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ABSTRACT: Emigrants from Italy and Ireland contributed disproportionately to the Age of Mass Migration. That their departure improved the living standards of those they left behind is hardly in doubt. Nevertheless, a voluminous literature on the selectivity of migrant flows—both from sending and receiving country perspectives—has given rise to claims that migration generates both 'brain drains' and 'brain gains'. On the one hand, positive or negative selection among emigrants may affect the level of human capital in sending countries. On the other hand, the prospect of emigration and return migration may both spur investment in schooling in source countries. This essay describes the history of emigration from Italy and Ireland during the Age of Mass Migration from these perspectives.

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Keywords: Migration, Brain Drain, Brain Gain, Human Capital, Italy, Ireland

Brain Drain and Brain Gain

Matteo Gomellini and Cormac Ó Gráda

1. Introduction

Mass migration from Europe to the New World took off in the 1840s. In the early decades it was mainly confined to migrants from northwestern Europe, notably from Ireland, whence over five million men, women, and children crossed the Atlantic between the Great Famine and the Great War. Mass migration from Italy began later, with its emigration rate soaring from 5 per thousand (of population) in 1876 to nearly 25 per thousand in 1913. In the century between 1876 (when data first became available)[1] and 1975, 26 million Italians emigrated. More than half headed for destinations elsewhere in Europe; about 6.4 million reached the United States and Canada; and 4.5 million chose Argentina and Brazil. The outflow was disproportionately a pre-WWI phenomenon; between 1900 and 1913 alone, nine million left.

In terms of their human capital, migrants are never a random sample of the populations of either sending or receiving countries. The literature on losses due to '*brain drains*' from emigration is vast; in recent years there is also a burgeoning literature on '*brain gains*'. One plausible source of the latter is the uncertainty surrounding who will migrate. When the anticipated gains from migration are considerable, this uncertainty prompts would-be migrants who in the end, for one reason or another, remain at home, to add to their human capital in case the opportunity to leave might arise. This could mean acquiring literacy, numeracy, or a foreign language. The ensuing indirect gains to the home economy result in what is referred to in the literature as a '*brain gain*'. An analogous outcome is possible in the

[1] The number of studies on Italian emigration, in particular by Italian scholars, is endless. Just to refer to the more complete and exhaustive works: Rosoli (1978), Sori (1979), Bevilacqua, de Clementi and Franzina (2002), Corti and Sanfilippo (2009). Rosoli and Ostuni (1978) present an extremely rich bibliographic essay that reports the sources of data on Italian emigration. International migration within Europe was also limited before the 1880s.

receiving country, if relatively unskilled native workers respond to the threat of foreign competition by increasing their skill levels. Return migration, by fueling a rise in school attendance via monetary and non-monetary channels, and remittances, by helping to relax the budget constraint that prevented people from investing in education, are other potential sources of such brain grains (Williamson 2006; Hunt 2012; Giffoni and Gomellini 2015).[2] There is no consensus in the literature as to the size of such gains in human capital. Although Schiff (2005) reckons that the brain gain effect is small, several recent studies claim the opposite (see e.g. Batista *et al*. 2011; Shreshta (2017). This chapter links the brain drain/brain gain hypotheses and emigration from Italy and Ireland.

2. Italy and Ireland: Trends in Migration

At the end of the nineteenth century Italian migrants headed mainly for Europe and Latin America. Thereafter, due both to the dynamism of the U.S. economy, and to the ongoing transport revolution that made overseas trips safer and cheaper, there was a big surge of emigration to the U.S. that lasted until WW1. After a temporary halt, emigration resumed, showing a progressive shift from overseas to continental destinations, mainly due to the restrictive laws on immigration passed in the U.S. (see Timmer and Williamson 1998). In 1927 the Fascist regime, in turn, enacted legislation restricting emigration from Italy. Due to a combination of these restrictions and the Great Depression, only 2.5 per cent of the population emigrated in the following decade and the ratio of return migration to gross emigration fluctuated between 60 and 80 per cent. The post-WWII emigration was mainly European: the overseas share of emigration dropped to an average of one-tenth of the total. Nonetheless, 8.5 million people emigrated in this period, 7.3 million of them before 1975.

[2] The first mechanism emphasizes the fact that potential migrants base their decision to leave on the comparison between future expected incomes abroad and at home (among other push and pull factors). See Hatton for a survey on the cliometrics of international migration and Gomellini and Ó Gráda (2013) for a model of the determinants of emigration.

Though a majority of migrants remained abroad for good, a significant but varying proportion always returned. Their reasons for returning varied: some reacted to a change in the political situation at home, while others returned because they reached or failed to reach their goals abroad. The returnees had a significant impact on the societies they returned to (Cinel 1991: 2).

Unfortunately, data on return migration to Italy are only available from 1905 on.[3] In 1905–1914, return migration, as a ratio between returnees and emigrants, averaged almost 30 percent and remained at this level up to 1921 (except in 1915 when, due to the outbreak of World War I and military conscription, returnees exceeded outflows). In the interwar period when emigration was severely limited, returnees accounted for two-thirds of total emigration, while in the postwar period up to 1963 the annual return rate was half. At that point the average ratio of returnees to emigrants ratio increased to 0.8, rising further to values higher than one after 1973.

A sense of the relative importance of return migration can be obtained by comparing gross migration flows and the numbers of Italian-born residents as recorded in the census in U.S. and Argentina. A gross migration of over 0.6 million Italians during the 1890s led to an increase in the number of Italian-born of only 0.3 million in the U.S. between 1890 and 1900, while a gross outflow of 1.2 million in the 1910s increased the number of Italian-born by less than 0.3 million between 1910 and 1920. In Argentina, by comparison, gross outflows of 0.6 million in 1876-1895 and 1.2 million in 1896-1914 yielded increases in the numbers of Italian-born of 0.4 million in 1869-95 and over 0.4 million in 1896-1914.[4] Note too that despite considerable publicity about poor conditions enjoyed by Italian immigrants in Brazil, culminating in 1902 in the Prinetti Decree (which prohibited landowners from subsidizing

[3] Available official data on return migration (lacking until 1905) imply that the ratio of return to gross emigration cannot have exceeded half in the pre-1914 period. Compare Bandiera, Rasul and Viarengo (2011).

