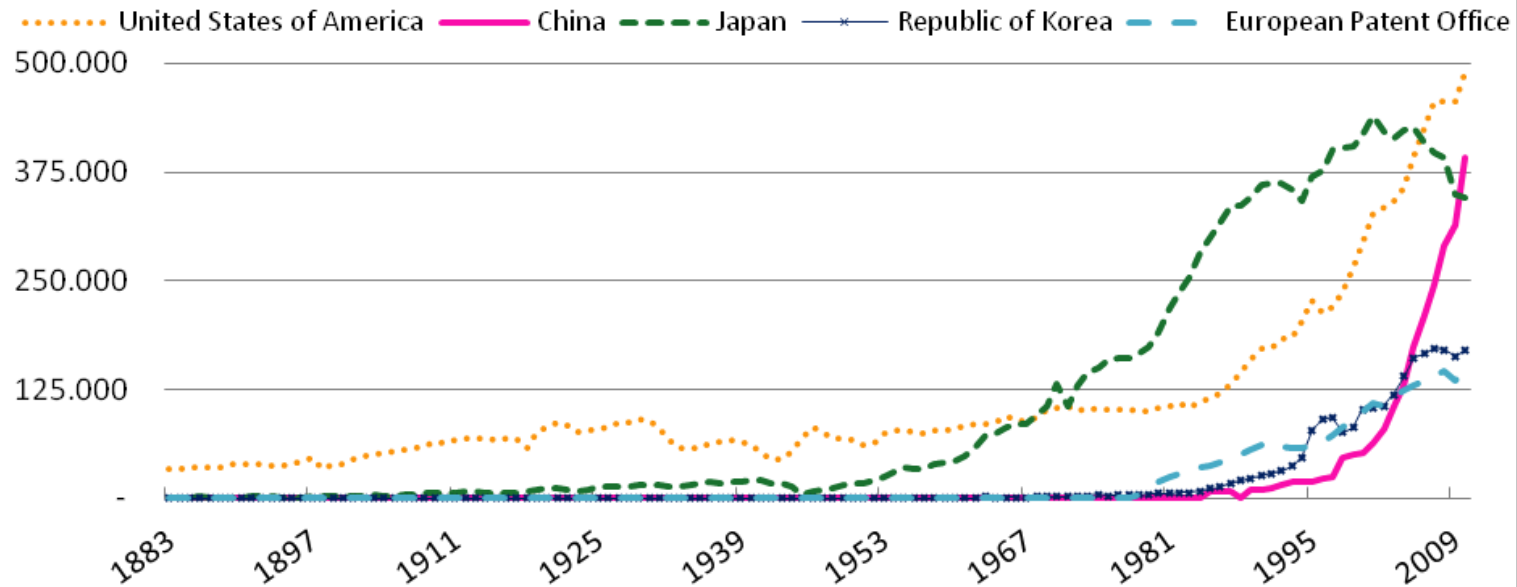
Source: WIPO Statistical Database, October 2011.

Figure 2: Total Factor Productivity growth in the largest countries.

