



*Torino, 30th June 2017*

# **Social integration dynamics for migrants: PIAAC to measure skill and qualification mismatch**

*Bonacci Manuela and Mineo Simona*

## ***Measuring Skills and Qualification mismatch***

**Qualification match does not necessarily means skills match**

**Measuring skills mismatch has always been problematic**

**The relationship between skills mismatch and labour market outcomes impact - at policy level - on inclusive and socio-economic strategies.**

**Dynamics of migrants diverge from natives'**

### **PIAAC**

*The Programme for the International Assessment of Adult Competencies*  
Survey of Adult Skills (2012)  
provides a measure of both qualification mismatch and skills mismatch



This international Survey of Adult Skills is a **cyclical**, large-scale study was developed under the umbrella of the Organization for Economic Cooperation and Development (OECD).

Adults were surveyed in 24 participating countries in 2012 (first cycle – Round 1) and 9 additional countries in 2014 (Round 2) and further 6 countries in Round 3 (2016-19).

PIAAC measures the key **cognitive** and **workplace skills** needed for individuals to successfully participate in 21st-century society and the global economy.

PIAAC used an internationally harmonized test, based on a questionnaire assessing three cognitive domains: **literacy**, numeracy and problem solving in technology-rich environments. It gathers information and data on how adults **use** their skills at home, at work and in the wider community (through the *job requirement approach*).

These skills constitute “**key competences**” in many social and work-related contexts. They are highly significant to fully integrate individuals in the society and the labour market.

## PIAAC – Target groups



The target group of adults (16-65) for the survey were the non-institutionalized individuals who lived in the country at the time of the data collection (2011-12), regardless of nationality, language spoken or citizenship.

In the case of migrant, individuals who have responded to PIAAC survey are considered "**integrated migrants**", i.e. individuals who interact regularly with institutions, have a stable residence address and a good command of Italian language.

Therefore, it was not a specific sampling, but it resulted from the residence selection.

They belonged to the main communities of foreigners resident in Italy:

Romanians, Moroccan, Albanian, Chinese, Ukrainian and others

The response rate for migrants in PIAAC was 9.2% of the total sampling, representing approximately 3,645,907 individuals aged 16 to 65 years.

[Istat estimated in 2012 – 4,387,721 foreigners resident in Italy - independently from their age]

Among the three proficiency cognitive domains of PIAAC, we focused on **literacy** as (compared to numeracy) it is a parameter of high relevance for migrants indicating the adaptability in the host working context due to language difficulties.

## Qualification mismatch

Qualification mismatch is the measure of the qualification level required at work and the qualification possessed by the worker.

PIAAC survey asks workers to report the qualification they consider necessary to get their job today.

The question is :

*“If applying today, what would be the **usual qualifications**, if any, that someone would need to get this type of job”*

	Mismatch concept	Measure used in PIAAC
Qualification mismatch	Over-qualification	A worker is classified as over-qualified when the difference between his or her qualification level and the qualification level required in his or her job is <b>positive</b> .
	Under-qualification	A worker is classified as under-qualified when the difference between his or her qualification level and the qualification level required in his or her job is <b>negative</b> .
	Well matched (Required) qualification	There is a well match when the worker’s qualification level and the qualification level required in his or her job is the same (equal)

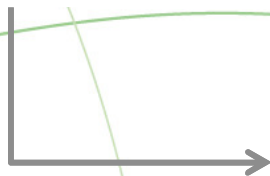
## Skills mismatch

PIAAC measures **skills mismatch** through  
 -quantitative information obtained by the assessment of skill proficiency  
 (literacy tests)



Proficiency score  
 0-500

Thresholds  
 <5<sup>th</sup> percentile  
 >95<sup>th</sup> percentile



- qualitative information– i.e. self-reporting through two questions.