[4] The correlation across regions between the proportion of all emigrants returning in 1905-1920 and the proportion choosing the U.S. in 1876-1910 is 0.67.

immigration), the number of Italian-born residents in Brazil in 1920 was an impressive 558,405 relative to an aggregate inflow of 1,243,633 between 1876 and 1920.

From the outset, Italian migrants spread themselves widely over a range of destinations. This was not by accident; the Australian immigrant who declared that it had never occurred to her 'that Australia was not in America' (Choate 2008: 23) was atypical. Before 1914, swings between destinations reflected shifting relative prospects in the different receiving countries, although the sharpness of such swings was attenuated by the size of pre-existing migrant stocks. Migration to Brazil totaled about one million between the early 1880s and the early 1900s, but declined rapidly thereafter, while 0.7 million migrated to Argentina in the 1900s. The increasing preference for Argentina (where in 1914 one inhabitant in nine was Italian-born and where over half the population today can claim some Italian ancestry) over Brazil is accounted for by the relative decline of the latter's economy. After 1914, war and immigration policy mattered: with access to the U.S. severely limited, Europe would become the most important destination of Italian migrants.

Over the past two centuries emigration defined the demographic contours of Ireland. Massive in relative terms, it was associated with dramatic social and economic changes. It has been linked to rising living standards, rising expectations, agricultural transformation, and political mobilization. While usually seen as a symptom of economic backwardness, it is sometimes also blamed for delaying economic development.[5]

Although high by international standards at the time, emigration before the Great Famine [1846-50] was constrained by location and class, and it was modest in size relative to the post-famine outflow. Out-migration was heaviest from the east and the north, and particularly low from poorer counties in the west. In the pre-famine era county wage levels were poor predictors of county emigration rates (Ó Gráda and

[5] The literature is voluminous. See e.g. Fitzpatrick 1984; Ó Gráda 1994: 74-80, 224-33; Ó Gráda and Walsh 1994; Delany 2002; Sexton et al. 1991.

O'Rourke 1997). The Great Famine caused about one million people to leave Ireland for good. Had emigration not acted as a safety valve, excess mortality would have been even higher than it was. It was widely remarked on at the time that those who fled to America were poorer than those who had preceded them. Yet because emigration was largely self-financed it failed to relieve many of those who needed help most: indeed, emigrants to the U.S. at the height of the crisis tended to be more skilled than those who would follow in their wake (Ó Gráda 2019).

The Famine spurred an exodus that has ebbed and flowed since, with peaks in the 1880s, the 1950s, and the 1970s. In all nearly ten million left between the early nineteenth and late twentieth centuries. The motivation for leaving was always overwhelmingly economic. While emigration before the Famine was heavily young and male, post-famine emigration was as likely to be young and female.

Irish emigrants were 'waked' on departure, a sure sign that their leaving was likely to be permanent. Statistical evidence on returnees is thin. Although falling fares increasingly facilitated visits home, it seems that not more than one-in-ten of those who had crossed the 'briny ocean' returned permanently (Gould 1980).

3. Brain Drains, Brain Gains

Emigration's impact as an equilibrating force, fostering convergence between regions and countries and reducing the gaps between factor prices, is clear. In that sense it was responsible for striking increases in the wages of the stay-at-homes in both Italy and Ireland during the age of mass migration and, indeed, more recently[6].

Yet in commentary on the impact of migration on sending countries, in the past the stress was often put on losses through *brain drains*. More recently, a theoretical and empirical literature identifies the possibility of a *brain gain* induced by

[6] Gomellini and Ó Gráda (2013) calculate Italy's emigration-induced gains in the early twentieth century, via the reduction of labor over-supply and the resulting increase in real wages. These gains persist also under the hypothesis of positive self-selection of emigrants. On Ireland see Ó Gráda and Walsh (1994).

emigration. This literature dates at least as far back as Mountford (1997), who emphasized the 'emigration prospects' transmission mechanism: the prospect of emigrating increases the expected return to schooling, spurring investments in human capital. Because many of those investing did not migrate in the end, a brain gain in the sending country accrued.[7] A brain gain will emerge as long as the probability of migration is large enough to activate the channel and sufficiently low to avoid everybody leaving (Stark et al., 1997, 1998; Beine et al., 2011; Docquier and Rapoport 2003, 2010; Egger and Felbermayr 2009)[8].

Some of the economic literature treats migration as a permanent phenomenon, particularly if that of highly-skilled individuals (Becker et al. 2004; Monteleone and Torrisi 2010; Biondo et al. 2012). But when migration is a transitory event, return migration can have a positive influence on sending regions (Borjas and Bratsberg, 1996; Dustmann and Weiss 2007; Mayr and Peri 2008; Dustmann et al. 2011). Lalonde and Topel (1997) found that about one third of immigrants to the U.S. between 1890 and 1957 returned home.

Dustmann and Weiss (2007) and Mayr and Peri (2008) suggest that experience abroad increases the amount of individual human capital and therefore the level of productivity of the agents; and that as a result, return migration can lead to a mitigation of the brain drain, or even to a brain gain when returnees bring back enhanced skills.

