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Reversing the Brain Drain: Is it Beneficial?

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Summary. — This paper investigates costs and benefits of calling back expatriates of a developing country. I employ a life cycle model with a rich and poor country with endogenous migration and return migration. Cost of bringing back a worker is the compensation that is paid to him while the benefit is the increased output because of his higher skill level and positive externalities, which are empirically estimated, from him resulting in higher skill levels for local workers. Results show that welfare gains are maximized when workers with skill levels 1.28 standard deviations above the domestic mean skill level are called back.

Key words — brain drain, spillovers, life cycle model, return migration, developing countries, Pakistan

1. INTRODUCTION

This paper analyzes the effect of return migration on the macroeconomic performance of a developing country; and particularly on the incomes of the residents and nationals of the country. One of the leading engines of growth in capital-scarce countries is human capital accumulation. A major factor that acts as a detriment to human capital accumulation in developing countries is brain drain. A considerable proportion of immigrants settle in resource rich countries and it is hard for the home country to provide them with the right incentives to return to their homeland. This paper seeks to formalize this issue through a theoretical model of migration, skill growth, skill spillovers, and government incentives to call back the emigrants. It further takes data on the Pakistani population to calibrate the model and suggest policy implications.

The basic idea is grounded in making the worker indifferent between migrating and staying abroad. In the model, workers that migrate for better financial and economic opportunities abroad can only be attracted back by the government through a compensation mechanism that gives them a greater lifetime utility than staying in the rich country. To illustrate the key findings of the model two countries are considered; one termed as rich and the other denoted poor. The migration decision is endogenous to the model. For the government, the direct benefit to the poor country from calling a migrant back is the increase in output. The cost is the higher compensation that the worker will have to be paid to come back and work in the poor country. The more interesting and novel contribution of the paper to the literature is the empirical estimation of the benefit that the migrant brings in the form of positive spillovers; skill based externalities that extend to the entire labor force working around him. The respective costs and benefits vary by the skill of the migrant.

It can reasonably be argued that return migration decision of expatriates do not depend just on the income that they earn. Several other factors play a role as well. These factors include asset holdings, preference for being near to their family if it resides in the home country, preference for having a superior lifestyle, and preference about education quality for their children, and security. While all these factors, and possibly more, play an important role in decision of an expatriate to return to his or her home country, the model of this paper abstracts away from these preferences for three reasons. First, it is not clear how these preferences will vary by skill level. In other words, it is quite possible for two expatriates of the same skill level to have different preferences when it comes to quality of life and other factors mentioned above. Second, the model built in this paper is a problem that a policy maker is solving. It is unreasonable to believe that the policy maker will be able to observe all these preferences. Therefore it is assumed that the policy maker is only able to observe the skill level of the worker. Furthermore, the model considered in this paper is not an attempt at modeling the migration and return migration decisions at an individual level. Rather, it assesses return migration which class of workers, in terms of skill level, will bring the highest net benefit to the home country. Third, even if it is assumed that preferences about quality of life vary perfectly by skill level and that the policy maker is able to observe these preferences, the modification required in the model will be minimal since only the cost paid by the government will have to be scaled up or down which will leave the qualitative nature of the results unchanged since the utility function that is used in the model is linear (like most labor search models). I will focus on the case of Pakistan but the model developed in this paper is general enough to be applied to any country.

Developing countries, like Pakistan, suffer from brain drain since they are unable to offer suitable opportunities to highly educated workers. There are different estimates for the number of Pakistanis in the USA ranging between 250,000 and 700,000. Recent years have seen an increase in the number of Pakistanis who emigrate to the USA. Figure 1 plots the number of Pakistani immigrants to the USA in each year for the 1992–2009 time period. The figure shows that the number of Pakistani immigrants to the USA have been steadily growing over the last two decades. The only exception was the 2002–03 period when the number of immigrants admitted to the USA fell because of the 9/11 events. However, increasing trend of Pakistani immigration resumed soon after and it has

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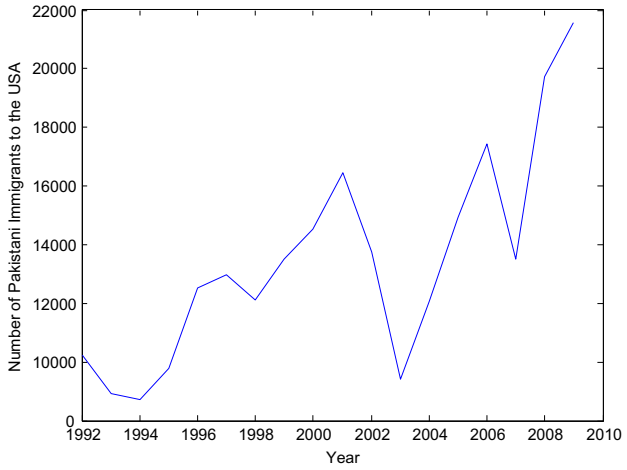

Figure 1. *Pakistan to the USA Migration. Source: Yearbook of Immigration Statistics, DHS, USA.*

