Return migration in Italy: what do we know?

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RETURN MIGRATION IN ITALY:
WHAT DO WE KNOW?

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Abstract – Return migration is the positive counterpart of brain drain. Human capital accumulation increases in a country if skilled agents go back home after a period spent working abroad. Effects of brain drain in Italy could be negative as highly skilled migrants decide not to come back to their native country. Our simple model shows that if preference for home consumption is balanced by career opportunities and life-style conditions, agents leave Italy and prefer to remain abroad. Data support and policy implications are provided.

1. Introduction

Return migration is the flow of migrants who come back to their home country after a period spent in a foreign country for activities usually related to job or human capital accumulation. When it occurs as the resulting phenomenon from a brain drain migration, human capital accumulation of the country of origin increases in time as highly skilled agents come back and import their abilities.

The propensity to return in the country of origin after a period spent abroad varies among countries, and the percentage of migrants who return within 10 to 20 years is between 25% and 30% of the initial group (Borjas and Bratsberg 1996; Dustmann and Weiss, 2007). This kind of migration is especially concentrated among the highly educated agents, who are often among the most successful of them (Johnson e Regets, 1998; Luo and Wang, 2002; Commander et al., 2004; Gundel and Peters 2008; Batista et al., 2007; Zucker and Darby, 2007).

Propensity to return of Italian highly skilled workers has been revealed very low as results from empirical findings reported in a statistic investigation by Monteleone and Torrisi (2010). This paper builds a theoretical model which fits this evidence, showing that Italian return migration suffers because of certain structural conditions of the labor market. The provided explanations of these results suggest policy implications in sight of more adequate human capital accumulation.

The paper is organized as follows: section 2 gives a brief overview about return migration literature; section 3 presents the model which shows theoretical support of low propensity to return of Italian agents; section 4 provides some policy implications and section 5 provides conclusion.

2. Return migration

Effects of brain drain are described in literature either as negative or positive according to the highlighted prevailing factors of this phenomenon. In fact, some prefer to consider only effects on

labor market, giving insights of negative impact. More recent contributes suggest, instead, to give more weight to human capital accumulation, underlining positive aspects on economic growth (Carrington and Detragiache, 1998; Bein *et al.,* 2003; Commander *et al.,* 2003; Giannoccolo, 2006; Monteleone, 2010).

Bhagwati and Hamada (1974) explain that economic integration of markets and consequent migration implies a net loss for poorer countries, both in productive and in fiscal terms, given that more specialized workers (and therefore those with higher potential salaries) move away.

Haque and Kim (1995) suggest that brain drain affects negatively long-term income, given that reduces the internal human capital accumulation rate and increases migration rates from countries that remain unprovided of qualified workers.

Mountford (1997) acts as a watershed between supporters and opponents of brain drain. In fact he highlights how positive on economic growth the chance to gain higher wages for workers can be: because of uncertainty he holds that emigration rates would remain within an acceptable range, giving the chance to stimulate education diffusion. This stream of literature assumed in years increasing weight, as demonstrated considering Vidal (1999), Bein, Docquier and Rapoport (2001), Docquier and Rapoport (2009), among others.

Therefore return migration is the main positive consequence of brain drain. The return gives, on one hand, to an agent the chance to improve skills and to gain higher wages; on the other hand, to the country of origin, the possibility to increase its stock of capital accumulation and to ignite educational externalities which lead to a more specialized work force.

As a matter of fact, who migrate aiming to return, has the opportunity to accumulate human capital in the host country during the period of emigration, through a process of learning by doing, and then disseminate this new knowledge in the country of origin (Dos Santos and Postel-Vinay, 2003).

Mayr and Peri (2008), note that agents from richer countries (East Europe, Asia and Latin America) have a greater tendency to migrate and to return home compared to ones from poorer countries (Africa). The same view is suggested by Dustmann and Weiss (2007), who argue that agents emigrated from countries in EU, America, Australia and New Zealand, mainly return home after a period, while emigration from India and Africa assumes substantially permanent characterization. In particular, they focus on migrants from UK and say that migration is temporary: strongly temporary among highly skilled workers.