[7] Theoretically and from the point of view of the source country, if return to education is greater in the latter than in the host country, then negative selection might be the result; vice versa, the greater the return-to-skill gap between sending and receiving economies, the more likely is the hypothesis that the more skilled will leave. Economic theory suggests, moreover, that the higher the fixed costs of migration the more plausible the hypothesis of a selective migration because skilled individuals will be able to amortize costs more quickly. In the age of mass migration the cost of voyage from Italy to U.S., including the cost of reaching the port of embarkation, was affordable, though not negligible. See Commissariato Generale dell' Emigrazione (1927); Gomellini and Ó Gráda (2013) for a more detailed analysis.

[8] In Italy, the first laws on migration issued by the government of the Kingdom aimed at severely limiting departures (The Menabrea Law, 1868; The Lanza Law, 1873). These limitations were supported by the concerns of industrialists in the north and of landowners in the south: significant emigration would increase real wages. Other restrictions were introduced later to avoid emigration as a means of escaping the conscription introduced immediately after Unification (The Crispi Law, 1988). It was only with the 1901 law, backed by Luttazzi and Pantano (two Italian politicians), that emigration became finally a free choice of the individual. See Einaudi (2007) for more details.

Apart from the educational choices of those who stayed, migrants could be alternatively the most or the least educated, thereby affecting the overall level of human capital in sending countries (migrant selection).

Public opinion in the U.S. a century ago held that the post-1880 'new immigrants' from Italy and elsewhere in southern and eastern Europe were less skilled and less educated than their northwestern European predecessors. That conviction was partly responsible for the literacy test stipulated in the 1917 Immigration Act, harbinger of a series of restrictive measures seeking to screen newcomers. In sending economies, on the other hand, the worry was that the departures of their best and brightest could create a 'brain drain' (for a survey of the literature see Commander et al. 2004).

The nature and direction of selection-bias in migrant populations remains highly controversial (e.g. Faini 2002; Belot and Hatton 2012; Abramitzky, Boustan and Eriksson 2012. A common trait is that each generation in the host country believes that the latest wave of immigrants is of poorer 'quality'—slower to assimilate, more criminal, less industrious—than the preceding one. In one respect, the presence of selection bias is clear: emigrants tended and tend to be disproportionately young and healthy. Moreover, particularly before the welfare state, sickly emigrants may have been more likely to return home to be with relatives — the so-called 'salmon bias'. In the past, too, the gender bias towards males entailed a reduction in labour force productivity in the sending country. But those who left could be better schooled, more self-confident, or less risk-averse than their peers. These aspects of human capital are less easily identified. Quantitative sources such as census data, shipping records, and official inquiries, and also qualitative sources help identify some relevant migrant characteristic. Furthermore, two of the richest sources are the massive report of the Dillingham Immigration Commission (a by-product of nativist concerns about the social and economic impact of immigration into the United States) and the *Annuario statistico della emigrazione dal 1876 al 1925* (a by-product of Italian concern for emigrant welfare).

4. Italy: Migrant Selection and Brain Gain

Figures 1a-1d describe the age and gender distributions of early twentieth-century Italian emigrants on the steamship SS. Roma, which made the crossing from Naples to New York several times a year between the early 1900s and the 1920s (data are collected from passenger lists). Here we focus on the thirty thousand or so Italian migrants who made the crossing between 1902 and 1905. Several features of the migration are clear. First, males were much more likely to leave than females: in the period in question over seven in ten emigrants were male. Second, over half the males were aged between 15 and 29 years, although the significant proportion of older males on board—over three in ten were aged 30 or above—is also striking. Third, the age distribution of female migrants did not vary much over the year, but that of males did. The preponderance of male travelers and the small proportion of young males early in the year are striking; clearly, family units were more likely to travel in the second half.