Legend: European Union — US — CHINA — INDIA — BRAZIL — JAPAN
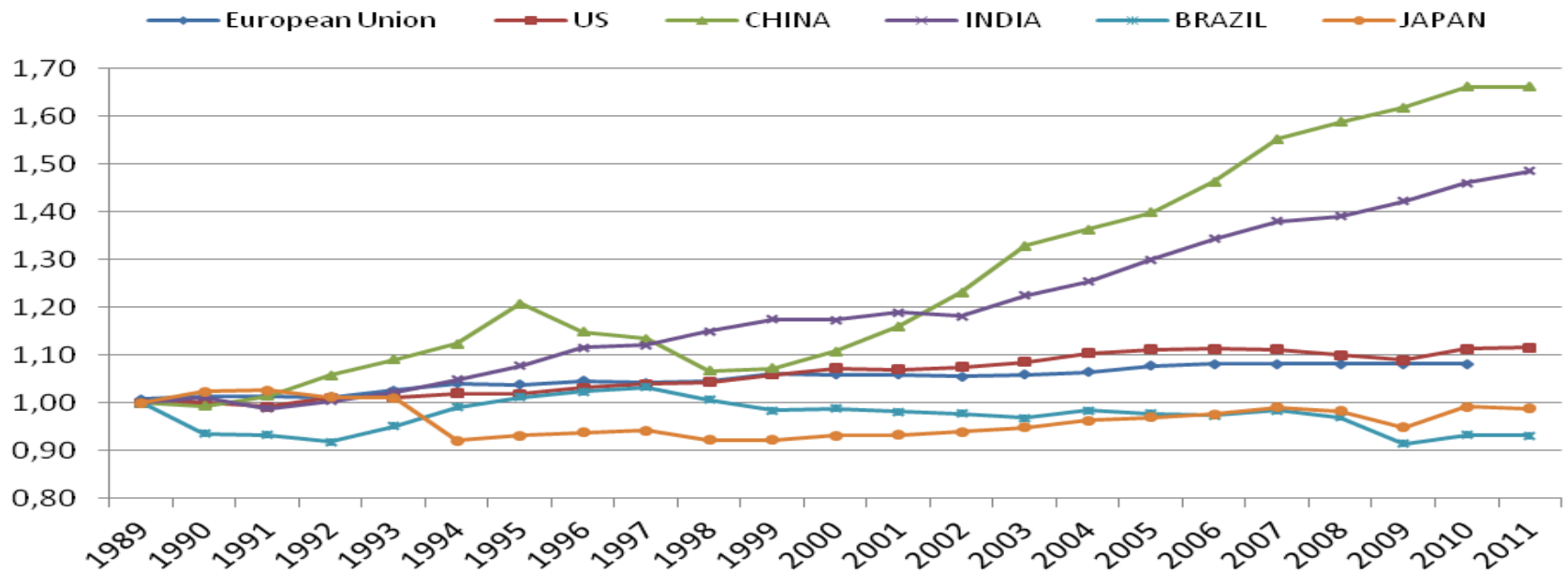
Source: The Conference Board Total Economy Database and EU KLEMS Database. 1989 arbitrarily set to 1, the time series are constructed in the following way: $A(t+1) = A(t)(1+\Delta A(t)/A(t))$

What is relevant for the destination country?

- The production of patents?

- or its implementation which can produce employment and surplus in the balance of payment?

- Whithout the first is difficult to have the other but not always

What the Government should do?

- Invest in research? Small country versus large countries

- Invest in education? Which type of education? STEM or general?

- Favouring the entrance of Highly Skilled Foreigners?

- Or only Foregners specialized in STEM?

- Or only Foreign students?

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Research Approces and Results