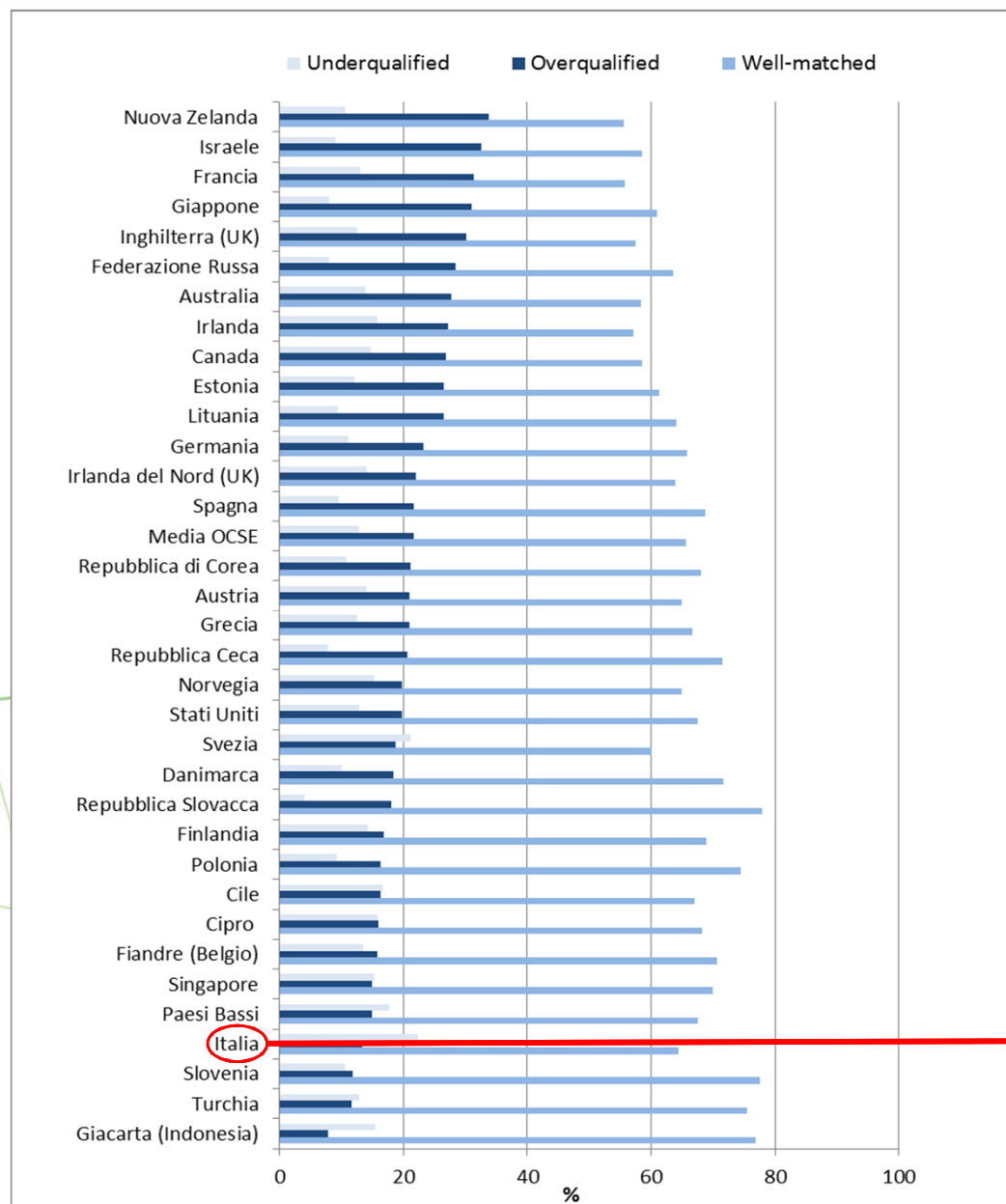
The questions are:

- A) *Do you feel to “have the skills to cope with more demanding duties than those you are required to perform in **your current job**”?*
- B) *Do you feel you “need further training in order to cope well with your present duties”?*

When the answers to both A and B questions are negative (NO), they are considered **well matched** in their occupation (ISCO) in their country. They are used to create a **quantitative scale** of skills required for each ISCO codes (1-digit) and the definition of the mismatch is according to proficiency scores.

