

Health disparities between French born and immigrant populations: a Oaxaca decomposition analysis

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Introduction (1)

- **Objectives:**

- To compute the difference in health status between French born population and migrant population.

- To decompose health inequalities and to explain them in measuring the relative contribution of each individual characteristic to the health gap.

- **Question:**

- How far inequalities in health status between French born population and migrant population can be explained by socio-economic status and social capital ?

Introduction (2)

- **Rationnal :**

- Migrant population represents 8.1% of the French population (2006).
- Few studies have focused on the migrant population while in most countries, migrant health status is considered as a genuine public health concern.

→ Inconsistent results across studies:

- Foreign literature : Migrant population presents a better health status than native population: « Healthy Migrant Effect »

(Kennedy et al, 2006; Rubalcava et al, 2008; Hernandez-Quevedo et al, 2009)

- Recent French studies show the poor health conditions of migrant population.

(Jusot et al, 2009; Attias-Donfut et Tessier, 2005; Lert, Melchior et Ville, 2007)

Introduction (3)

→ The selection effect can be offset by:

-Poorer socio-economic conditions in the host country:

(Marmot et al, 2008; Marmot & Wilkinson, 2006; Perrin-Haynes, 2008; Dunn & Dyck, 2000, Newbold & Danforth, 2003; Attias-Donfut & Tessier, 2005; Jusot et al, 2009)

- Factors relating to loneliness, loose of social support or more broadly to social integration and social capital :

(Putnam, 1995; 2000; Goldberg et al, 2002, Gee, Kobayaski & Prus, 2007; McDonal & Neily, 2007; Zambrana & al., 1994; Leclere, Jensen & Biddlecom, 1994)

• Relevance of the research:

- Previous papers provide important insight but for the moment being, they do not answer the question of how much some given characteristics contribute to health status difference between migrant and native population.

Data

- **The survey of Health, Health care and Insurance, IRDES**

Waves 2006 & 2008 = 12665 individuals

- **Binary dependent variable : Self-assessed health status (SAH)**

SAH=1 if respondent report a very good or good health status, 0 otherwise.

- **Independent variables:**

- **Binary migratory status:**

- French born population (82.1%)

- Migrant population : first & second generation of migrant (17.9%)

- **2 measures of social capital (SC) based on interpersonal network:**

Civic engagement = 1 if respondent is involved in a collective action, 0 otherwise.

Social support=1 if respondent has not suffered from loneliness, 0 otherwise.

- **Demographic and socio-economic status (SES)**

Method – 1st step

- **Probit estimation to analyse the impact of migratory status on health status without and with adjustment for SES, SC (whole sample) :**

The binary self-assessed health variable H_i is the result of a continuous latent health variable H_i^*

$$H_i = 1 \quad \text{if} \quad H_i^* > 0$$

$$H_i = 0 \quad \text{if} \quad H_i^* \leq 0$$

With : $H_i^* = \beta_0 + \rho\delta_i + \beta_k X_{ki} + \varepsilon_i$

δ_i : Migratory status of respondent i

X_{ki} : Vector of covariates (age, sex, SES et SC)

ε_i : Error term which follows a normal distribution

- Migrant population is less likely to report a good health status:

Characteristics	Good SAH		Good SAH		Good SAH	
	Age & Sex		Age, Sex & SES		Age, sex, SES & SC	
	Mfx	SE	Mfx	SE	Mfx	SE
<i>Migratory status: French</i>	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
Migrant population	-0,09	*** 0,011	-0,06	*** 0,011	-0,04	*** 0,011

Method – 2nd step

- **Decomposition of health disparities between both populations:**
 - **Objectives:** To measure the difference in the mean value of the self-assessed health status and to decompose it in 3 parts:
 - Part attributable to differences in observable characteristics
 - Part attributable to differences in the estimated coefficients
 - Part attributable to differences in the interaction between observable characteristics and the estimated coefficients
 - **In the linear case:**

$$\bar{H}^F - \bar{H}^I = \underbrace{(\bar{X}^F - \bar{X}^I) \cdot \hat{\beta}^I}_{\text{E}} + \underbrace{(\hat{\beta}^F - \hat{\beta}^I) \cdot \bar{X}^I}_{\text{C}} + \underbrace{(\bar{X}^F - \bar{X}^I) \cdot (\hat{\beta}^F - \hat{\beta}^I)}_{\text{EC}}$$

Characteristics Coefficients Interaction

With F for French born pop. and I for Migrant pop.