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Foreign authors of patents

Tertiary educated foreigners

Patents and Citation of patents

Total factor productivity
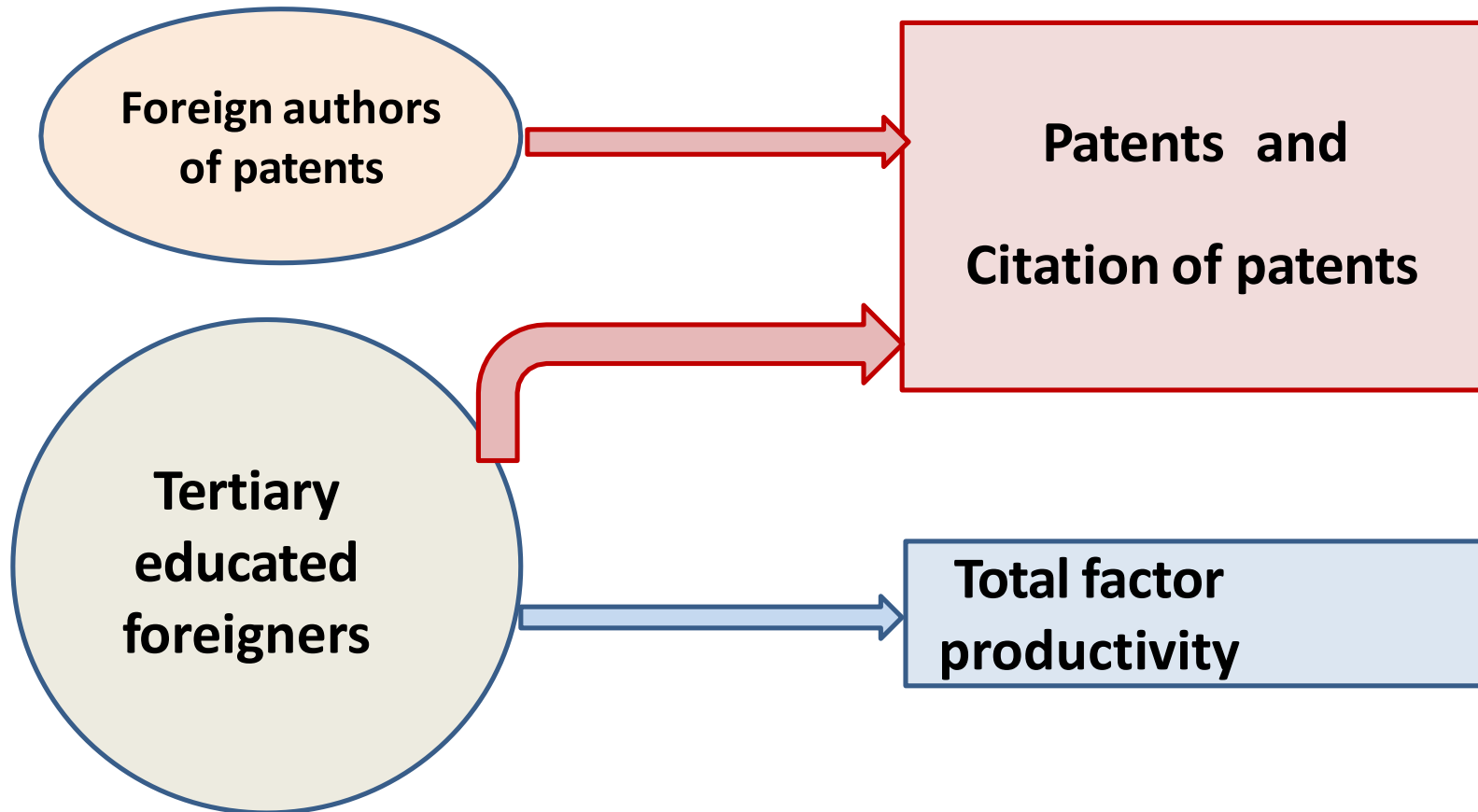
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1.1 Are highly skilled contributing to innovation?

The case of Foreign inventors: Is migration policy playing a role?

On this issue the research is very clear foreigners has a positive effect and over-perform natives

In the USA the change in Visa (H1-B) policy which favoured the entrance of highly skilled in **Science and Technology migrants** favoured the growth of foreign inventors

 (Hunt and Gauthier-Loiselle, 2010; Kerr and Lincoln 2010)

Note: Lissoni & al. will try to replicate their research for Europe.

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Figure 2

Share of Foreign born employment by schooling group, 2000
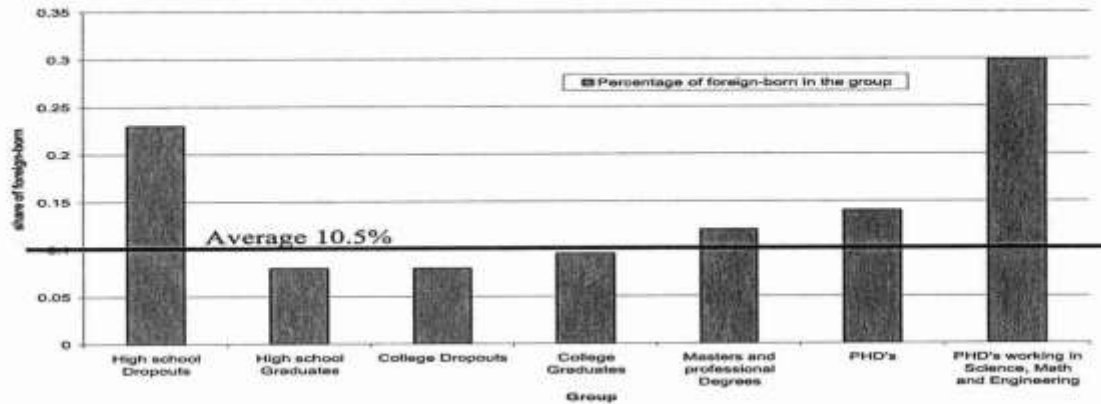
Figure 3