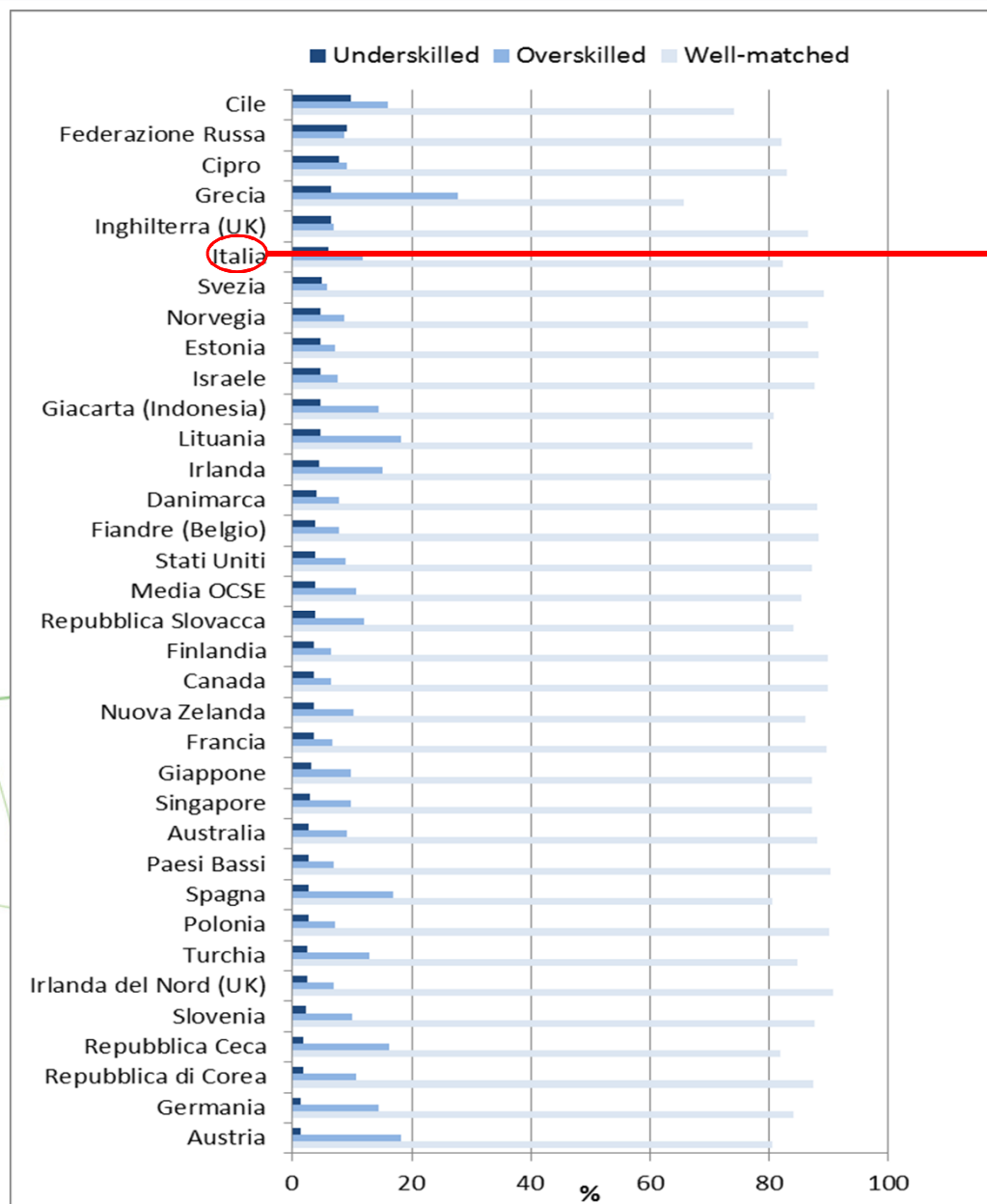
	Mismatch concept	Measure used in PIAAC
Skills mismatch	Over-skilling in the domain	When a worker’s proficiency is <b>higher</b> than the 95 <sup>th</sup> percentile.
	Under-skilling in the domain	When a worker’s proficiency is <b>lower</b> than the 5 <sup>th</sup> percentile.
	Well-matched	When a worker has a proficiency within these bounds (5 <sup>th</sup> < score < 95 <sup>th</sup> )

