Causality and Correlation in Economics of Migration

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Outline

The Puzzle:
Do Foreign Workers Substitute Natives?

The Impact of the Mariel Boatlift on the Miami Labor Market (Card, 1990)

- This paper studies the effects of a sudden increase in the foreign labor supply in Miami on the labor market outcomes of local workers.
- The Mariel Immigrants increased the labor supply of Miami by 7%. They should affect a very narrowed segment of the labor market since they were relatively unskilled.
- The author does not find any evidence that a sudden increase of foreign labor supply affects the labor market outcomes of different sub-groups of workers.

Correlation or Causality in Card 1990

- Correlation measures the dependence of two variables no matter one of them has a causal effect on the other. In Card 1990, there is no correlation since the labor market outcomes of native are not affected by the increase in foreign labor supply.

- Causality is a type of correlation and, in the case of Economics, depends on the economic theory. Two variables might be correlated but not causal if the cause and the effect are correlated with a third variable that affects both. In Card 1990, there is causality since the sudden increase of immigrants in Miami does not depend on Miami's economic conditions but there is no effect.

The Borjas' Critique (Borjas, 2017)

- Borjas 2017 does not agree with the Card 1990's approach. Card uses a broad definition of competitors in the labor market comparing the labor market outcomes before and after the Marielitos' lending across different areas.
- Borjas 2017 uses a finer definition of competitors to find an effect on the more similar natives in terms of productivity. He uses the fact that the Mariel immigrants are 60% high school dropouts.
- Comparing the average (log) weekly wage of high school dropout natives before and after the lending of Mariel immigrants in Miami, there is a decrease between 10% and 30% with respect to other cities.

Correlation or Causality in Borjas 2017

- In Borjas 2017, there is a negative correlation since the labor market outcomes of Miami high school dropout natives lower after the sudden increase in the foreign labor supply.
- In Borjas 2017, there is also causality since the sudden increase of immigrants in Miami does not depend on Miami's economic conditions as in Card 1990.

How is that possible to find such different results within the same framework?

- To assess whether the results are robust, we have to look at number of observations since each statistics is robust when the number of observations increases.
- Clemens (2019) and Peri & Yasenov (2017) show that the main problem to find an unique result to the Mariel Boatlift puzzle is the number of observations. They show that the number of observations is too small to get a meaningful result since outliers might affect the estimates in any direction.

Main takeaways

- Causality is correlation but not the inverse. Economic theory indicates whether a third variable that we are not considering in the model (omitted variable problem) explains the correlation between two variables.
- To claim causality, we must be sure that the independent variable is uncorrelated with the economic conditions and the characteristics within the framework we are studying. (E.g. within a municipality or a country, within a skill group)
- Last but not least, small samples might show noisy results even if the independent variable is uncorrelated with economic conditions.

Economic Assimilation of Migrants

Immigrant Assimilation in the Labour Market: What Is Missing in Economic Literature (Venturini, 2017)

- Venturini 2017 is one the most comprehensive work on 'the economic of assimilation' topic since it explains the main determinants to understand the assimilation process of immigrants.

- The paper cites several works which are divided in "evaluation policy" and "descriptive" papers. Evaluation policy papers aim at uncovering the causal effect of an assimilation program on economic assimilation, while the descriptive papers show the variables that explain the economic assimilation.

The Causal Effect of the Assimilation Programs

- Assimilation programs are a wide range of programs tailored for immigrants to accelerate their economic assimilation.
- Sarvimäki & Hämäläinen (2016) show that immigrants arrived in Finland just after 1st May 1997 experience better labor market outcomes of immigrants arrived just before that date because the first group of immigrants must attend an assimilation program.
- In this case, the effect is causal because immigrants entered around 1st May 1997 have similar characteristics. Paper shows that earnings of "treated" immigrants increase by 7,000$.

The Descriptives of the Economic Assimilation

- Many variables affect the economic assimilation such as years since migration, education, number of children. Having a deep knowledge of migrants' characteristics at the local level might help to address economic assimilation issues.
- Lee et al. (2020) show that there is stronger positive correlation between years since migration and economic assimilation for women than for men.
- This correlation does not have any causal effect since we are not sure that female and male immigrants are two homogeneous groups. Data collection often does not provide a full information about migrants and the two groups might differ in terms of employability in the host country.

