UNIVERSITY OF ESSEX

# Developing countries benefit as senders of unskilled migrants because they receive significant remittances from these migrants. They also benefit as senders of skilled migrants because this increases educational attainment at home and contributions from returning migrants. The “brain drain” is therefore not a problem. Discuss.

**EC336 -6-SP: ECONOMIC DEVELOPMENT IN A GLOBAL PERSPECTIVE**

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Brain drain, also known as Human Capital Flight, describes the emigration of high skilled individuals from developing to developed countries.

*"The most rapidly growing segment is the migration of skilled workers from developing to industrialized countries…this migration is increasingly skilled and increasingly originating from developing countries; as a result of these two combined trends, the number of highly skilled immigrants living in the OECD and born in a developing country more than doubled between 1990 and 2000."*[1]

Recent debate has questioned the real affect that this pattern of migration will have on the developing countries sending the migrants; whether it will it lead to the negative welfare associated with brain drain, or, could it generate positive welfare gains, associated with brain gain. In this paper I aim to discuss exactly this, to conclude that brain drain is harmful to the development of developing countries.

## Brain Drain

Human capital flight (HCF) is thought to have a disadvantageous impact on the development of source, developing nations, since it depletes an already scarce stock of human capital.[2] Skilled workers make up a 33% of migrants from developing countries, whilst only accounting for 6% of the domestic population, however in countries such as Jamaica; skilled emigration can rise above 85%.[3] The costs of brain drain to the source country are founded on the assumption that there is a positive correlation between human capital and development; where human capital is the engine for

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[1] Boeri, T et al. *'Brain Drain and Brain Gain: The Global Competition to Attract High-Skilled Migrants'* (Oxford Scholarship Online: September 2012) Online Resource http://0-www.oxfordscholarship.com.serlib0.essex.ac.uk/view/10.1093/acprof:oso/9780199654826.001.0001/acprof-9780199654826-chapter-10 Accessed April 30, 2013.

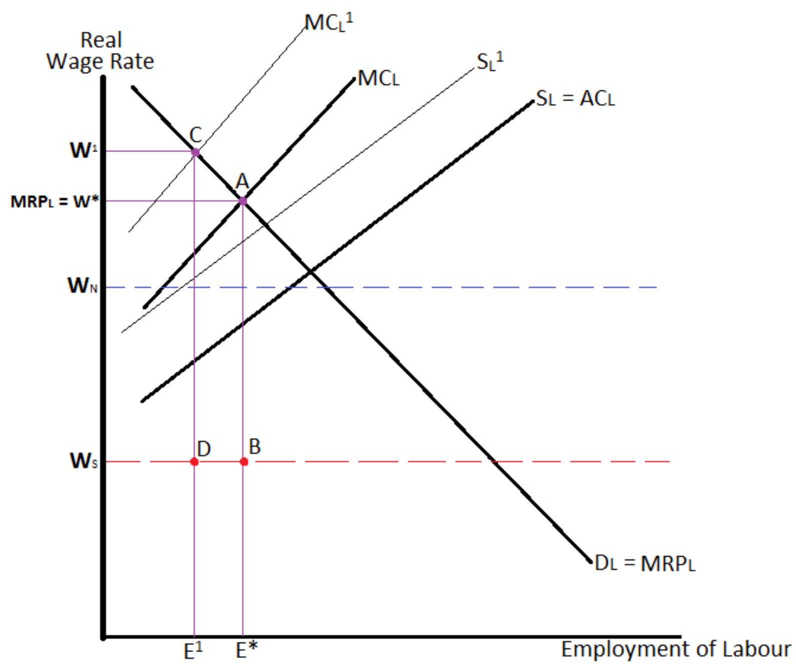
[2] Docquier, Fre'de'ric; Lohest, Olivier; and Marfouk, Abdeslam. *'Brain Drain in Developing Countries'* in The World Bank Economic Review Vol. 21, No. 2, pp. 193–218, at page 193 (The World Bank/Oxford University Press, 13 June 2007) Online Resource http://wber.oxfordjournals.org/content/21/2/193.full.pdf+html Accessed 29/04/2013

[3] ^ibid, page 198

growth[4]. Investment in human capacities such as health and education will increase the productivity of individuals, eventually leading to national development via increase social welfare and national income.

Often in developing countries, skilled workers are not paid a wage that reflects their marginal productivity, due to national income constraints. When skilled workers are employees of the state, which is often the case when developing nations have a large public sector and state-owned enterprises, welfare gained from this market failure is a social gain. However, with the occurrence of mass brain drain, this welfare can be lost. The graph below demonstrates the welfare lost as a result of brain drain.