## *Incidence of qualification Mismatch in PIAAC*



Over-qualified: 14.0  
**Under-qualified: 23.6**  
 Well-matched: 62.4

## Incidence of Skills Mismatch in PIAAC



Over- skilled: 11.4  
**Under-skilled: 6.8**  
 Well-matched: 81.8



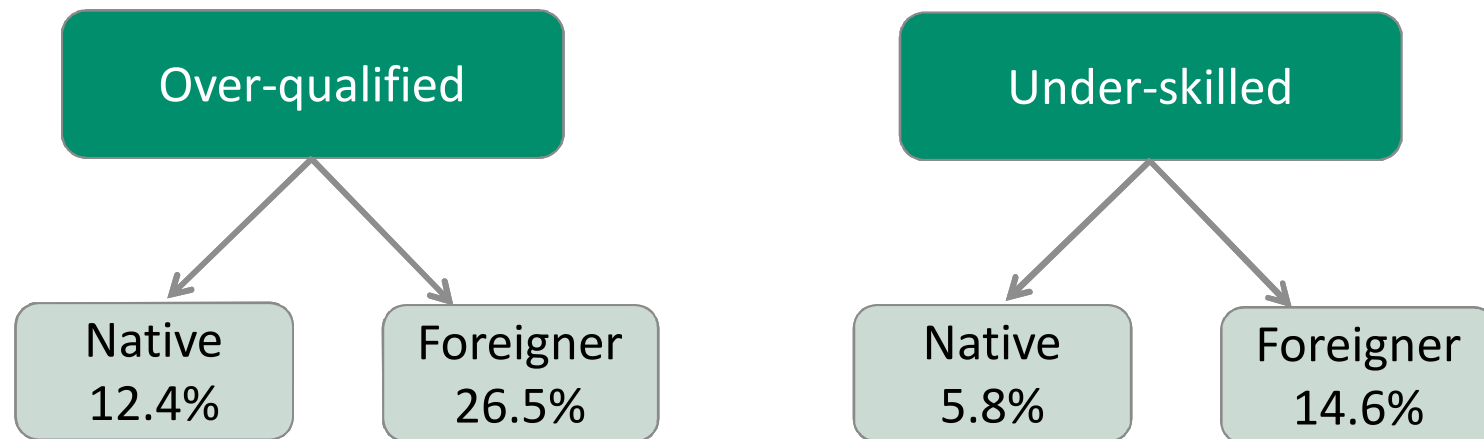
## *Incidence of Mismatch in Italy*

	Qualification Mismatch			Skills Mismatch		
	Over-qualified	Under-qualified	Well-matched	Over-skilled	Under-skilled	Well-matched
Italy	14.0	23.6	62.4	11.4	6.8	81.8
OECD average	21.7	12.7	65.6	10.8	3.8	85.4

In PIAAC Italy is the country with the highest percentage of **under-qualified** workers while for the **under-skilled** workers the highest percentage is registered in Chile (9.9%), Russia (9.2%) and Cyprus (7.9%).

However data significant for social inclusion dynamics and labour market outcomes refer to **over-qualification** and **under-skilling** measures.

## *Incidence of Mismatch in Italy by place of birth*



The perception of the foreign-born of having an educational level that exceeds the one required by the job they have, is higher than native workers.

Foreign born workers suffers from the under-skilling mismatch trend.