Return migration seems valid for most European countries but Italy. Because of the lack of statistic observations about Italian brain drain (and therefore about the potential return migration associated to it), our model tries to fit empirical findings of Monteleone and Torrisi (2010) who provides important empirical result about brain drain in Italy. Italian highly-qualified agents show a very low propensity to return back home. In their empirical work, these authors build a sample of 350 highly-skilled academic qualified Italian agents who decided to migrate to follow job opportunities. Responses from the interviewees give an interesting profile of the agents who leave Italy: they are aged between 31 and 40 years, mainly they are assistant professor and work in public universities. An important finding is a sort of "delay" suffered by Italian agents compared to their colleagues in developed countries with regard to age related to career progression. Over 70% of interviewed revealed a low or no propensity to return to Italy. This result confirms the intuition stated above about the permanent character of Italian emigration: who migrates is not willing to return to Italy after a period spent abroad. Reasons behind migration and no return propensity have revealed to be mainly:

- scarce availability of research funds;
- either scarce or not meritocratic career opportunities;
- lack of adequate infrastructures;
- very low wage structure and therefore life-style limitations;
- environment not sufficiently stimulating.

The model will show that with these characteristics in the academic job market, return migration to Italy is absent.

3. A simple model with no return migration

We consider the productive life of an agent, and for sake of simplicity we neglect uncertainty about future wages and costs of migration. There exist two countries in the world, Italy (Home country – H) and the destination country (Foreign country – F). Time (t) is assumed to be continuous between $t = 0$ (moment of decision to emigrate) and $t = T$ (moment of death): therefore we neglect retirement issues, because agents will work all life long. Wages in home and foreign countries are denoted by w^H and w^F. Wages are function of time spent working in a country. It is realistic that workers earn increasing salaries, as time passes. Wage in host (home) country is a function of time spent working abroad, τ (at home, $\sigma = T - \tau$). We assume that $w^F = w^F(\tau)$ with $\left[dw^F(\tau) / d\tau \right] > 0$, and $w^H = w^H(\sigma)$ with $\left[dw^H(\sigma) / d(\sigma) \right] > 0$. As the sample revealed, we consider that the initial condition which inspires the migration decision is that $w^F(0) > w^H(0)$. Interviewed sample reveals that, at least as perception, high-skilled post graduate workers find that $\left[dw^F(\tau) / d\tau \right] > \left[dw^H(\sigma) / d\sigma \right]$. This is associated with the idea of a true and very strong correspondence between effort and wage dynamics of foreign careers in the academic sector, which inspire much of the reduction of Italian migrated workers' propensity to return.

Worker's lifetime utility function is

$$(1) \qquad U = \int_0^\tau u^F[c^F(t)]dt + \beta \int_\tau^T u^H[c^H(t)]dt$$

β represents a preference weight between home and foreign consumption. Interviewed workers of the sample propend to show a value of β less than one. This descends from the feelings that high skilled Italian academic workers showed: they think their foreign life-style and job-conditions are better than those they had in Italy. This make life (i.e. consumption and therefore utility) abroad preferable compared to domestic one. Even those among them who previously worked in Italy, and found opportunity to leave, left. This proves that there exists a basic reason of little satisfaction in domestic job condition, along with the case that the interviewed people face scarce possibility of career and too little evidence of skill/productivity-based careers in Italy. Furthermore, given the greater human capital accumulation of individuals in the sample, it is reasonable to expect that these persons are more open-minded and thus less reluctant to build their lives in a foreign country. Generally speaking, the stronger the opportunity on foreign job market – relatively to the domestic one, the higher the life-style attainable abroad, the lower the appreciation for consumption at home, the lower the propensity to return. All of this explains why β eventually represents the propensity to return. Imposing that $\beta < 1$ would explain strongly why workers prefer not to return. We assume that $\beta = 1$. However, β will not drop out the formulas because a general implication even for $\beta > 1$ will be provided. Since we assume no discount for sake of simplicity, and considered that marginal utility of consumption is assumed to be decreasing, this implies that during both sub-periods of time (time spent abroad and time spent at home) consumption levels will be constant. Thus, eq.(1) can be written as

$$(1') \qquad U = \tau u(c^F) + \beta \sigma u(c^H)$$

where c^H and c^F are the optimal constant flows of consumption, at home and abroad, and therefore lifetime utility of agents is determined as the sum of two products, each referred to the period of time spent abroad and in the home country.