Method – 2nd step

- In the non linear case : the 3 components are estimated using conditional expectations:

$$E = [E_{\hat{\beta}^I} (H_i^F | X_i^F) - E_{\hat{\beta}^I} (H_i^I | X_i^I)]$$

→ **Characteristics effects:** expected change in migrant health status if they have had the same characteristics than the French born population.

$$C = [E_{\hat{\beta}^F} (H_i^I | X_i^I) - E_{\hat{\beta}^I} (H_i^I | X_i^I)]$$

→ **Coefficients effects:** expected change in migrant health status if they have had the same return of characteristics than the French born population.

$$EC = [E_{\hat{\beta}^F} (H_i^F | X_i^F) - E_{\hat{\beta}^I} (H_i^F | X_i^F)] + [E_{\hat{\beta}^F} (H_i^I | X_i^I) - E_{\hat{\beta}^I} (H_i^I | X_i^I)]$$

→ **Interaction term**

Result – 2d step

Non linear Oaxaca decomposition results: difference in health status between French born population and migrant population

Ref group: French born population	Coef.		SE	% of health difference
Characteristic effect	0,0258	***	0,008	40,3
Coefficient effect	0,0379	***	0,008	59,3
Interaction term	0,0002		0,007	0,3
<i>Overall health difference</i>	0,0639	***	0,010	100%

Ref group: Migrant population	Coef.		SE	% of health difference
Characteristic effect	-0,0260	***	0,005	40,7
Coefficient effect	-0,0381	***	0,011	59,7
Interaction term	0,0002		0,006	-0,3
<i>Overall health difference</i>	-0,0639	***	0,011	100%

Method – 3rd step

- Fairlie Decomposition (2003, 2005) :

➡ To assess the relative contribution of SES and SC in the difference in observable characteristics (Part E):

- By the change in health status of French born population induced by the substitution of its distribution of one characteristic (SES or SC) by the immigrant one, the distribution of the others variables remaining constant.

The individual contribution of the variable X1 to health disparity can be expressed as:

$$\frac{1}{N^F} \sum_{i=1}^{N^F} \Phi(\hat{\beta}_0^* + X_{1i}^F \hat{\beta}_1^* + \dots + X_{ki}^F \hat{\beta}_k^*) - \Phi(\hat{\beta}_0^* + X_{1i}^I \hat{\beta}_1^* + \dots + X_{ki}^F \hat{\beta}_k^*)$$

- Estimation involves a one to one matching between the two populations.
- We use the coefficient $(\hat{\beta}_k^*)$ estimated from the whole sample.

Result – 3rd step

Fairlie's decomposition: relative contribution of independent variables to the explained difference in health status between both population

N (french)	10401	
N (Migrant)	2264	
P(Hi=1) if French	0,726	
P(Hi=1) if Migrant	0,663	
Overall Difference in SAH	0,063	
Explained Differences	0,026	41%

Contribution to explained differences		P Value	SE	% (explained part)
Gender	0,0000	0,837	0,0002	0,2
Age	-0,0039	0,000	0,0010	-15,1
2008 Edition	-0,0002	0,126	0,0002	-1,0
Education	0,0016	0,139	0,0011	6,1
Prof Status	0,0036	0,002	0,0012	13,8
Activity status	0,0024	0,032	0,0011	9,3
Income	0,0098	0,000	0,0012	37,8
Household Composition	-0,0019	0,090	0,0011	-7,2
Social capital	0,0146	0,000	0,0014	56,2

Method – 4th step

- Separate Probit estimations in both populations to compare the return in health status of demographics, SES and SC:

Characteristics	Good SAH			Good SAH		
	French population			Immigrant		
	Mfx		SE	Mfx		SE
<i>Education: Post-secondary level</i>	Ref			Ref		
Without qualification	-0,08	***	0,025	-0,12	**	0,048
Primary	-0,08	***	0,020	-0,10	**	0,046
1st level of secondary school	-0,03	*	0,017	-0,07	*	0,037
2nd level of secondary school	-0,02		0,015	-0,03		0,035
Other level of education	-0,03		0,058	0,07		0,089
<i>Activity status : In employment</i>	Ref			Ref		
Inactive	-0,19	***	0,022	-0,26	***	0,042
Retired	-0,07	***	0,018	-0,10	**	0,046
Unemployed	-0,12	***	0,021	-0,17	***	0,040
<i>Income: 1st quintile</i>	Ref			Ref		
2nd quintile	0,06	***	0,013	0,02		0,031
3rd quintile	0,11	***	0,013	0,04		0,034
4th quintile	0,09	***	0,013	0,14	***	0,032
5th quintile	0,12	***	0,014	0,19	***	0,032
Unknown	0,08	***	0,014	0,09	**	0,033
<i>Civic engagement: Social participation</i>	Ref			Ref		
No social participation	-0,06	***	0,009	-0,04	*	0,024
No answer	0,00		0,032	-0,08		0,060
<i>Social support: Yes</i>	Ref			Ref		
No social support	-0,18	***	0,020	-0,12	***	0,031
No answer	-0,01		0,020	0,04		0,046

Conclusion & Discussion

6 percentage points health difference in the probability of reporting a good health status between French born population and migrant one.

- 60% = attributable to difference in return of characteristics between both populations.

- Can be considered as a part of discrimination: lower access to job market or poorer working conditions for a given educational level.
- May be due to possible biases related to the use of SAH

- 40% = attributable to difference in the distribution of characteristics between both populations.

Among the characteristics, social capital plays a key role (56%) followed by income (38%), age (15%) and professional status (13.8%).

- This descriptive analysis provides elements for the design of relevant public policies
- Further researches are needed to assess the causal influence on health status of the more important determinants, and particularly social capital.