Lee et al. (2020)'s findings

Table 4: Estimates of Additional year since Migration by Gender and Period in Switzerland

	All, Period 1	Male, Period 1	Female, Period 1	All, Period 2	Male, Period 2	Female, Period 2
Year since migration	0.220***	0.206***	0.167**	0.072***	0.002	0.147***
	(0.032)	(0.048)	(0.055)	(0.013)	(0.017)	(0.036)
Year since migration squared	-0.047***	-0.049***	-0.028	-0.012**	0.001	-0.026**
	(0.007)	(0.012)	(0.015)	(0.004)	(0.004)	(0.010)
Year since migration cubed	0.003***	0.004***	0.002	0.001*	-0.000	0.002*
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)

Migration choice

A Descriptive Analysis for Causal Effects

- Individuals decide to migrate if the gains in the host country are larger than the ones in the home country. Grogger & Hanson (2011) describe the correlation between migration decision and wage gains.

- Aggregate level analyses show the variables affecting the bilateral movements. Researchers, very often, rely on the **gravity model** to understand bilateral movements. Beine et al. (2016) show that the gravity model is helpful to understand the correlations between economic variables and the migration flows.

- However, both approaches do not lead to a causal interpretation since both suffer of the simultaneity problem (We do not know if immigrants affect wages and GDP or vice versa.).

The Role of Cultural Goods: Lanati & Venturini (2018)

- The gravity model might show causal effect on migration choice if the exports of cultural goods from a country h to a country d increase the likelihood to move in the exporting country.
- As usually to have a causal interpretation of the exports of cultural goods on the migration flows, the change in exports must be random. In other way, the change must not be correlated to some specific host-origin-time economic factors.
- Lanati & Venturini (2018) control several sources of endogeneity (omitted variables) and find a positive impact of exports of cultural goods on migration flows.

Table 2 – Benchmark Results: Impact of Cultural Exports on the Emigration Rate

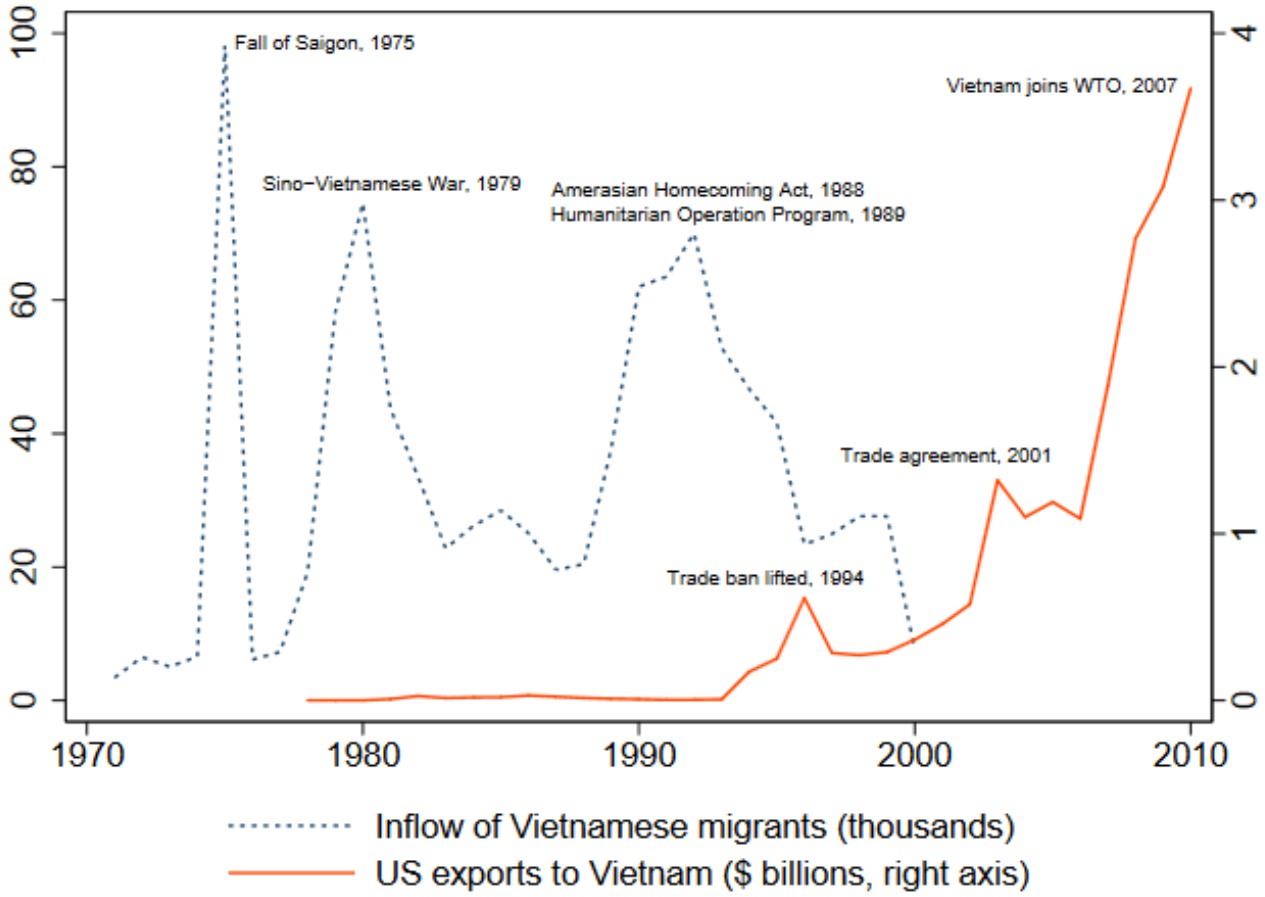
Estimator	(1) OLS	(2) OLS	(3) OLS	(4) PPML	(5) OLS	(6) OLS
Dependent Var.	$\ln(EM_{in,t})$	$\ln(EM_{in,t})$	$\ln(EM_{in,t})$	$EM_{in,t}$	$\ln(EM_{in,t})$	$\ln(EM_{in,t})$
$\ln(Xcult_{ni,t-1})$	0.072^{***}	0.072^{***}	0.013^{**}	0.044^{***}	0.013^{**}	
	(6.56)	(6.56)	(2.26)	(2.62)	(2.26)	