Fig. 1a. Age-Distribution of 'Roma' Passengers, 1902-05

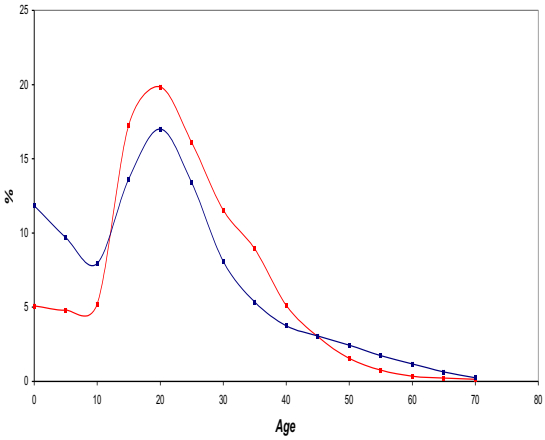


Fig. 1b. Age at Arrival of Italian-born US residents, 1900

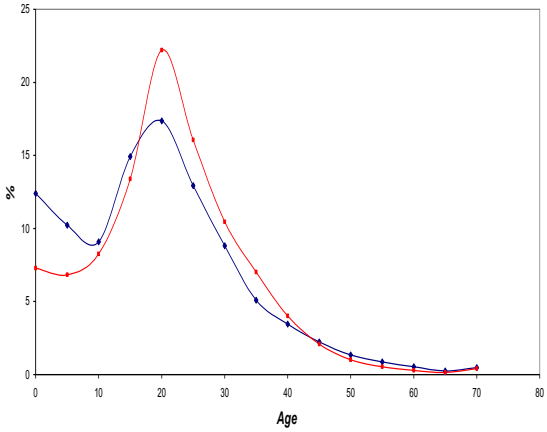


Fig. 1c. Male Age-distribution: 'Roma', 1903-05

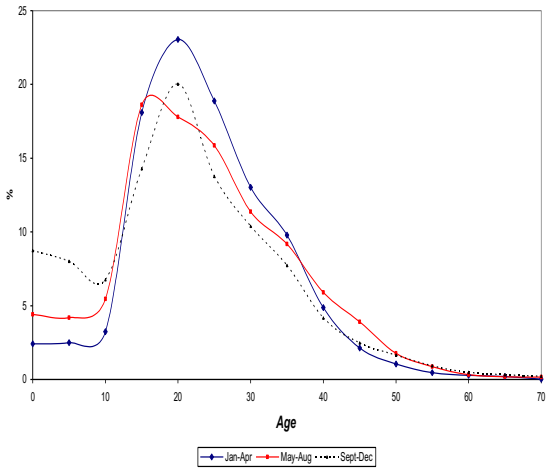


Fig. 1d. Female Age-distribution: 'Roma, 1902-05

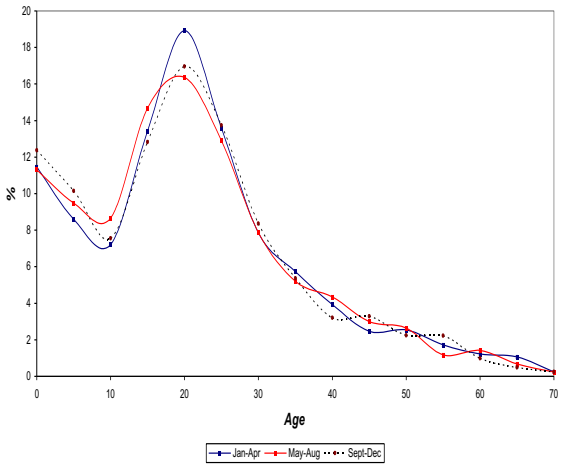


Figure 1. Age-distributions of 'Roma' passengers 1902-1905

Passenger lists point to migrant selection by age and gender but are silent on other aspects of selection. Did the best and brightest leave? Using data on heights, Spitzer and Zimran (2018) suggest that the Italian migrants were negatively selected at the national level, but positively selected at the local level.

While opponents of migration everywhere lament the loss of accompanying human capital, opponents of immigration highlight the low human capital endowments of new arrivals. A priori, if the return to education and skills was greater in the sending than in the receiving country, then negative selection might be the result. On the other hand, it might be argued that the considerable fixed costs associated with the migration decision would lead to a bias toward migration by the more skilled. The higher those costs, the higher the probabilities that migrants were young and male, and that the migration was long term.

As far as brain gain is concerned, a precious qualitative source is Coletti (1911)[9], who argued that the migratory experience brought home how schooling led to higher salaries and a better quality of life. Analyzing the overall impact of migration on

[9] Francesco Coletti (1866-1940) was an Italian statistician and economist. The quotations that follow are in his 1911 publication, from page 147 onward.

Italy's development in the liberal age, he claimed that 'migration is the best friend of literacy . . . It is the experience of migration that testifies to the utility of primary education as a powerful tool of upward social mobility and it is undoubtedly the most persuasive deterrent to dropping out of primary school … Migration is the main cause of the rise in school attendance.'

This theme was also stressed by Jarach (1877: 57)[10] and Cipolla (1969), who claimed that, despite the countless constraints on schooling, literacy was crucial because of the emigrants' desire to relay news on health and material progress to families back home. In Sicily, enrollments in primary schools increased remarkably in the first decade of 20th century. The enrollment rate rose from 54.5 per thousand inhabitants in 1902 to 73.5 in 1907. According to Coletti[11]: 'Since nothing else can explain the event, the reason must be sought in people's consciousness. Despite the hostility of the environment in which people live and their financial straits, individuals finally convince themselves that literacy may be an effective weapon against poverty. This firm conviction emerges thanks to emigration'. Lucania (or Basilicata) was at the time the region with the highest emigration rate. There, Coletti noted, 'In most municipalities there is a new common sense among peasants. They have a keen desire to send their children to school. To this end and very frequently, emigrants exhorted their own relatives at home to go to school.' And in Calabria, where outflows were soaring, 'Mothers clean up their children, take them to school and ask the teacher for their children to learn as much as possible. This is because fathers write from the U.S. that their children must be educated. Only through the migratory experience do fathers realize the cost of illiteracy' (Coletti 1911). As regards northern Italy, Cipolla (1969), analyzing the high literacy rate of the population living in the Alpine areas bordering Austria, Switzerland and France, argues that literacy was triggered off by emigration which forces potential migrants to become literate in

[10] Cesare Jarach, a statistician, was commissioned by the Ministry of Agriculture, Industry and Business, to carry on an inquiry into the economic conditions of the Abruzzi, one of the Italian regions.
[11] In this statement Coletti does not take into account possible supply-side factors. Nonetheless, Giffoni and Gomellini (2015), p.12, argue that supply side factors as school reforms, had little or no effects in fostering attendance rates. The authors also control for other supply side factors in their estimates.

order to keep in touch with relatives.

With respect to the second possible mechanism we mentioned, return migrants could be more capable of perceiving education as a tool to achieve success and prosperity. As a result, they may foster school attendance of their pupils. The returnee channel is well documented too and is well described by Coletti:

> He who returns from America is a human being transformed and able to transform … He embodies the old village-like soul which was renewed by the American economy and society, so that he can bring a new energy to the country to which he returns… Emigration is a great school; it embodies … thousands of thousands of scholarships. It rids the mind of old rust, it inculcates ideas that otherwise would not be able to penetrate.

Life abroad left its mark on return migrants. Ease and fluency in their manner of speaking style of dress, greater awareness of their own dignity and their rights, no awe of the old employers, the desire to deal with municipal affairs, and a heightened political awareness: these are just a few traits that describe returnees (Coletti 1911).[12]

The prospects of emigration incentivized both adults (parents) and children to attend school. Not that children were able to make decisions on their own: parents, or somebody else, made decisions on their behalf. In what follows, we try to separate the impact of migration on children's and on adults' education by distinguishing between the effect of migration on attendance at public schools and enrollment in evening classes (public primary schools were purely for children while evening schools were attended mainly by adults). More important: following the literature on brain gain, we argue that agent's conjecture to emigrate in the future relies on what he or she observes (and has observed), i.e. present (and past) outflows. A second likely channel

[12] Clearly the effect of returnees on the sending country depends also on the investments they implement in the native country and on the amount of savings accumulated abroad. For example, Cerase (1967), in his research on returns from USA, shows a discouraging scenario in the South. He finds out that 19 per cent returned because their migratory project failed, 40 per cent because their savings plans were reached, 26 per cent for retirement and only 16 per cent to invest in the area of origin. See Del Boca and Venturini (2003) and Bevilacqua et al. (2001).

for brain gain is through returnees. It assumes that they were richer than when they left, and so can afford the cost of sending (more) children to school. Returnees were also more 'aware' (Coletti 1911) of the benefits of schooling.