Utility function in each sub-period is assumed to be

(2)
$$u^j(c) = \frac{c^{1-\alpha}}{1-\alpha}$$

with $\alpha < 1$, $j = F, H$.
The lifetime budget constraint is

(3)
$$Y(\tau) \equiv \int_0^\tau w^F(t)dt + \int_\tau^T w^H(t-\tau)dt = \tau c^F + \sigma p c^H$$

$Y(\tau)$ is the lifetime income and p is the home to foreign consumption relative price, $p = p^H / p^F$. The decision of migration is inspired by the occurrence of a lower or no wage in the home country. The maximization of (1') subject to (3) leads to

$$u'(c^F) = \frac{\beta}{p} u'(c^H)$$

Moreover, posing that $p = 1$ (considering the case of Italians going in other industrialized country, the hypothesis that home consumption is cheaper/more expensive than foreign one would not be always realistic), one could get

(4)
$$u'(c^F) = \beta u'(c^H)$$

Immediately, from eq. (4), and given the eq. (2), it results

(5)
$$c^H = \beta^{1/\alpha} c^F$$

Solving eq. (5) and eq. (3) we gain the optimal values of consumption:

(6)
$$c^F = \frac{Y(\tau)}{\tau + \sigma\beta^{1/\alpha}} \quad \text{and} \quad c^H = \frac{\beta^{1/\alpha}Y(\tau)}{\tau + \sigma\beta^{1/\alpha}}$$

The sample reveals that initial hypothesis [$w^F(0) > w^H(0)$] explains why high skilled workers move away. This explanation is supported by the comfortable feelings in reaching job opportunities. High skilled Italian academic workers enjoy abroad chances that in Italy they did not find. First of all, in order to check if they prefer not to return, consider how lifetime income evolves with respect to τ. It means to evaluate the first derivative of eq.(3) w.r.t. τ:

(7)
$$\frac{dY(\tau)}{d\tau} = w^F(\tau) - w^H(0) - \int_\tau^T \frac{dw^H(t-\tau)}{(t-\tau)}dt$$

Consider eq. (7) for how it evolves while τ tends to T: i.e. if agents decide to remain abroad. Assuming that wage dynamics is constantly increasing in time, at home and abroad, i.e. $[dw(t)/dt] = \bar{k}$ (as widely found in literature, for example in Jacobson *et al.*, 1993 and in Ljungqvist and Sargent, 1998) the integral in the r.h.s. of eq. (7) becomes

$$\int_\tau^T \frac{dw^H(t-\tau)}{d(t-\tau)}dt = \bar{k}(T-\tau)$$

whose limit for τ approaching T is zero

$$\lim_{\tau \to T} \bar{k}(T-\tau) = 0$$

As initially assumed, $w^F(0) > w^H(0)$, and given $[dw^F(\tau)/d\tau] > 0$, then $w^F(\tau) - w^H(0) > 0$ and thus, eq. (7) is increasing in τ and positive. The latter conclusion is immediately verifiable as one can show that

(8) $$w^F(\tau) - w^H(0) - \bar{k}(T-\tau) = w^F(\tau) - w^H(0) - \bar{k}T + \bar{k}\tau > 0$$

since

$$w^F(\tau) - w^H(0) + \bar{k}\tau > \bar{k}T$$

Lifetime income then rises as τ grows: this represents the income incentive for no return. Secondly, we question how lifetime utility is affected by time spent working abroad. Differentiating eq. (1') w.r.t. τ yields

(9) $$\frac{dU}{d\tau} = \alpha\, u(c^F)(1 - \beta^{1/\alpha}) + u'(c^F)Y'(\tau)$$

which is positive if $0 < \beta \le 1$. It still remains positive for some positive (not "too big") values of β and further research will be conducted to show the turning point.

Thus, we can conclude that time spent working in the foreign country not only does provide higher wage from the beginning, but also increases utility, and thus reduces propensity to return as time passes.