It is interesting to contrast qualification mismatch with skill mismatch.

## *Likelihood of over-qualification*

Individual and job characteristics may influence the likelihood of qualification mismatch.

	Dependent variable: Over-qualified			
	Variables	$\beta$	Odds-ratio	
Age of respondent	Younger workers (16-24)	0.236	1.266***	[0.005]
	Prime-age workers (25-54)	0.877	2.405***	[0.003]
	Older workers (55-65)	Ref.		
Gender	Woman	0.214	1.238***	[0.002]
Background according to highest level of education's parents	Disadvantaged background	Ref.		
	Advantaged background	0.629	1.876***	[0.002]
Immigration status	Migrants	0.747	2.111***	[0.002]
Occupational classification (ISCO)	Skilled occupations	Ref.		
	Semi-skilled white collar occupations	0.517	1.676**	[0.002]
	Semi-skilled blue collar occupations	0.508	1.662**	[0.002]
	Elementary occupations	0.599	1.821**	[0.003]
Hours worked	Full time	Ref.		
	Part-time	0.217	1.243	[0.002]
Type of contract	Indefinite	Ref.		
	Other	0.343	1.409	[0.002]

## Likelihood of over-qualification - MIGRANT

	Dependent variable: Over-qualified			
	Variables	$\beta$	Odds-ratio	
Age of respondent	Younger workers (16-24)	-2.371	0.093*	[0.013]
	Prime-age workers (25-54)	-0.456	0.634*	[0.010]
	Older workers (55-65)	Ref.		
Gender	Woman	0.826	2.285***	[0.004]
Background according highest level of education's parents	Disadvantaged background	Ref.		
	Advantaged background	0.219	1.245***	[0.004]
Years in country		-0.061	0.941***	[0.000]
Native language	Foreign language	-0.991	0.371	[0.006]

Young people (16-24) and prime age workers are less likely to be over-qualified than older.

Generally speaking, growing the age parameter, it increases the likelihood of over-qualification for migrants.

But in this model it is more significant the “years in country” parameter. Migrants who have **recently** entered the host country labour market are **more likely** to be over-qualified in their job than those migrants who are longer settled in the country. And it seems to be a problem which affects migrants not only during their integration process, but also in the long run.

We noted the same trend in Ireland and in the Netherlands.

Another important variable that play a role in the probability of mismatch is whether the person's **language** is the official spoken in the country ..... But in the model of Italy the “Native language” is not significant.

## *Likelihood of over-qualification – MIGRANT b*

	Dependent variable: Over-qualified			
	Variables	$\beta$	Odds-ratio	
Age of respondent	Younger workers (16-24)	-2.052	0.128*	[0.014]
	Prime-age workers (25-54)	-0.294	0.745*	[0.010]
	Older workers (55-65)	Ref.		
Gender	Woman	0.793	2.210***	[0.004]
Background according highest level of education's parents	Disadvantaged background	Ref.		
	Advantaged background	0.289	1.335***	[0.004]
Years in country		-0.053	0.948***	[0.403]
Occupational classification (ISCO)	Skilled occupations	Ref.		
	Semi-skilled white collar occupations	0.345	1.412	[0.610]
	Semi-skilled blue collar occupations	0.783	2.188	[0.131]
	Elementary occupations	1.057	2.877***	[0.676]
Hours worked	Full time	Ref.		
	Part-time	-0.404	0.667	[0.433]
Type of contract	Indefinite	Ref.		
	Other	-0.042	0.959	[0.376]

## *Likelihood of under-skilling*

Individual and job characteristics may influence the likelihood of skills mismatch.