Central to our analysis is the yearbook *Annuario Statistico della Città Italiane*, 1906-1914, published biennially by the *Unione Statistica delle Città Italiane*, and inspired by the *Yearbook of German Cities*. The *Annuario* collects records on the social, political and economic life of the largest municipalities (those with over 10,000 inhabitants. The cities are well distributed across the peninsula: out of roughly 110 cities detected, 47 belong to the South and 63 to the North[13]).

Table 1 reports descriptive statistics of the variables we consider in our analysis with respect to education, migrations, income, public expenditure, transport costs. The section on education includes information on the number of schools (public, private and evening classes), teachers and pupils, as well as on attendance rates and learning outcomes. *Attendance rate* refers to the percentage of enrolled pupils not dropping out of primary school. Averaging about 81 percent, it was subject to considerable regional variation. Data on public spending on education are available too and, most importantly for our study, there are data that allow us to measure foreign migration out of and into each municipality until 1914[14]. *Migration and Returns* represent the outflows and foreign inflows respectively, obtained by dividing the flows by the population of the municipality and then multiplying by 1000. Table 1 shows that Southerners were much more likely to leave and less likely to return than Northerners.

Attendance rates depended on disposable income: since yearly estimates of disposable income do not exist at city level we use, as a proxy of income, a measure

[13] As argued by Niccolini (1906), the choice to sample more important municipalities was taken to guarantee the comparability among the Italian cities (and thus minimizes measurement errors).
[14] A necessary step when dealing with the education system would be to examine how it is structured. In Giffoni and Gomellini (2015), the authors analyze the structure and the evolution of Italy's education system between 1861 and 1913. Bertola and Sestito (2011, 2013) have recently studied the topic in detail. Although various laws reformed the system in this period, all in all, the final judgment on the reforms implemented in the first five decades after Italy unification is pretty clear: due to a range of factors, they had little or no impact on primary school attendance rates.

of *tax proceeds*, in particular the sum of the tax revenues accruing from a large variety of council taxes (compare Mortara 1913; Becker and Woessman 2009; Ciccarelli and De Fraja 2012).[15] This wide range of taxes allows to avoid a possible skewness in the distribution of taxpayers going from the wealthiest households to the poorest ones so that we have a relative broad and representative basis. At the national level, the correlation coefficient between per capita GDP, as estimated in Baffigi (2013), and our measure of per capita tax proceeds is 0.98, statistically significant at the 5 percent level. *Expenditure* proxies the educational supply-side: it is per capita public spending in primary education at the municipality level. Finally, *Remittances* is a rough proxy. It is the ratio between consumption tax proceeds and income tax proceeds, with the idea that an important part of not officially traced remittances is used for consumption although does not appear in official income.

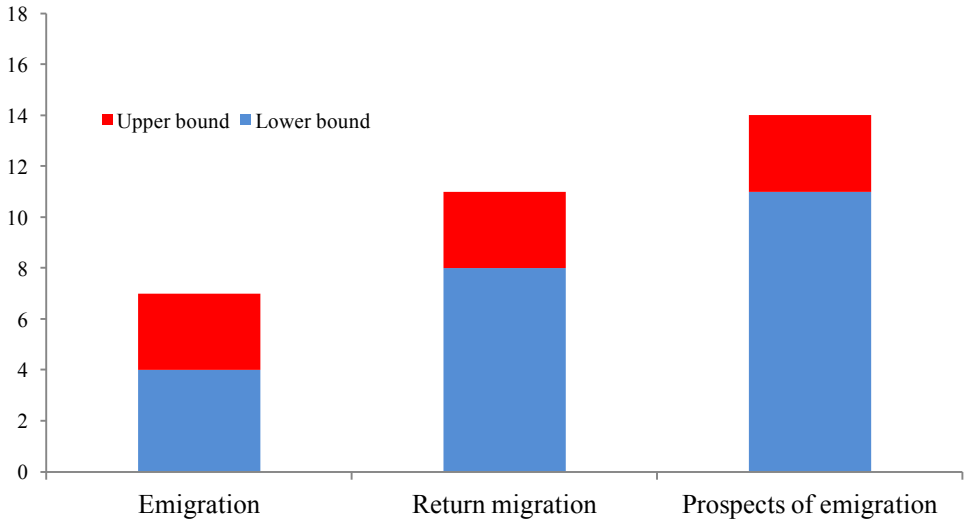
Thus, we used the data described above to estimate the relationship between different aspects of emigration and schooling. Using different econometric techniques, we measured the contribution of emigration to schooling along the three channels we have seen before. The results of the analysis are summarized in table/figure ?.

