

The importance of skill differences between immigrants and natives for results in PIAAC

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Why should we care about immigrants' results?

If we want to use PIAAC as an indicator of the quality of participating countries' educational and training systems, the interpretation can be distorted by immigrants that have been educated or trained abroad.

True, but there are many other conditions, too, that complicate such an interpretation: differences in culture, language, institutions, labor markets etc.

Certainly, but that objection applies to a very limited extent the Nordic countries. And immigration varies a lot within the Nordic context, making it well suited for studying the immigration-PIAAC relation.

What do we do?

We make comparisons across the Nordic region and we also relate the Nordic countries to an average of all the countries participating in PIAAC. We consider

- the difference in the scores of the country's natives *vs* its (entire) population
- the change in the country's rank in the international skill distribution when the ranking is based on the countries' natives instead of their populations.

We do this for all of the three skills measured in PIAAC: literacy, numeracy, problem-solving with ICT (PS-ICT)

How do we do it?

We make use of the relation:

$$m(S_p) = \alpha \cdot m(S_i) + (1 - \alpha) \cdot m(S_n)$$

where

$m(S_k)$ = mean score of country's population ($k = p$)

immigrants ($k = i$) and natives ($k = n$)

α = share of immigrants in the country's population,

$$\Rightarrow m(S_n) - m(S_p) = \alpha \cdot [m(S_n) - m(S_i)]$$

Thus, native – population mean score difference depends on immigrant share & (native – immigrant) difference.

Starting point: mean population skill scores (std.dev)

	Literacy(21)	Numeracy(21)	PS-TRE(18)
Denmark	270.8 (.62)	278.3 (.73)	283.1 (.68)
Finland	287.5 (.67)	282.2 (.70)	289.4 (.83)
Norway	278.4 (.61)	278.3 (.79)	286.5 (.57)
Sweden	279.2 (.66)	279.1 (.82)	287.8 (.65)
PIAAC average	272.4 (.76)	268.8 (.82)	282.2 (.89)

Blue color: not significantly different from PIAAC average

Defining immigrants

Immigrants = Individuals not born in the country in which they participated in PIAAC

	Foreign-born	whereof less than 6
	%	years old on arrival
<i>Denmark</i>	11.8	1.9
<i>Finland</i>	5.7	0.9
<i>Norway</i>	13.4	1.2
<i>Sweden</i>	17.5	2.5
<i>PIAAC-average</i>	11.1	1.5

Observations about skills of immigrants vs natives

- Qualitatively , the scores for natives are very similar to the scores for the population, shown earlier.
- Huge Nordic native – foreign-born differences for literacy & numeracy – 50-55 points in FI, SE; 35-45 in NO, DK, 30 for PIAAC average. Smaller diffs for PS-TRE: 15 (DK, FI, PIAAC-average) – 30 (SE)
- Immigrants arriving before age 6 do almost as well as natives, significant differences *only* in SE.
- Average scores of natives *vs.* (natives + immigrants arriving before age 6) are almost identical \Rightarrow natives good approximation of those educated in the country.

Skills of natives vs full populations

	Literacy(21)		Numeracy(21)		PS-TRE(18)	
	points	%	points	%	points	%
Denmark	4.4	1.6	4.4	1.6	1.8	0.5
Finland	2.9	1.1	3.0	1.1	0.8	0.2
Norway	5.1	1.9	6.2	2.3	2.6	0.7
Sweden	9.4	3.4	9.8	3.5	5.6	1.5
PIAAC average	3.3	1.2	3.3	1.2	1.8	0.5

Note: Red denotes statistically significant; % is in terms of the full population

Sweden's differences largest among all PIAAC countries

Ranks of natives **vs** full populations

	Literacy(21)		Numeracy(21)		PS-TRE(18)	
	nat.	pop.	nat.	pop.	nat.	pop.
Denmark	11	13	7	6	9	8
Finland	2	2	4	2	3	2
Norway	5	5	5	6	4	4
Sweden	4	4	1	5	2	3

The only significant change is marked in red. That change is the only significant one across all PIAAC countries!

Conclusions

- Nordic (native – foreign born) score differences are very large *and* natives approx well those educated in country ⇒ native score better indicator of quality of country's education and training systems than population scores.
- Education measures targeted at immigrants that arrived at age 6+ good investment in the Nordic countries.
- (native – population) score differences significant but not very large; max 10 points (3.5%) in Sweden.
- Country rankings based on natives *very* similar to rankings based on population. Sweden only exception.
- PIAAC outcomes barely affected by immigration

Skills of immigrants vs natives; score points

	foreign born	whereof < 6 y on arrival	natives	natives + foreign < 6 y on arrival
Literacy				
Denmark	238	264	275	275
Finland	240	289	291	291
Norway	245	286	284	284
Sweden	235	228	289	288
PIAAC-average	248	273	276	276
PS-TRE				
Denmark	269	279	284	284
Finland	276	292	290	290
Norway	269	292	289	289
Sweden	260	282	292	292
PIAAC-average	270	287	284	284