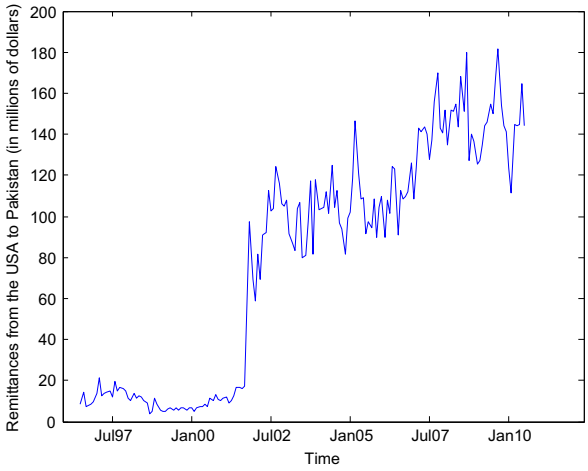

Figure 2. *Remittances from the USA to Pakistan. Source: State Bank of Pakistan.*

been climbing ever since. These numbers only include Pakistanis who become naturalized citizens and do not include workers who come to the USA on a temporary basis. Data show that Pakistani Americans[1] tend to be more prosperous than average Americans. The 2002 US census showed that the average yearly income of a US household was $57,852 whereas that of an average Pakistani American household was $70,047. There are no current estimates for the average education level of Pakistani Americans. However, Carrington and Detragiache (1998) estimated that there were 52,717 Pakistani immigrants in the US in 1990 and out of these, 36,097 (68%) had 12 years or more of education. This shows that most of the Pakistanis who emigrate to the USA have high levels of education. On the other hand, literacy rates in Pakistan remain extremely low. According to the Federal Bureau of Statistics, Pakistan, only 3.28% of Pakistani population has 12 or more years or education.

The migration of such high-skilled workers to the USA and other western countries causes the economy to suffer especially in a country like Pakistan where high skilled workers are in scarce supply. Apart from the direct contribution to the income of the economy, these high skilled workers also create positive externalities for their coworkers and other people who interact with them. Apart from this immediate impact on the country's economy, such migration can have long-term effects as well. Well-educated workers affect the economy in at least two ways (other than directly contributing to the overall output) (1) They create positive externalities for other individuals working with them and (2) They are more likely to educate their children as well hence benefiting the country's economy in the future as well. However, having more expatriates is also beneficial for a country's economy. Some of the migrants return home after getting valuable experience and/or education abroad. They then apply their newly acquired skills in the home country. Furthermore, these expatriates, while abroad, earn higher wages and send remittances back to the country. For a developing country, these remittances can represent a significant proportion of the GDP.[2] Figure 2 plots the remittances (in nominal dollar terms) that have been sent to Pakistan from the USA since 1996 on a monthly basis. The plot shows that the remittances sent home have been growing over time. There was a sharp increase in remittances sent to Pakistan after the 9/11 events. After that event, fearing for the confiscation of their assets, Pakistani Americans started shifting their assets to Pakistan. Ahmed and Jha (2010) showed that reducing remittances by 50% would increase the poverty rate by 6.35%. Hence, although there are benefits from calling back expatriates to work in Pakistan, they must be weighed against the prospect of forgone remittances which form an important part of the foreign exchange. Another channel through which expatriates can prove to beneficial to the economy of the country is return migration. Expatriates gain skills while working in the developed countries which impact the economy of the home positively if they choose to return migrate.

There have been a number of theoretical and empirical models built to explain the migration and return migration decisions. One of the strongest theoretical models about return migration was by Dustmann, Fadlon, and Weiss (2011) in which they model migration as decisions that respond to where human capital can be acquired most efficiently. They showed that return migration of workers can lead to brain gain since the return migrants will be more productive at home. Borjas and Bratsberg (1996) used the 1980 census data to show that return migration occurs because workers can sometimes find better opportunities for working back home. Dustmann and Weiss (2007) used a dynamic Roy model with worker who possessed two different skill levels which had different prices in different countries. They showed that return migration may be planned when making the initial migration decision. Workers may temporarily migrate to a rich country to boost their skill which in turn would enhance their earning potential back home. Mayr and Peri (2008) used an overlapping generations model to show that workers in a poor country may get higher education to increase their chances of landing a job abroad. However, if migration process is not deterministic, some of these highly educated workers will not be able to move to the rich country and work in their home country which would lead to brain gain. Beine, Docquier, and Rapoport (2001) also showed that individuals in a developing country invest in human capital and education to maximize their chances of moving to a richer country. The home country then benefits from the skills of those who are not able to migrate.

None of these papers focus on evaluating the costs and benefits of calling some workers to migrate back to the home country. This paper fills this void by employing a simple model to quantify the costs and benefits of enforced return migration. Furthermore, to my knowledge, there is no paper that attempts to estimate the spillovers from returning migrants to a country. This paper also attempts to fill this gap in the literature. The results show that an extra return migrants leads