Leaving out technical aspects[16], a useful way to interpret the effect of migration on schooling is to translate the estimates we have got so far into numbers that express their magnitudes (Fig. 2) Turning the estimated elasticities into numbers of

[15] For further detail see the *Annuario Statistico delle Città Italiane*, from 1906 to 1914 and Villani (2011).
[16] In more technical terms, we found evidence of a positive relationship between the emigration rate and the attendance rate for public primary schools: a 10 log point increase in the outflows (inflows) is associated with a 0.19 (0.37) log point increase in the attendance rate (the estimated association remains robust also adding a complete set of interaction terms between geographical dummy variables at macro-area level and time dummy variables). As far as evening school enrollment rate is concerned, the elasticity of the enrollment rate with respect to emigration (returnees) is 0.161 (0.300): weak evidence, perhaps, for the view that migration would have spurred adult education. Finally, many scholars emphasized the influence of remittances in alleviating the budget constraint that prevents people from investing in education. We tested this hypothesis and we found that a 10 percent increase in remittances is associated with a 0.48 and a 0.38 percent increase in the attendance rate. In an exercise described in detail elsewhere (Giffoni and Gomellini, 2015), we address potential concerns about reverse causality, omitted variables and measurement error biases by running Instrumental Variable (IV) regressions where IV is the combination of average costs of a third class rail travel from city i to the nearest embarkation port, and the averaged steerage cost from port k to the destination.

pupils, we find that each additional 100 migrants arguably kept at school a number ranging from 4 to 7 students in the short term and from 3 to 5 in the long run. By the same token, each 100 additional returnees increased the number of pupils who did not drop out of school by from 8 to 11 at impact, and by from 5 to 9 in the 'steady state'. For evening schools (prospect of emigration channel), the elasticity of the enrollment rate to migration implies that an additional 100 migrants increased enrollment in evening schools by from 11 to 14 individuals both as impact and in steady state. This is a reassuring upshot since empirical studies which analyze the present are in line with these figures (e.g. Docquier and Rapoport 2009).

Fig. 2 Additional non-dropouts pupils due to emigration, return migration or prospects of emigration
(number of students every 100 migrants or returnees)



5. Brain Drain and Brain Gain in Ireland

If upward intergenerational mobility is a measure of immigrant achievement, then evidence that while the average occupational status of Irish male immigrants during the Great Famine to the U.S. lagged behind that of natives, their male children had converged strongly towards the norm by 1880, is a measure of successful adaptation, albeit with a lag (Collins and Zimran 2018). The fates of two exceptional emigrant sub-

groups, whose passage was state-assisted in whole or in part, are worth brief mention in this context. The first, consisting of four thousand or so fleeing the Lansdowne estate in the southwest of Ireland in the wake of the Famine, had their passages paid by a combination of public and private assistance. Many settled in the poorest of New York's slums in the early 1850s, and they can be traced in the archives of a savings banks in New York, whose detailed records survive for the 1850s. Matching bank and census data suggests that the immigrants, although mainly unskilled and illiterate, had achieved a modest improvement in occupational status by 1860.[17] The history of the second group, consisting of a similar number of workhouse inmates, all female teenagers and nearly all orphans, is very different but it is also one of successful coping. Transported at public expense to Australia, they girls adapted well to the extent that the marital fertility and life expectancy of those who have been traced so far are consistent with relatively living long and healthy lives (Ó Gráda 2019).

Most of the sons and daughters of Irish labourers and smallholders who left in such vast numbers after the Famine were happy to leave, as they would have faced bleak futures at home. Yet as emigration persisted, commentary focused increasingly on the worry that it was healthiest and the brightest who left, resulting 'a perpetual survival of the unfittest, a steady debasement of the currency' (Oldham 1914: 213-4). Sometimes the discourse turned more unpleasant, as when the impact of the outflow was likened to 'what would occur if the best specimens of a herd of cattle were continually exported and herd replenished by breeding from the inferior stock that remained' (Lynn 1968). As noted earlier, common sense suggests some bias towards the more talented among the emigrants, but the literature on the issue remains stubbornly inconclusive (Ó Gráda 1994: 77-78; 229-30). An officially appointed inquiry in the 1950s (Commission on Emigration 1956: 127; compare Sexton *et al*. 1991), referring to mid-twentieth century outflows, downplayed the losses, noting that 'the majority of emigrants came from agricultural occupations or else were unemployed

[17] Note, however, that the authorities in Massachusetts deported a small number of the most destitute among them (Hirota 2017).

and unskilled'. Indeed, it might be argued that by targeting such migrants, for the most part literate but with little schooling, consistently since the Famine, emigration 'improved' Ireland's occupational distribution. Connor's (2019) finding, based on individual-level census data, that emigrants in the early twentieth century were mainly drawn from households headed by farmers and less literate males living in poorer parts of the country also squares poorly with claims that Ireland was losing the 'best'. Selection, in other words, was not as positive, as feared by contemporary observers.

What of brain gains? The history of Irish schooling suggests one likely channel. Long before the creation of a national publicly funded elementary school system in Ireland in the 1830s, private schooling, usually secular although sometimes supervised or subsidized by the clergy, was widely available. In the late 1770s touring agronomist Arthur Young found that 'hedge schools [were] everywhere to be met with', and Dickson (2000: 217) has described the 'pool of anglophone literates' to be found throughout the countryside in the 1790s as the product of a rise in informal schooling in the wake of an upswing in rural incomes in mid-century. These schools—mostly small—seemingly catered to a widespread demand for basic literacy and numeracy in the English language. An official inquiry in the mid-1820s found that a hefty 44 per cent of 6-13 year-old males and 26 per cent of females were attending school (Ó Gráda 2013). Such relatively high rates find corroboration in the 1841 population census, which includes the earliest comprehensive survey of literacy in Ireland. The picture was one of improvement across the island, as the 1841 census commissioners were eager to emphasize. In the 1830s and thereafter attendance was undoubtedly boosted by the establishment of a state-supported primary schooling system in 1834.

Given the limited employment prospects awaiting most young Irishmen and Irishwomen in the pre-famine era, the extent of the demand for schooling is rather remarkable. If we assume, following Mitch's analysis of occupation and literacy in Victorian England (1992: 14-15, 213-14), that literacy was unlikely to have been of use to

men and women working as spinners, farm labourers, domestic servants, carmen, or labourers and porters, then in Ireland on the eve of the famine well over half of all males and three quarters of all females aged 15 years and above worked in jobs not requiring literacy. In Leinster the percentages were 54.3 per cent for males and 77.1 per cent for females; in Connacht they were 63.5 and 87.3 per cent. These are broad categories; they exclude many less important occupations also unlikely to have required literacy.