Trade and Ties in the host country: Parsons and Vézina (2018)

- To assess the causal effect of migration on the economic growth of both sending and receiving countries, we can use the variation generated by migrants who are not moving for economic reasons: Refugees.

- Parsons & Vezina (2018) exploit the random displacement of Vietnamese arrived after the fall of Saigon across US states. They find a positive effect of forced migration on the exports to Vietnam.

Figure 1: Vietnamese inflows to the US and US Exports to Vietnam



Sources: US Census 2000 and USITC.

Trade and migration - A quasi-random experiment

	(1) Exports to Vietnam PPML	(2) Exports to Vietnam PPML-RF	(3) Exports to Vietnam IV-PPML	(4) Exports to Vietnam PPML	(5) Exports to Vietnam PPML-RF	(6) Exports to Vietnam IV-PPML
ln (Exports to World)	0.208	0.328	0.156	0.271	0.842***	0.148
	(0.249)	(0.300)	(0.280)	(0.314)	(0.293)	(0.491)
ln (GDP)	0.445	0.367	0.356	0.297	-0.818	-0.724
	(0.536)	(0.488)	(0.470)	(0.660)	(0.626)	(0.737)
ln (Vietnamese)	0.360*		0.453**	0.483**		1.381**
	(0.188)		(0.195)	(0.239)		(0.662)
ln (1975 Refugees)		0.459**			1.073***	
		(0.206)			(0.335)	
ln (Income per capita)				-2.870	-1.675	-3.115
				(1.859)	(1.422)	(2.931)
ln (Mfg share of GDP)				0.464	1.403**	1.334
				(0.674)	(0.689)	(0.852)
West Coast				0.268	0.082	-0.692
				(0.360)	(0.317)	(0.652)
East Coast				1.054**	1.493***	1.256
				(0.482)	(0.423)	(0.782)
Constant	1.758	-0.307	3.144	29.334	13.672	38.527
	(2.742)	(2.823)	(3.329)	(18.524)	(14.446)	(33.444)
N	51	51	51	51	51	51
R-sq	0.64	0.65		0.75	0.85	