This model explains evidence of data from a theoretical perspective. Of course, results would be reversed if conditions of preference about location of consumption or purchasing power of income were changed. Abandoning features of the Italian sample, and more generally, for higher positive values of β, the model does not describe the experience of individuals in the sample, who expressed feeling of satisfying life-style and job conditions. In this case, the model would vest in more weight to consumption at home. The same rationale is behind the assumption that wage in Italy does not depend on foreign work experience. This condition has been imposed because it is typical for Italian academic job market: there is not any additive merit to those who started working abroad. Another important issue is that this model can explain exceptions derived from any form of "patriotism": very high values of β can revert results even for extremely advantageous foreign wage dynamics.

4. Some policy implications.

Italian brain drain phenomenon appears to be a consequence of a structured set of problems which engrave on the Italian scientific research. Among the causes, there exists a severe lack of infrastructures and adequate equipments, scarcity of funds for research (which sometimes appear to be assigned in a non meritocratic way), and the extremely low wage level compared to standards in other countries. Responsibilities of this situation, are eventually due to the extremely low attention that many Governments (independently of any political orientation) dedicated to Italian Academic system and to public research development, which did not assumed any strategic role in the long term path of the country. Part of the responsibility lies also on the private sector of firms and

entrepreneurs, because they did not show to understand the relevance of investments in public research as well. Consequences of this state of the art are, first of all, the loss of prestige and competitiveness at international scale that Italy risks to face. Secondly the impoverishment in terms of human capital. As a third aspect, the country could become less attractive in terms of scientific careers for distinguished foreign researchers who could give important insights to the domestic academic sector. Fourthly, courses and educational supply of universities could reveal neither attractive nor competitive for international students.

In order to avoid the realization of these predictions some attempts have been done in 2001 with the creation of the first program for "brains return", which established some advantageous novelties in stipulating academic contracts with Italian scientists who had been working abroad for at least three years. One of these novelties was the commitment for a strong correspondence between salaries given in Italy and European standards; another was the appointment for more advanced infrastructures dedicated to those who would accept to return. Unfortunately, as Ziguras and Law (2006) showed, this kind of policy does not seem effective, and the Italian case did not represent an exception to their conclusions. Furthermore it must be noted that since 2006 the program has been stopped due to the lack of funds. Moreover, one should argue that if return policies are not associated to sector-specific development policies, there exists the chance to attract just less active researchers which could find convenient to return for familiar o personal reasons.

In 2003 guide lines for the foundation of the Italian Institute of Technology (IIT) were given. This institute should have been dedicated to the applied research in technology, mainly for industrial applications. But, as Saxenian (2001, 2002 and 2005) underlined for Taiwan, China, and India, the creation of a national research bureau requires important investments. Eventually these funds were absent in the Italian case.

More recently, the situation of Italian Universities is worsened. The percentage of GDP dedicated to research has not been increased, Government has rather chosen to strongly reduce public spending for research and investment in the academic sector. This, again, amplifies brain drain instead of reducing it.

There is not a unique magic recipe to solve once forever the problem. But a way out can be depicted as a process. First of all a new framework in educational system can be desirable as students could enter faculties with more basic knowledge, leaving the academic sector the role for giving them applications and scientific attitudes, instead to strengthen previous weak scholastic curricula. This aspect is particularly relevant because otherwise young Italians will not be competitive in an always more educated European job market. Secondly, enrolment procedures for academic careers may find new solutions to select more profitable work force. Thirdly, research needs experience but also young force and enthusiasm. Therefore, the incentive to focus on the lowering of the average age for academic personnel is strong: usually the more experienced agents can cover leading roles, but the younger can hold more dynamic and well-paid positions. Fourthly, the existence of a strong and well visible link between academic research and firms innovation appears to be widely desirable. This could guarantee the existence of funds for research for technical sciences as much as the possibility to raise funds for humanistic research, necessary for other non applied purposes.

Last but not least, economic treatment of professors is a key note in all of this framework. Academic personnel is often made by people who severely dedicated their younger years to study. This individuals must find opportunities to gain what they deserve: chances to demonstrate their value before entering; chances to grow in their career after they find their job. Productivity-measurement system must be implemented to make Italian academy more efficient and profitable at the same time, both for researchers and society.

There is the need to build new incentive structure for academic workers and a more stimulating environment to ensure that Italian possibilities to express scientific excellence return to be the basis of economic growth and social development.