Distribution of US-born employed by schooling group, 2000
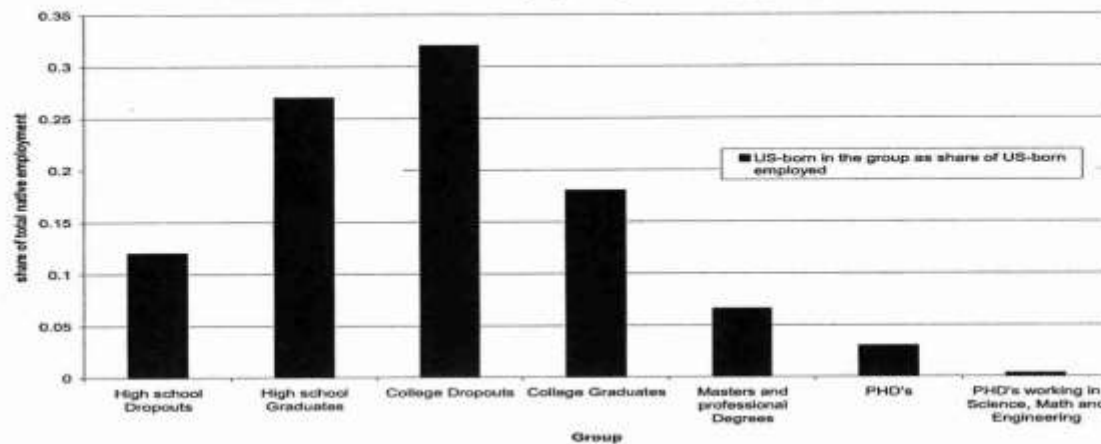
Policy prescription: More liberal entrance of S&T migrants

But other conditions are even more important:

- **Highly Skill Jobs available**

- **Wage premium**

Wage dispersion in the US is high wage 5 times low wage; France and Netherland 2.9, Demark and Switzerland 2.7 Belgium and Sweden 2.4

- **Language**

- **Open «Society» culture**

- **Open «Firm» Culture**

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1.2 Are migrants contributing to innovation?

- Only STEM workers or also Tertiary educated foreigners?

2. Patents

- Variables used
- Quantity of migrants level or share
- Quality of foreign workers: education, occupation
- Age
- Diversity of country of origin
- Regional/sector/firm level

Theoretical background

- Immigrant diversity (Alesina et al. 2012)
  - Contacts and interchanges between culturally diverse individuals foster creativity (Jacobs, 1969)
  - Culturally diverse environment attract creative individuals (Florida, 2010)
  - Diversity in production or diversity across sectors ? (Jacob 1969, Griliches, 1979)
  - Difficulties in communication (language) reduce social capital
  - Positive impact more likely for high skilled
- Innovation has important **sectoral specificities**
  - Knowledge base, technological opportunities, appropriability conditions
  - Waves of Immigrants contribute differently in different sectors and diversity
    - at the 'production level' plays an important role
  - Help disentangling the 'black box' of the positive coefficients for diversity at the territorial level

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Jacobs (1961): New York after WWII

- externalities

- importance of the environment

- *also low skilled and migrants not in the labour force*

- $Diversity\ Index_{jc} = 1 - \sum_{i=1}^{N} Share_{ijc}^2$

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Table 1 Summary of results in studies on patents and migrants				
	Est. effect	*Study*	*Unit of analysis*	*Inst.*
Area approach: Multi-ethnic society				
Share of Migrants	**positive**	O P (2013)	188 countries	Gravity
	no effect	O N P (2012)	EU NUTS2 regions	MacDonalds
	negative	B C (2012)	Italy NUTS3	Antonji and Card (1991)
Share of Highly Skilled Migrants	**no effect**	B C (2012)	Italy NUTS3	Antonji and Card (1991)
	positive	G (2012)	UK, TTWA 7digit post code	Card (2005, 2007)
Share of Highly Skilled Migrants (H-1B visa)	**positive**	K L (2010)	USA city level	N/A
Share of Migrants in Top Occupation	**positive**	B C V (2012)	EU 20 countries	Card (2001)
Share of Highly Skilled in High Tech	**positive**	B C V (2012)	EU 20 countries	Card (2001)
Share of Low Skilled Migrants	**negative**	B C (2012)	Italy NUTS3	Antonji and Card (1991)

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Diversity Index (without natives)	**positive**	ONP (2012)	EU NUTS2 regions	MacDonalds
Diversity Index (with natives)	**positive declining**	DG (2014)	EU regions, 27 country	N/A
	negative	BC (2012)	Italy NUTS3	Antonji and Card (1991)
	positive	Na (2014)	UK, individual inventors	N/A
	positive	N (2010)	Germany NUTS3	5Ylag, space lag /latitude