**Figure 1 State Monopsony in a Developing Country**




[4] Galor, Oded; Moav, Omer *'From Physical to Human Capital Accumulation: Inequality and the Process of Development'* in Review of Economic Studies (2004) 71 (4): 1001-1026. Online resource http://restud.oxfordjournals.org/content/71/4/1001.short Accessed 01/05/2013

In a closed labour market, without the occurrence of HCF, employment in the source (south) country is at E* where $MRP_L = MC_L$. Given that the state has monopsony power, real wage is set at $W_S$ which is below W* and the wage offered by the developed (north) country because national income is lower in a developing country. Consequent to this market failure, welfare gained by the monopsony is $W_S W^*AB$. Since the monopsony is the state however, welfare gained is social welfare. Some of this welfare however is lost when migration borders between the two countries are opened. HCF reduces domestic Supply of Labour and therefore Marginal Cost of Labour causing both curves to shift leftwards from $S_L$ to $S_L^1$ and $MC_L$ to $MC_L^1$, respectively, reducing employment of labour from E* to $E^1$. Accordingly, welfare reduces from $W_S W^*AB$ to $W_S W^1CD$.

## Positive Effects of Human Capital Flight

Although the source country stand to experience some loss from human capital flight, some argue that there are some gains to be had as a result of brain drain. Schiff explains that Brain *Gain* refers to the theory that the prospect of emigration raises the expected returns on education. This then induces additional, accumulative household investment in education which may result in a net brain gain if the brain gain is larger than the brain drain. [5] This will benefit the developing, source country as net brain gain raises welfare and growth. This, however, can only benefit the source country if brain drain is below a certain amount. If, like the case of Jamaica, the majority of skilled workers leave the country, the developing country is unlikely to benefit from brain gain.

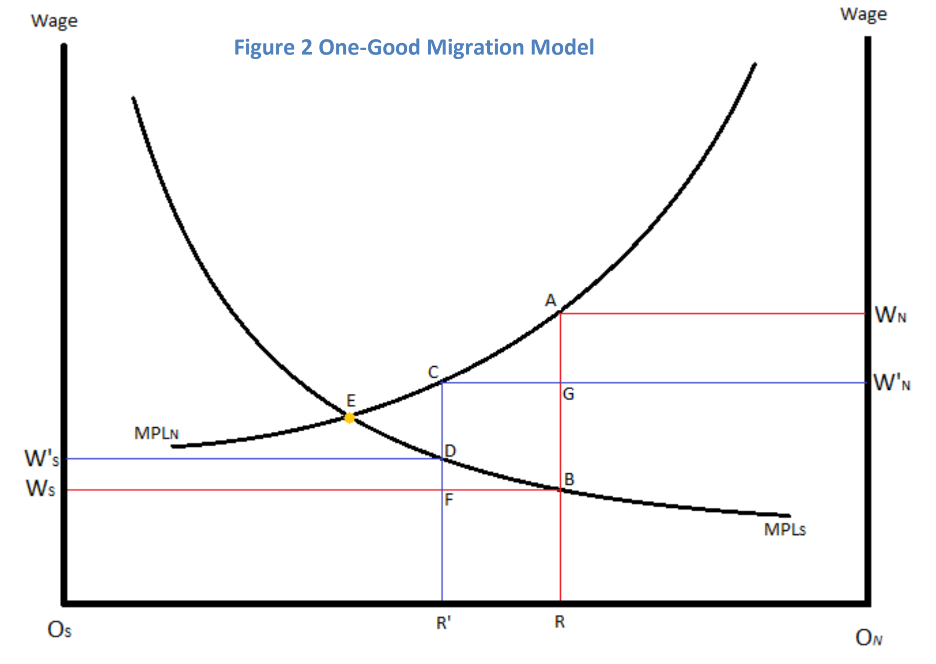
Beine et al refer to brain gain as the incentive effect, where "migration prospects raise the expected return to human capital in the developing country, thus inducing more people to invest in education." Citizens of poorer countries will be more effected by the incentive effect, because the wage gradient

[5] Schiff, Maurice W. *'Brain Gain: Claims about Its Size and Impact on Welfare and Growth are Greatly Exaggerated'* (World Bank Publications, 2005) Online Resource http://books.google.co.uk/books?hl=en&lr=&id=L5A_XudnvT8C&oi=fnd&pg=PA2&dq=brain+gain+&ots=Kjhcr mxfFK&sig=PlsFXNhMwkH5Rw3BHnc_Y7Dejgk Accessed 30/04/2013

between the source and destination countries would be greater than that of two north counties, however socio-economic constraints, such as income constraints, may effect an individual's ability to take advantage of the incentive effect.