5. Concluding remarks.

This paper aimed to provide a general theoretical model to explain empirical findings by Monteleone-Torrisi (2010), of low propensity to return for Italian brain drain. Basic reasons are related to the structural form of academic labor market in Italy. The idea that wage and job opportunities in this sector are not affected by time and human capital improvements gained abroad is the deep reason for no return. Emigrants experience highly productive job environments, career opportunities and better wages. Such aspects abate utility from home consumption, and are so strong and so deeply felt to induce Italian academic workers' commitment in fading out their propensity to return.

APPENDIX

A - OPTIMAL CONSUMPTION VALUES:

From $c^H = \beta^{1/\alpha} c^F$ and $\tau c^F + (T - \tau)c^H = Y(\tau)$, by simple substitution we gain:

$\beta^{1/\alpha} T c^F + \tau c^F (1 - \beta^{1/\alpha}) = Y(\tau)$, and finally, $c^F = \dfrac{Y(\tau)}{\tau + \beta^{1/\alpha}(T - \tau)}$.

Similarly, it results $c^H = \dfrac{\beta^{1/\alpha} Y(\tau)}{\tau + \beta^{1/\alpha}(T - \tau)}$

B - DIFFERENTIATION OF UTILITY W.R.T. τ

From $U = \tau u[c^F(\tau)] + \beta(T - \tau)u[c^H(\tau)] = \tau \dfrac{(c^F)^{1-\alpha}}{1-\alpha} + \beta(T-\tau)\dfrac{(c^H)^{1-\alpha}}{1-\alpha}$

$$\frac{dU}{d\tau} = \frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta\frac{(c^H)^{1-\alpha}}{1-\alpha} + \tau(c^F)^{-\alpha}\frac{dc^F}{d\tau} + (T-\tau)\beta(c^H)^{-\alpha}\frac{dc^H}{d\tau} =$$

$$= \frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta\frac{(c^H)^{1-\alpha}}{1-\alpha} + \tau(c^F)^{-\alpha}\frac{dc^F}{d\tau} + (T-\tau)\beta^{1/\alpha}(c^F)^{-\alpha}\frac{dc^F}{d\tau} =$$

$$= \frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta\frac{(c^H)^{1-\alpha}}{1-\alpha} + (c^F)^{-\alpha}\frac{dc^F}{d\tau}[\tau + (T-\tau)\beta^{1/\alpha}] =$$

(remember that $c^F = \dfrac{Y(\tau)}{\tau + \beta^{1/\alpha}(T - \tau)}$, therefore $\dfrac{dc^F}{d\tau} = \dfrac{Y'(\tau)[\tau + (T-\tau)\beta^{1/\alpha}] - (1 - \beta^{1/\alpha})Y(\tau)}{[\tau + (T-\tau)\beta^{1/\alpha}]^2}$)

$$= \frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta\frac{(c^H)^{1-\alpha}}{1-\alpha} + (c^F)^{-\alpha}Y'(\tau) - (c^F)^{-\alpha}(1 - \beta^{1/\alpha})c^F =$$

$$= \frac{(c^F)^{1-\alpha}}{1-\alpha} - (c^F)^{-\alpha}c^F - \beta\left[\frac{(c^H)^{1-\alpha}}{1-\alpha} - (c^H)^{-\alpha}c^H\right] + (c^F)^{-\alpha}Y'(\tau) =$$

$$= (c^F)^{1-\alpha}\left(\frac{1}{1-\alpha} - 1\right) - \beta(c^H)^{1-\alpha}\left(\frac{1}{1-\alpha} - 1\right) + (c^F)^{-\alpha}Y'(\tau) =$$

$$= \alpha\frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta\alpha\frac{(c^H)^{1-\alpha}}{1-\alpha} + (c^F)^{-\alpha}Y'(\tau) =$$

$$= \alpha[u(c^F) - \beta u(c^H)] + u'(c^F)Y'(\tau) =$$

$$= \alpha\left[\frac{(c^F)^{1-\alpha}}{1-\alpha} - \beta^{1/\alpha}\frac{(c^F)^{1-\alpha}}{1-\alpha}\right] + u'(c^F)Y'(\tau) =$$

$$= \alpha u(c^F)(1 - \beta^{1/\alpha}) + u'(c^F)Y'(\tau) \qquad \text{which is eq. (9).}$$

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