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Sector approach: Multi-ethnic production				
Highly Skilled Migrants	**positive**	FMV (2015)	19 Sectors for 13 years in in UK, DE, FR	GMM
Diversity Index (without natives)	**no effect**	FMV (2015)	19 Sectors for 13 years in in UK, DE, FR	GMM
Firm approach: Multi ethnic team.				
Immigrants' participation in ownership	**no effect**	M (2011)	Germany, firm level	N/A

Note: The following abbreviations are used OP Ortega and Peri (2014); BC Bratti Conti (2012); G Gagliardi (2011); KL Kerr, Lincoln (2010); BCV Bosetti, Cattaneo, Verdoloni (2012); ONP Ozgen, Nijkan, Poot (2012); N Neibuhr (2010); M Mueller (2011); DG Dohse and Gold (2014), Na Nathan (2014); FMV Fassio, Montobbio Venturini (2015).

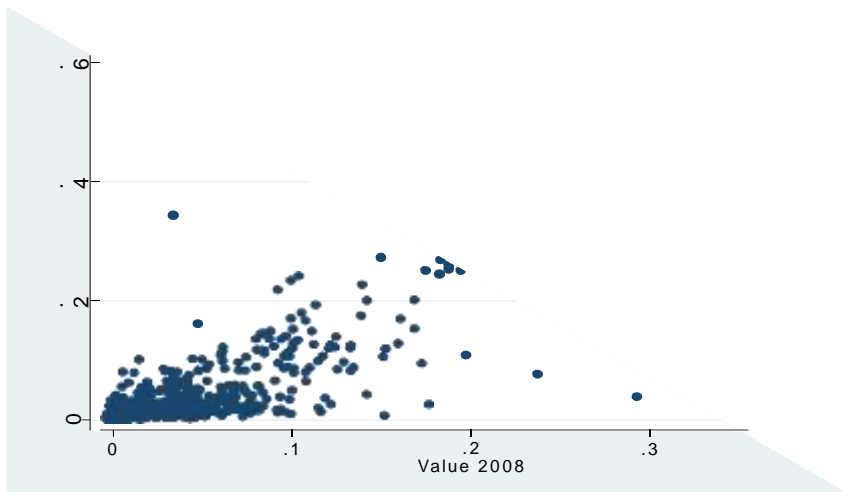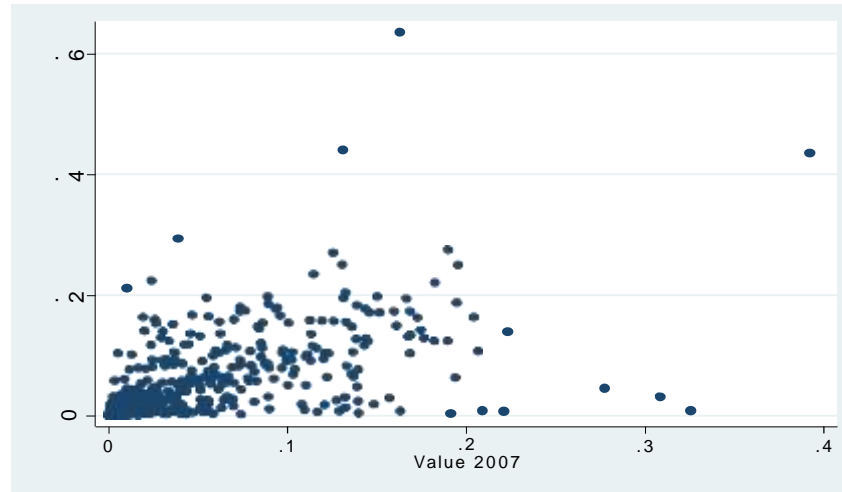**Prevaling result with all the approaches are:**

- Highly skilled migrants hold a positive role,

- but when the comparison with the natives is done

- they hold a lower coefficient than natives.