Panagariya's one-good migration model demonstrates how brain drain can be beneficial for labourers that remain in the source country. It assumes that there is only one good produced; price is equal to 1; there is no international trade and allocation of labour begins at point R. Given this, migration from the South (developing country) to the North (developed country) will benefit the south as wage rate would be forced to increase as labour decreases. Conversely, the wage rates in the North will decrease. Below is a replica of The One Good Migration Model, to demonstrate the positive effect that migration can have on the source country.

**Figure 2 One-Good Migration Model**




Due to wage disparities, workers are incentivized to move from the South to the North in order to earn a higher real wage. This causes the allocation of labour to shift from R to R'. Given this, $MPL_N$ expands from A to C, pulling wages for native workers in the North down from $W_N$ to $W'_N$, whilst the contraction of the $MPL_S$ from B to D, pushes wages in the South up from $W_S$ to $W'_S$.

Whilst workers in the south gain area $W_S$ $W'_S$DF, capitalist lose area $W_S$ $W'_S$DB and income lost is represented by DFB. On the other hand, the North gains income, demonstrated by area ACG, capitalists gain $W_N$ $W'_N$CA and native workers lose $W_N$ $W'_N$GA. World income increases by CABD.

In the one good model migrants gain CGBF, whilst retaining FBRR'. This however remains an independent welfare gain until it is finalised as to whether the migrant is to migrate temporarily or permanently. Temporary migration will benefit the source country, and is known as Reverse Brain Drain, whilst welfare gains of permanent migration are less clearly perceivable.

The one good model, though theoretically demonstrating the wage rate changes in both countries as a result of migration, fails to be applicably accurate. There are social and legal constraints are in both economies that prevent the wages fluctuating to in response to labour productivity. For example contracts and minimum wage laws in North countries often prevent wages from declining beneath a certain level. In South countries, matters such as child labour and low national incomes prevent wages from increasing.

The source country may benefit from higher wages as demonstrated by the one good model; however there are other benefits to be had from human capital flight. Welfare gains from the "positive feedback effects of remittances [and] reverse brain drain," can also be made from the brain drain.[6]

**Remittances**

Remittances are the financial sums which a migrant will send back to the source country, after working at a higher real wage in the destination country. These are often used as an investment in business or property pending the return of the migrant worker, or to raise living standards for relations that remain at home. In 2011 remittance flows to developing countries were estimated to

[6] Beine, M. et al. *'Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers'* at page 631

have reached $372 billion, an increase of 12.1% from 2010.[7] Clear from evidence presented by Ratha and Silwal, remittances can be a major source of income for a developing country. In 2011, Indian and China were estimated to have received remittance inflows in excess of $60billon, whilst constituting more than 20% of GDP in other developing countries, such as Lebanon, Nepal and Tajikistan.[8] These financial injections into the source economy have, in the cases of Latin America and the Caribbean and Sub-Saharan Africa risen above the rate of GDP, indicating its significance in source countries.[9] Moroccan remittances, for example, constitute 296% of FDI inflows in 2007[10]

Remittances can contribute the development of a developing country and therefore compensate for any welfare lost as a result of worker emigration. Benefits to the source economy can come in the form of the multiplier effect when households use remittances to increase consumption, or increased productivity when it is used to invest in human capital such as education and healthcare.

When remittances are used to invest, they contribute and have a positive effect on output growth.[11] Countries such as Mali have been found to invest remittances to build schools and clinics, whilst Sub-Saharan countries have seen that though labour supply and crop reduction have decreased in the short run, remittance investment has enhanced crop productivity and cattle accumulation.[12]

The economic benefits that remittances can induce in the source economy are however limited. Firstly, external financial injections used to increase consumption may distort market mechanisms,

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[7] Ratha, Dilip and Silwal, Ani. *'Migration and Development Brief: Remittance flows in 2011 – an update'* (World Bank, 23/04/2012) Online Resource http://www.west-info.eu/files/Migration-and-Development-Brief.pdf Accessed 01/05/2013, at page 1

[8] ^ibid, page 2

[9] Adams, Richard H; Özden, Çaglar; Schiff, Maurice. *'International Migration, Remittances, and the Brain Drain: A Study of 24 Labor-exporting Countries'* (World Bank Publications (Emigration and immigration), 2003) Online Resource http://books.google.co.uk/books?hl=en&lr=&id=uVnlCCBjyokC&oi=fnd&pg=PA1&dq=brain+drain+and+remittance&ots=AzTvLaWVLY&sig=qQS4tJHUj7FMot5IJe9WjNITbfo accessed 02/05/2013