	Dependent variable: Under-skilled			
	Variables	$\beta$	Odds-ratio	
<b>Age of respondent</b>	Younger workers (16-24)	0.700	2.013***	[0.004]
	Prime-age workers (25-54)	Ref.		
	Older workers (55-65)	1.029	2.797***	[0.003]
<b>Gender</b>	Woman	-0.299	0.741***	[0.002]
<b>Immigration status</b>	Migrants	1.195	3.302***	[0.002]
<b>Educational Level</b>	Low	0.340	1.406***	[0.003]
	Medium	-0.542	0.582***	[0.003]
	High	Ref.		
<b>Hours worked</b>	Full-time	0.604	1.830	[0.003]
	Part-time	Ref.		
<b>Type of contract</b>	Indefinite	Ref.		
	Other	0.269	1.308	[0.003]

## *Likelihood of under-skilling for migrants*

	Dependent variable: Under-skilled			
	Variables	$\beta$	Odds-ratio	
Age of respondent	Younger workers (16-24)	1.217	3.378***	[0.006]
	Prime-age workers (25-54)	Ref.		
	Older workers (55-65)	-1.368	0.255***	[0.020]
Gender	Woman	-0.054	0.948***	[0.005]
Educational Level	Low	0.786	2.195***	[0.010]
	Medium	0.037	1.037***	[0.010]
	High	Ref.		
Years in country	In host country 5 or fewer years	0.884	2.421**	[0.005]
	In host country more than 5 years	Ref.		
Native language	Foreign language	-0.140	0.870	[0.010]
Hours worked	Full-time	-0.003	0.997	[0.006]
	Part-time	Ref.		
Type of contract	Indefinite	Ref.		
	Other	-0.327	0.721	[0.006]

## *Summarizing Model data*

### *General model over-qualification*

- Young workers are **more** likely to be overqualified than older;
- Prime-age workers are **more** likely to be overqualified than older;
- Elementary occupation are more likely to be over-qualified;

### *General model under-skilling*

- Young workers are **more** likely to be under-skilled than prime-age and older (expected);
- **Older** workers are almost **3 times more** likely to be under-skilled than prime-age (obsolescence of skills);
- Low education level - more likely to be under-skilled than graduates.

### *Migrant workers over-qualification*

- Young migrants are **less** likely to be overqualified than older;
- Prime-age migrants are even **less** likely to be overqualified than older;
- **Recent** (no age distinction) **migrants** are more likely to be **over-qualified**;
- Elementary occupation are **3 times** more likely to be over-qualified;

### *Migrants under-skilling*

- **Young** migrants are **3 times more** likely to be under-skilled than prime-age;
- **Older** workers are **less** likely to be under-skilled than prime-age;
- **Recent migrants** are more likely to be **under-skilled** than stable migrants;
- Low education level - more likely to be under-skilled than graduates.



## *Qualification and skills recognition frames*

Qualifications (formally recognized) do not necessarily correspond to used skills and competences.

Skills and competences may be gathered and accumulated, but are also potentially obsolete in dynamic contexts.

For vulnerable groups recognition and validation processes are fundamental.

The modularization of learning pathways as well as work-based learning need to be further developed.

Once an occupation has been created, updated, adequate, made available, there is a need for a profession to cover that position.

**INDUSTRY  
ENTERPRISES**

**INDIVIDUALS**  
(LEARNERS, WORKERS,  
JOBSEEKER)



Satisfy Labour Market  
**demands** to sustain  
**competitiveness**

Provide appropriate  
**skills and competences**  
to improve  
**employability**



### **PIAAC 2<sup>^</sup> Round 2019-2020**

It will be interesting in the future to compare the skills mismatch measurements on both PIAAC and ESS future findings



### **ESS - The European Social Survey 8<sup>^</sup> Round 2017 - in Inapp**

Manuela Bonacci – [m.bonacci@inapp.org](mailto:m.bonacci@inapp.org)

Simona Mineo – [s.mineo@inapp.org](mailto:s.mineo@inapp.org)

---

**Thank you for your attention**



A paper on these issues will be published

INAPP - Istituto Nazionale per l'Analisi delle Politiche Pubbliche  
Corso d'Italia, 33 - 00198 Roma - tel. +39.06.85447.1 - [www.inapp.org](http://www.inapp.org)