It is tempting to consider Ireland's 'surplus' literacy rates in this era as part of a 'brain gain'. True, there is evidence that those who emigrated were more likely to be literate than those who remained. For example, early Irish emigrants to Australia were much more likely to be literate than Irish people of the same age who remained at home (Richards 1999: 352-54). In a study of Australia-bound convicts, Oxley (1988: 93) found that whereas 52 per cent of Irish-born females transported directly from Ireland were illiterate, only 34 per cent of Irish-born females transported from England and 22 per cent of those transported for crimes committed in Scotland were illiterate. But even before the Famine, the rise in emigration was also linked to an increased demand for schooling even in the poorest corners of Ireland. School attendance seems to have been strongest in the 1820s in counties where migration rates were highest in the immediate pre-famine period. Again, the big increase in school attendance after the Famine was due in part to rising living standards, but its timing and spatial spread suggests that it may also have been a response to emigration (Fitzpatrick 1986). The rise in emigration from the west coincided with big increases in literacy.

Evidence of the impact of migratory flows on the incentive to acquire education can be also found in the shift from the Irish language to English. In multilingual societies, the returns to proficiency in the elite language are considerable. Chiswick and Miller (1999) found that the earnings of legalized immigrants in the US in the 1980s, who could both speak and read English, were 'higher by about 8% for men and 17% for women … compared to those lacking both

skills'. Several other studies corroborate such gains (e.g. Bleakley and Chin 2010; Jain 2017).

In the late eighteenth century about half of Ireland's population was Irish-speaking. Irish broadly held its own between the 1770s and the 1800s but thereafter, however, its retreat was rapid (FitzGerald 2003). In the period between the Act of Union and the Great Famine, between one-fifth and two-fifths of the young people of nine of the thirty-two counties switched from Irish to English, and large tracts of the country became English-speaking. By the 1840s Leinster and Ulster (excluding Donegal) were already overwhelmingly English speaking. And of all the remaining counties with significant Irish populations in the 1860s, only Donegal and Galway still had significant communities of Irish speakers in the 1920s.

This switch from Irish to English represented one of the most dramatic cases of language shift on record. The attitude of most Irish speakers to what others might regard as a cultural tragedy was non-sentimental. They cast the old tongue aside as a mark of economic backwardness and isolation. As an inhabitant of one of the last monolingual redoubts told reminded a prominent language revivalist over a century ago, '*Is beag an mhaith í nuair a ghabhann tú thar an Teach Dóite* (It's of little use to you when get beyond Maam Cross)' (Wall 1969: 87). For post-Famine emigrants to America knowledge of the English language was human capital, gaining them access to employment closed to other immigrants. This was particularly so for women in domestic service and men in the police force. Since very few Irish immigrants arrived in the United States without English, the advantages of speaking English are not easily determined from U.S. data. However, the gains from proficiency in English may be seen from data on Italian immigrants. Italians who arrived in childhood and thus learned English in U.S. schools had a big advantage in terms of employment over those with no English, even after controlling for age, gender, and literacy (Table 4).

As FitzGerald's data imply, before migration became significant in the pre-famine decades, the shift to English was modest. Within a few decades, with the increase in the demand for labour in England, America, and long-anglicized eastern

Ireland, the gains from proficiency in English grew significantly—and so did the demand for schooling. Later, even when emigration dominated, not everyone emigrated. But there was a high probability that everyone would, and so the demand for English became universal. Post-famine immigrants from Ireland to the United States had an edge over other immigrants, in that they could both speak and write English. Both private and public schooling, which was conducted almost exclusively through English, played an important part in the language shift.

The proportion of Irish emigrants who returned was always too low to generate a significant brain gain. Little can be inferred about the character of the returnees. An analysis of a small cohort of returnees c. 1858-1865 ('t Hart 1985) is consistent with some skill acquisition while abroad, but the data may be biased by the overrepresentation of men evading conscription during the U.S. civil war.

Note too that emigrant remittances may have boosted human capital at home by helping to fund the education of those who remained. In the absence of hard data during the age of mass migration, the flow of emigrant letters has been proposed as a proxy for remittances; later Ireland's national accounts, exceptionally, included an estimate of emigrant remittances as factor income from abroad. Between the Famine and mid-1880s official data on remittances from North America to the United Kingdom (and that meant mainly Ireland) averaged about £1 million annually, or about one per cent of Irish national income; in the mid-twentieth century the percentage would peak at two per cent (Schrier 1958: 104-5; Central Statistics Office data).[18]

Finally, Table 4 compares the occupational status of samples of Irish and Italian workers in the United States in 1900, controlling for age, gender, and literacy, and distinguishing between Italians who spoke English and those who could not. It uses three constructed measures of occupational status. The first [*Socio Economic*

[18] Even today these are high percentages by international standards: see World Bank, 'Personal remittances, received (%of GDP)', available at https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS.

Index or *SEI*] is 'a measure of occupational status based upon the income level and educational attainment associated with each occupation in 1950'. The second [*EDSCOR50*] is a constructed variable based on the percentage of those in the respondent's occupational category who had completed one or more years of college. The third [*ERSCOR50*] is also a constructed variable that assigns an income to each occupation. All three measures paint similar pictures.[19] Several differences stand out. The link between literacy and socioeconomic status is clear, as is the greater propensity of older Irishwomen to leave the labour force. Surprisingly, perhaps, English-speaking Italians scored higher than Irishmen and Irishwomen on all three measures.