- Low skilled migrants has a negative effect in low tech sector

- At sector level different effect according to the sector

- Diversity not significant at sector level
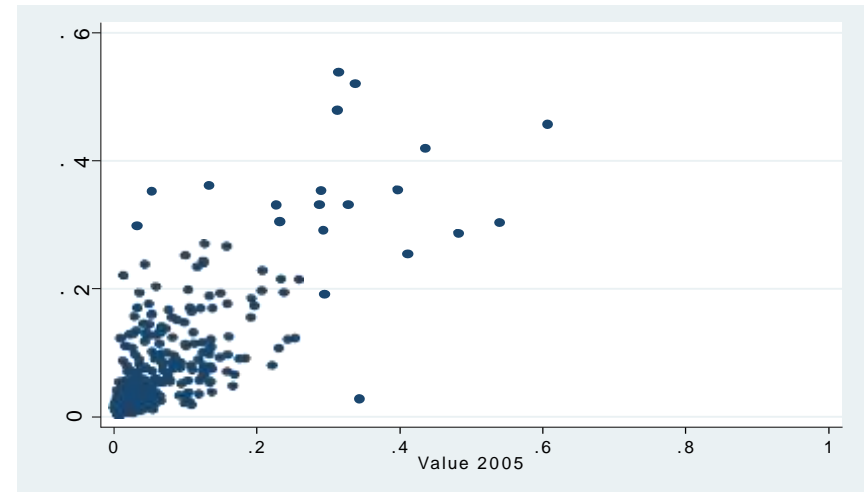
Country: UK

Country: France

Additional evidence of sector complementarity:

Foreign low skilled workers in the family services are complement to native highl skilled woman.

(Baroni and Mocetti, 2011, Cortes and Tessada 2010, Romiti and Rossi 2011, Farre' etc 2009.)

Q5

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Migration Policy should not favour country of origin diversity, thus they should **not use QUOTA** preferences

- A. USA no national preferences

- B. Eu Blue card universal, no geopolitical preferences however used by Germany, Belgium and France   with geo-political limitation

- **Bilateral partnership agreements** and **Neighbourhood policies** which have territorial limitation do not pursue this objective

3.Total Factor Productivity

- Variables used
- Share of migrants
- Quality of foreign workers: education, occupation
- Age
- Diversity of country of origin
- Regional/sector/firm level

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Table 2 Summaries of results in studies of Total Factor Productivity and Migrants

		Est. effect	*Study*	*Unit of analysis*	*Inst.*
Area approach: Multi-ethnic society					
	Share of Migrants	positive	AHR(2012)	195 countries	Gravity
		positive	OP (2013)	188 countries	Gravity
		no effect	OP(2009)	OECD countries	Gravity
	Share of Highly-Skilled Migrants	positive	OP(2012)	OECD countries	Gravity
		no effect	AHR (2014)	195 countries	Gravity
	Share of Low-Skilled Migrants	positive	AHR (2014)	195 countries	Gravity
	Diversity Index (without natives)	no effect	AHR (2014)	195 countries	Gravity
	Diversity Index Highly-Skilled (without natives)	positive	AHR (2014)	195 countries	Gravity
	Diversity Index Low Skilled (without natives)	no effect	AHR (2014)	195 countries	Gravity

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Sector approach: Multi-ethnic production				
Share of Migrants	**positive**	FKV(2015)	89 Sectors, 13 years FR, DE, UK	Card (2005, 2007)
Share of Highly-Skilled Migrants	**positive**	FKV(2015)	89 Sectors, 13 years FR, DE, UK	Card (2005, 2007)
Diversity Index (without natives)	**positive/no effect**	FKV(2015)	89 Sectors, 13 years FR, DE, UK	Card (2005, 2007)

Note: The following abbreviations are used

AHR Alesina, Harnoss and Rapoport (2013); OP Ortega and Peri (2009); OP Ortega and Peri (2012); OP Ortega and Peri (2014); FKV Fassio, Kalantaryan and Venturini (2015).

Results of TFP

- Positive effect of highly skilled migrants but not in all sectors,
- Diversity significant at regional but not at sector level,
- Age of migrants
- negative in High teck sectors Young workers are more productive,
- positive in services Old workers are more productive.

2. Firm level

- Results are very different for different sampling and different environement
- But in general divesity can be significant only outside the firm

4.Which migration policy could favour innovation?

The migration policy should be **demand driven**, no quota limitation is neccesary (diversity is not an innovation driver), while the **highest human capital** should lead the selection.

If the country is in search of **foreign inventors** who overperfom natives, it should implement a clear migration policy which focus on **STEM and needed expertise**.

But also **highly skilled migrants** will contribute to patent production even if less than the natives.