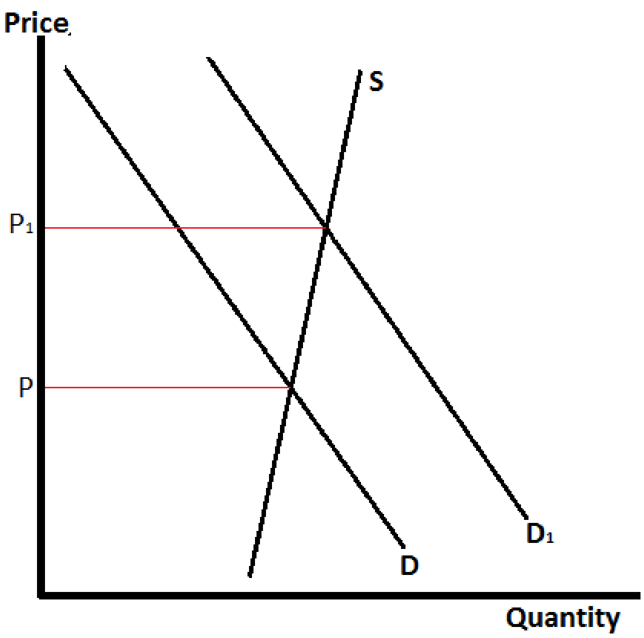
[10] Migration Policy Institute 'Remittance Profile: Morocco' (MPI, 2007) Online Resource http://www.migrationinformation.org/datahub/remittances/morocco.pdf Accessed 29/04/2013

[11] Ratha, Dilip. *"Workers' Remittances: An Important and Stable Source of External Development Finance"* Economics Seminar Series. Paper 9. (World Bank, 2005) Online Resource http://repository.stcloudstate.edu/econ_seminars/9 Accessed 20/05/2013, page 164

[12] ^ibid

creating a rise in the level of demand, thus inducing price rises. This is common to the housing market, where supply tends to be inelastic, as exemplified by figure 3.

Figure 3: Price increase in the housing market




Accra's housing market in Ghana, for example is "a focal point for the investment of remittances."[13] Though it contributes to high capital gains on housing investments, it does not significantly contribute to national development efforts as it diverts investment away from sectors such as manufacturing that sustains long-term growth. It also increases house prices for national citizens, thus reducing household investment in human capital reducing and exacerbating pre-existing urban-rural inequalities, which can be harmful to development goals as equality stimulates investment in human capital and promotes economic growth. [14,15]

Secondly, remittances are mostly sent from unskilled migrants. Given that "immigration polices have increasingly been geared to favour the entry of skilled workers, while continuing to penalize

[13] Buckley, Robert M. and Mathema Ashna S. *'Is Accra a Superstar City?'*(October 2007) Online Resource http://www.ppiaf.org/sites/ppiaf.org/files/publication/Accra-Property-Development.pdf Accessed 29/04/2013
[14] Ratha '*"Workers' Remittances:'*
[15] Galor and Omer *'From Physical to Human Capital Accumulation'*

unskilled flows," HCF disproportionately reduces the number of unskilled migrants in North countries, thus reducing the volume of potential remittances. [16]

**Reverse Brain Drain**

Though more selective migration policies may reduce source country welfare gained from remittances, additional welfare may be gained from reverse brain drain that sees skilled workers return to their home countries. Jean Johnson notes that students from developing countries that enter developed countries for further education and subsequently return home, significantly contributing to the diffusion of knowledge, which directly enhances world development.[17] Reverse brain drain allows the developing country to benefit from skilled and specialised human capital, which increases labour productivity and thus the productive capacity of the country. This not only encourages sustainable development within the source country, but also contributes to national income increases and encourages foreign direct investment. India, for example, has been the recipient of reverse brain drain, seeing second-generation Indians retuning to the country. "Top multinationals are sending their top Indian minds to head their companies in India."[18] This is beneficial for both individual firms and the nation economy because firms are able to expand into new economies and developing economies are being invested into.