Dependent variable is 1995 Exports to Vietnam. The 51 obs. are 50 US States and Washington DC. Columns 1 to 3 give the PPML, PPML-RF (reduced form) and IV-PPML estimates, respectively. Columns 4 to 6 provide the same estimates with extra controls. The figures in parenthesis are robust standard errors, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

Migration and Crime

Crime: an effect not a cause

- The anti-immigration moral describes immigrants as criminals who move in host countries to commit crimes. Hence, the criminal behaviour the cause and the migration choice the effect.
- The positive correlation between migration and crimes might explain the fact the immigrant move in the richer countries but not why they move.
- To study the positive relationship between migration and crime, Mastrobuoni and Pinotti (2015) study the effect of a naturalization program (EU enlargement) for Romanians and Bulgarians on the probability to report crime committed by immigrants from Romania and Bulgaria.

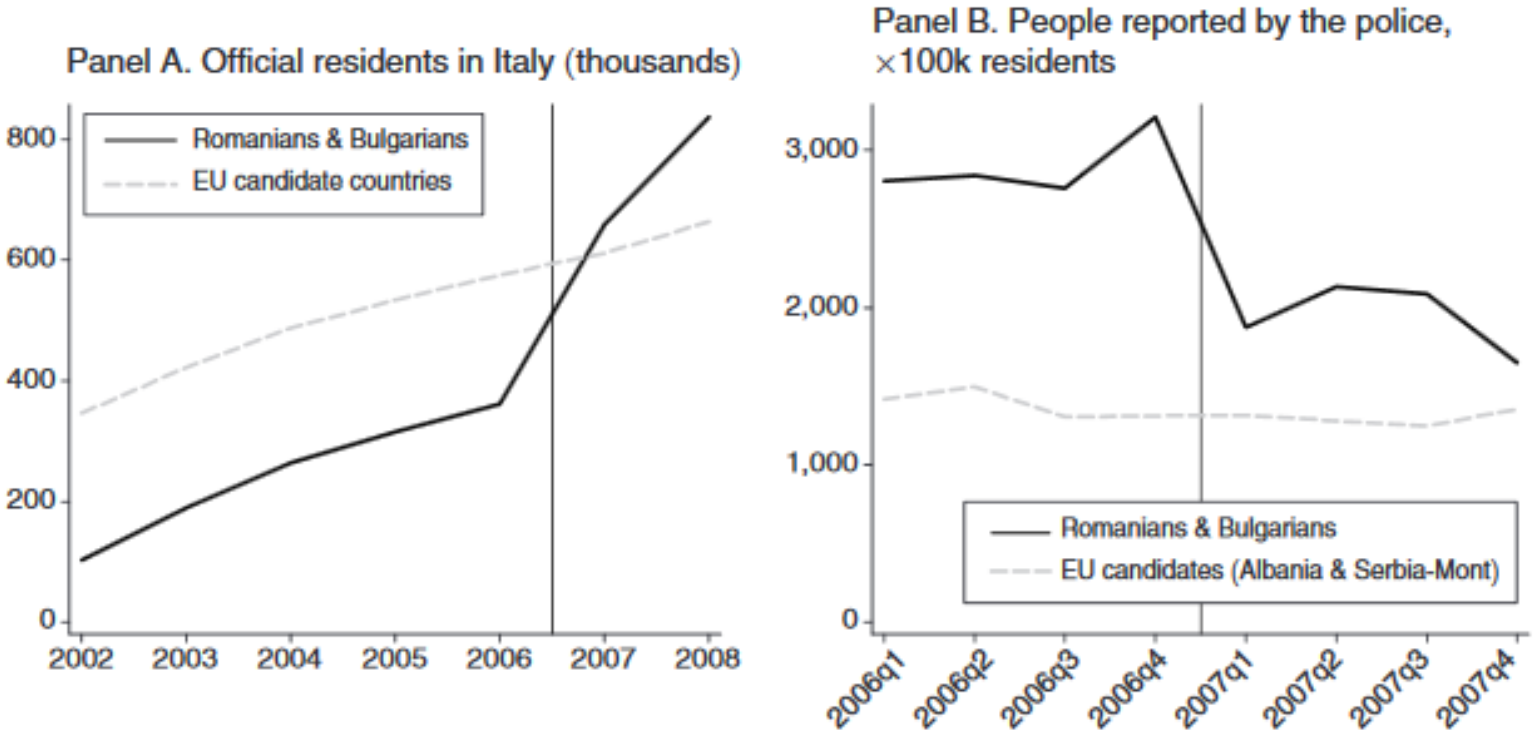


FIGURE 6. IMMIGRANTS FROM NEW EU MEMBER AND CANDIDATE MEMBER COUNTRIES RESIDING IN ITALY, AND NUMBER OF ARRESTS

Notes: The left graph plots the number of citizens of new EU member and candidate member countries officially residing in Italy during the period 2002–2008. The right graph shows, instead, the ratio of those by the police over the number of official residents arrested in each quarter during the period 2006–2007. In both graphs, the vertical line refers to the date of the last EU enlargement.

Source: ISTAT and Ministry of Interior

Figure

TABLE 3—PROBABILITY OF REINCARCERATION FOR PARDONED INMATES FROM NEW EU MEMBER AND CANDIDATE MEMBER COUNTRIES, BEFORE AND AFTER THE EU ENLARGEMENT

	Economic crimes			Noneconomic crimes		
	New EU	Control	Diff.	New EU	Control	Diff.
Post	0.023	0.054	−0.031**	0.047	0.034	0.013
	(0.005)	(0.008)	(0.010)	(0.020)	(0.014)	(0.025)
	[0.006]	[0.008]	[0.010]	[0.021]	[0.014]	[0.025]
Pre	0.058	0.057	0.001	0.033	0.043	−0.009
	(0.013)	(0.007)	(0.015)	(0.028)	(0.021)	(0.035)
	[0.014]	[0.008]	[0.015]	[0.019]	[0.022]	[0.029]
Diff.	−0.035**	−0.003	−0.032*	0.014	−0.009	0.023
	(0.014)	(0.011)	(0.017)	(0.034)	(0.025)	([0.043])
	[0.014]	[0.011]	[0.018]	[0.028]	[0.027]	[0.039]