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- If the priority is the growth and the TFP is the appropriate measure =>the policy should be open to

- tertiary educated migrants who spurr growth in all the sectors

-

- ***complementarity between sectors*** of different intensity in human capital and the ***complementarity of soft skills*** play an important role.

- low-skilled workers contribute to the creation of a synergic environment, which favours the increase in productivity

- The instruments to be used are at disposal, the EU Blue Card, the national HS system but they should be led by the demand.

- An open only to highly skilled migration policy as a supply side policy will produce a lot of brain waste which is not what is needed.

- Both native and migrants suffer of brain waste

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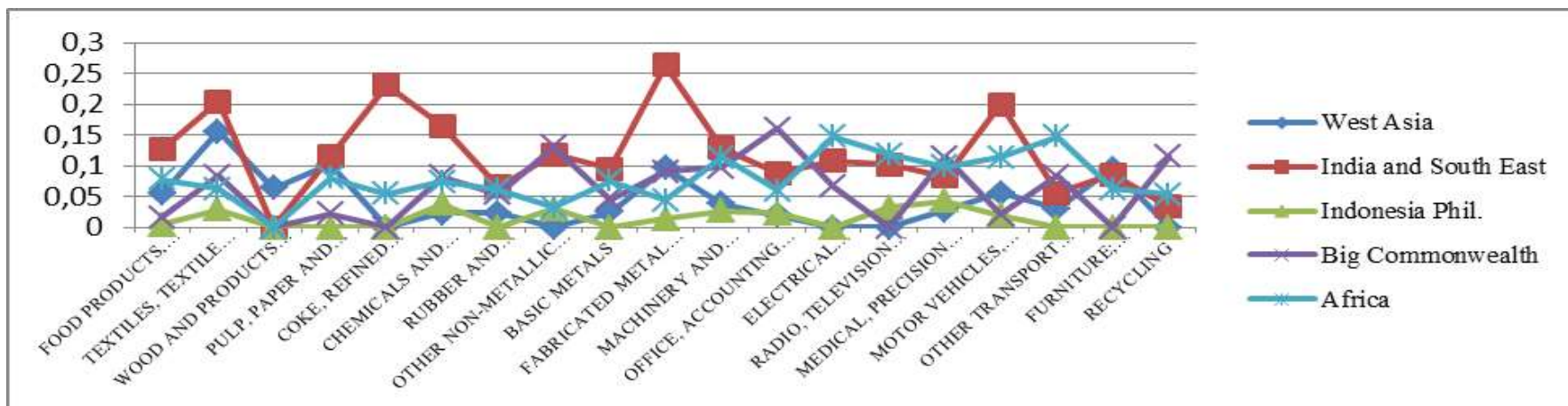Co-funded by the
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Readings

- Claudio Fassio, Fabio Montobbio, Alessandra Venturini,

- **Do native and migrant workers contribute to innovation? Patents dynamic in France, Germany and the UK,** Robert Schuman Centre for Advanced Studies Migration Policy Centre RSCAS 2015/41

- Claudio Fassio, Sona Kalantaryan, Alessandra Venturini,**Human resources and innovation: Total Factor Productivity and foreign human capital,**

- Robert Schuman Centre for Advanced Studies, Migration Policy Centre, RSCAS 2015/43

- Fargues Ph., Venturini A., 2015, Migration in North Africa and the Middle East: Skilled Migrants, Development and Globalisation

- http://www.ibtauris.com/Books/Society%20%20social%20sciences/Society%20%20culture%20general/Social%20issues%20%20processes/Globalization/Migration%20in%20North%20Africa%20and%20the%20Middle%20East%20Skilled%20Migrants%20Development%20and%20Globalisation.aspx