6. Concluding Remarks

Few sending countries were more affected by the age of mass migration Italy and Ireland. Between the 1880s and WW1 outward migration from Italy totaled about 13 million, while between the 1840s and WW1 that from Ireland reached about 7 million. Given that Ireland's population at the outset was much smaller than Italy's and that fewer Irish emigrants returned for good, the impact was greatest in Ireland. That such massive outflows increased the incomes of those labourers and smallholders who did not travel is not in doubt. Econometric analysis of the impact of emigration on real wages confirms this. Still, the suspicions that selection bias tempered the gains are often voiced. Some likely aspects of selection bias such as ambition, self-reliance, and risk aversion are not easily measured. However, our survey of those that are easier to measure suggests that the suspicions, more often articulated in Ireland than Italy, are exaggerated. Moreover, it also points to the likelihood of some mitigating brain gains in both countries through the impact of emigration and return migration on the stock of human capital in the sending countries.

[19] For more on the codes see https://usa.ipums.org/usa-action/variables/group/occ.

Table 1: Italy: descriptive statistics, 1904-11[a]

	Variable	Mean	Std. Dev.	Min	Max
Sample	Attendance rate[b]	81.4	9.04	45.2	98.8
	Enrollment rate of evening schools[c]	9.37	7.39	0.00	35.3
	Literacy rate[d]	75.8	19.7	22.0	100
	Migration[e]	6.87	4.10	0.29	40.6
	Returns[f]	2.65	1.63	0.11	7.54
	Expenditure[g]	3.89	2.16	0.93	17.7
	Council taxes[h]	2.21	1.11	0.10	20.5
	Remittances[i]	13.6	8.20	0.30	41.5
	Transport Costs[l]	186.7	34.3	157	227.2
South	Attendance rate	76.3	10.5	45.2	98.0
	Enrollment rate of evening schools	7.34	5.65	0.00	22.2
	Literacy rate	53.8	13.6	22.0	90.4
	Migration	11.2	9.50	0.29	40.6
	Returns	1.23	1.07	0.11	5.66
	Expenditure	2.60	1.20	0.93	7.30
	Council taxes	2.14	0.59	0.10	4.65
	Remittances	19.4	7.98	0.83	41.5
	Transport Costs	185.0	36.3	157	216.3
North	Attendance rate	83.7	7.10	57.2	98.8
	Enrollment rate of evening schools	10.2	7.86	0.00	35.3
	Literacy rate	85.7	12.8	43.7	100
	Migration	4.82	4.26	1.01	25.0
	Returns	3.31	1.41	0.52	7.54
	Expenditure	4.48	2.26	1.18	17.8
	Council taxes	2.24	1.29	0.86	20.4
	Remittances	11.7	8.14	0.30	38.7
	Transport Costs	187.4	34.9	157	227.2

[a]Descriptive statistics on Italian municipalities are based on annual data on 84 cities for the years 1904, 1906, 1908 and 1911. Total number of observations is thus equal to 336. We split the sample into the cities belonging to the South and the North. [b]attendance rate in public primary school; [c]enrollment rate in evening classes; [d]literacy rate; [e]abroad migration rate; [f]return migration rate; [h]per-capita public expenditure on primary education; [i]per-capita council taxes; [h]per-capita remittances; [l]transportation costs: see text.

Table 2. Occupational status, language and literacy by age-group: Irish and Italian Immigrants in the US. 1900-1910			
Socio Economic Index [SEI]			
IRISH 1900	20-29	30-39	40-49
M (Lit)	19.8 *(4,898)*	22.0*(7,674)*	23.1*(5,991)*
M (Illit)	10.2 *(149)*	11.9 *(364)*	12.3 *(424)*
F (Lit)	13.8 *(4,598)*	17.0 *(2,058)*	20.7 *(1,461)*
F (Illit)	10.6 *(114)*	12.4 *(109)*	14.0 *(177)*
ITALIANS 1910			
M (Lit+ English)	21.9 *(1,471)*	25.4 *(980)*	27.1 *(532)*
M (Lit+No English)	12.0 *(917)*	14.0 *(556)*	16.4 *(290)*
M (Illit+No English)	11.0 *(587)*	12.4 *(478)*	12.3 *(258)*
Education Score [EDSCOR50]			
IRISH 1900	20-29	30-39	40-49
M (Lit)	8.9 *(4,879)*	9.0 *(7,642)*	8.4 *(5,976)*
M (Illit)	3.4 *(149)*	6.6 (362)	4.0 *(423)*
F (Lit)	6.5 *(4,576)*	7.8 *(2,054)*	10.1 *(1,454)*
F (Illit)	3.9 *(114)*	3.7 *(109)*	4.7 *(174)*
ITALIANS 1910			
M (Lit+ English)	11.1 *(1,471)*	11.2*(980)*	10.3 *(532)*
M (Lit+ No English)	4.2 *(900)*	4.8 *(553)*	5.7 *(281)*
M (Illit+ No English)	3.6 *(587)*	4.3 *(478)*	4.1 *(256)*
Earnings Score [ERSCOR50]			
IRISH 1900			
M (Lit)	50.8 *(4,998)*	53.3 *(7,674)*	52.5 *(5,991)*
M (Illit)	41.0 *(149)*	46.2 *(364)*	43.6 *(424)*
F (Lit)	13.7 *(4,598)*	17.1 *(2,056)*	20.4*(1,461)*
F (Illit)	12.4 *(114)*	15.3 *(109)*	13.9 *(177)*
ITALIANS 1910			
M (Lit+ English)	51.6 *(1,471)*	51.5 *(980)*	52.9 *(532)*
M (Lit+ NoEnglish)	43.5 *(900)*	45.8 *(553)*	48.9 *(281)*
M (Illit+ NoEnglish)	41.0 *(587)*	42.0 *(478)*	42.4 *(256)*
Source: extracted from IPUMS			

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