Migration and Voting Behaviour

Attitudes towards immigrants

- The correlation between anti-immigration parties and the share of immigrants is one of the main topic in the media coverage.
- However, it is not easy to detect the causal effect of an increase in the immigrants' share and the voting behaviour since the presence of immigrant might be due to specific characteristics of the host place.
- Dustmann et al. (2019) use the variation generated by a random allocation of refugees across Danish municipalities to study the causal effect on the voting behaviour.

TABLE 4

Allocation of refugees and voting behaviour, (a) parliament elections and (b) municipal elections

(a)

Dependent variable	(1)	(2)	(3)	(4)
	ΔShare of votes for			
	Centre-left	Other (centre small)	Centre-right	Anti-immigration
Panel A: Unweighted				
ΔShare of allocated refugees in % of local population	−1.311***	−1.296**	1.053***	1.554***
	(0.477)	(0.502)	(0.393)	(0.300)
Panel B: Weighted				
ΔShare of allocated refugees in % of local population	−0.702	−0.481	0.451	0.732
	(0.985)	(1.375)	(0.738)	(0.487)
Panel C: Weighted, indicator for five pct. largest				
ΔShare of allocated refugees in % of local population	−1.365**	−0.799	0.821**	1.343***
	(0.538)	(0.489)	(0.386)	(0.392)
ΔShare of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	5.124*	0.264	−0.258	−5.130***
	(2.794)	(3.428)	(1.880)	(1.556)
ΔShare of allocated refugees in % of local population for the 5% largest municipalities (sum of the two estimates from Panel C)	3.759	−0.535	0.563	−3.787**
	(2.742)	(3.393)	(1.840)	(1.506)
Time FE	Yes			
N	550			
Number of municipalities	275			

Bad Attitudes in Rural Areas

- The paper shows that a random allocation policy of refugees within a municipality across years increases the vot shares for anti-immigration parties.
- The effect is larger for the smaller municipalities where inhabitants are less likely to have a contact with immigrants.
- The paper concludes showing that attitudes play a key role in shaping votes for anti-immigration parties since rural areas are more likely to vote for anti-immigration parties without any observable reason.

Thanks for your attention!

Contact me at salvatore.carrozzo@unito.it if you have doubts about my classes.