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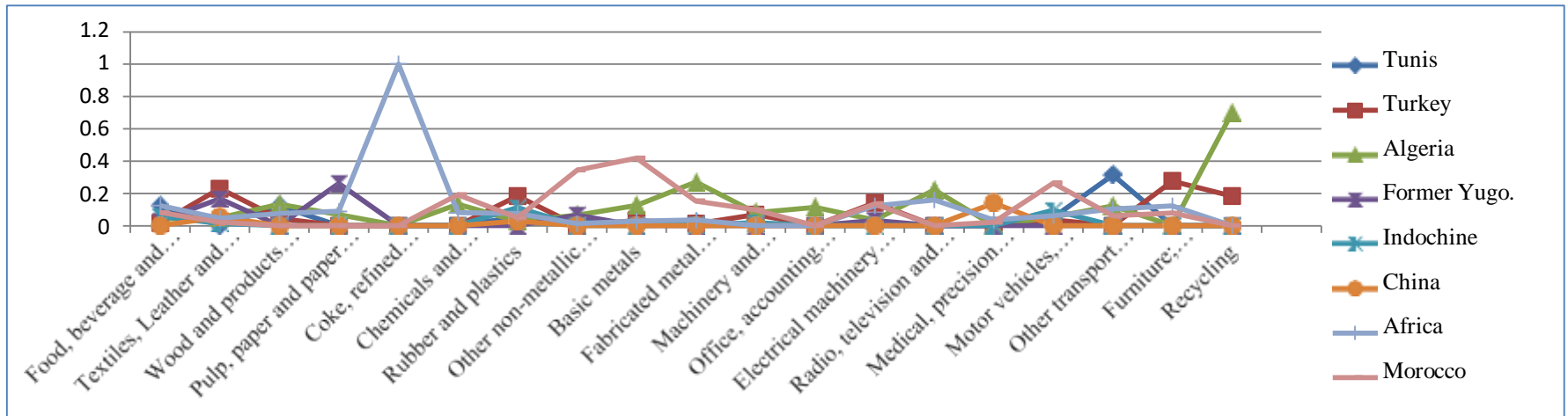
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Chart 1 (top):

Legend: USA, France, Germany, Ireland, Italy, Netherlands

Y-axis: 0, 0,05, 0,1, 0,15, 0,2, 0,25

X-axis categories: FOOD PRODUCTS..., TEXTILES, TEXTILE..., WOOD AND PRODUCTS..., PULP, PAPER AND..., COKE, REFINED..., CHEMICALS AND..., RUBBER AND..., OTHER NON-METALLIC..., BASIC METALS, FABRICATED METAL..., MACHINERY AND..., OFFICE, ACCOUNTING..., ELECTRICAL..., RADIO, TELEVISION..., MEDICAL, PRECISION..., MOTOR VEHICLES..., OTHER TRANSPORT..., FURNITURE..., RECYCLING

Chart 2 (bottom):

Legend: West Asia, India and South East, Indonesia Phil., Big Commonwealth, Africa

Y-axis: 0, 0,05, 0,1, 0,15, 0,2, 0,25, 0,3

X-axis categories: FOOD PRODUCTS..., TEXTILES, TEXTILE..., WOOD AND PRODUCTS..., PULP, PAPER AND..., COKE, REFINED..., CHEMICALS AND..., RUBBER AND..., OTHER NON-METALLIC..., BASIC METALS, FABRICATED METAL..., MACHINERY AND..., OFFICE, ACCOUNTING..., ELECTRICAL..., RADIO, TELEVISION..., MEDICAL, PRECISION..., MOTOR VEHICLES..., OTHER TRANSPORT..., FURNITURE..., RECYCLING

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Sectoral specialization **in UK** of immigrants by country of origin (00-05).

Industry	USA	NED	Poland	West Asia	India & South East	Indonesia Philipp.
15-16 Food products, beverages and tobacco	0.75	1.06	1.88	0.97	1.24	1.92
17-19 Textiles, text. prod., leather and footwear	0.52	0.87	0.05	2.27	1.95	0.58
24 Chemicals and chemical products	2.64	0.32	0.11	0.85	0.83	0.00
25 Rubber and plastics products	0.44	0.00	0.59	1.61	1.02	0.00
26 Other non-metallic mineral products	2.01	1.24	2.91	0.22	0.48	0.49
27 Basic metals	0.00	0.00	0.35	1.80	1.69	0.00
28 Fabricated metal products	1.28	0.00	1.36	0.52	0.90	1.40
29 Machinery and equipment, nec	1.05	1.73	0.14	0.80	0.94	1.75
30 Office, accounting and computing mach.	1.90	5.05	0.35	0.09	0.68	0.41
31 Electrical machinery and apparatus	0.96	0.00	1.05	1.06	0.66	2.18
32 Radio, television and communcation	0.26	0.00	0.88	0.72	0.61	2.43
33 Medical, precision and optical instr.	0.87	2.50	2.26	0.18	0.59	3.07
34 Motor vehicles, trailers and semi-trailers	0.44	0.00	0.41	0.63	1.05	0.00
35 Other transport equipment	0.55	0.38	0.58	0.70	0.51	0.96