Return however may not always direct benefit the source country. Though return brain drain may contribute to the development of a source country, voluntary return may signal social, political and economic improvements at home, thus indicating that development is already underway, and that it is not a necessary consequence exclusive to return brain drain. Involuntary return can reduce

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[16] Faini, R, *'Is the Brain Drain an Unmitigated Blessing?'* Wider Discussion Paper 2003/64 (UNU/WIDER, 2003) Online Resource http://www.wider.unu.edu/publications/working-papers/discussion-papers/2003/en_GB/dp2003-064/_files/78091732472628174/default/dp2003-064.pdf Accessed 29/04/2013

[17] Johnson, Jean M. '*The Reverse Brain Drain and the Global Diffusion of Knowledge'* in "Science & Technology." (Georgetown Journal of International Affairs, Fall 2002), pp 125-131, at page 125. Online resource http://journal.georgetown.edu/wp-content/uploads/3.2-Johnson.pdf accessed 02/05/2013

[18] Khurshid, Salman; *'Reverse Brain Drain in India has begun*' (The Times of India, 5/04/2012) Online Resource http://articles.timesofindia.indiatimes.com/2010-04-05/india/28129264_1_brain-drain-top-indian-minds-global-meltdown Accessed 29/04/2013

welfare gained from brain drain significantly. For example visa termination and renewal refusal is more likely to effect unskilled workers, meaning that those that involuntarily return are likely to have less specialised skills, though they may have valuable experience.

Important to note is the time delay for the brain drain to reverse. Consequent to this delay, the developed country are able to benefit from the multiplier effect of human capital injection, whilst HCF harms the developing country according to reverse multiplier of human capital evacuation, thus potentially increasing income inequalities between the two.

**Brain Drain (Revisited)**

This international transfer of human capital resources is assumed to have a negative effect on the national welfare of the domestic country since national income generated from per capita output would be lost, and the positive externalities that these individual contribute towards social welfare, will also be lost.[19,20] When emigration is permanent, the welfare of those left behind would fall given that the social return to benefit exceeds its private costs.[21] This is demonstrated below.

[19] Beine, M., Docquier, F., and Rapaport, H., *'Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers'* in *The Economic Journal*, 118 (April), pp 631–652, at page 631 (Royal Economic Society: Blackwell Publishing, 2008) Online Resource http://econweb.umd.edu/~Lafortune/puc-readings/Beine_Docquier_Rapoport_2008.pdf Accessed 29/04/2013

[20] Stark, O; Helmenstein, C; Prskawetz, A. *'A brain gain with a brain drain'* in Economics Letters Volume 55, Issue 2, 29 August 1997, Pages 227–234. Online Resource http://dx.doi.org/10.1016/S0165-1765(97)00085-2 Accessed 30/04/2013

[21] Beine, M., et al *'Brain Drain and Human Capital Formation in Developing Countries',* at page 631

Figure 4 Externalities of Human Capital Investment

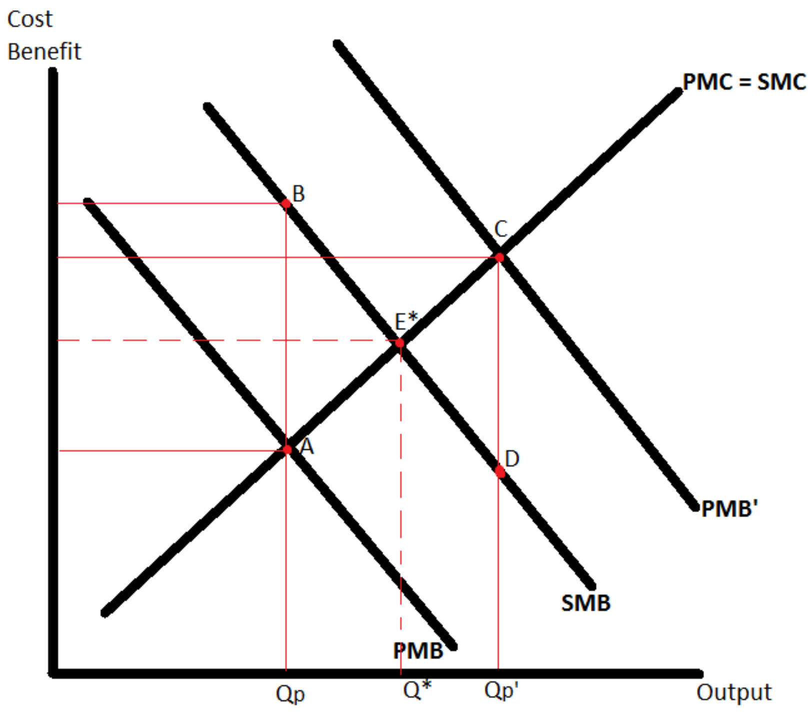


Figure 4 demonstrates that in a close labour market, pursuit of education emits more Social Marginal Benefit (SMB) than Private Marginal Benefit (PMB). This creates a positive externality, indicated by SBE*, because SMB is greater than PMB. However, when the labour market opens, PMB shifts rightwards to PMB', beyond SMB, because private returns to human capital investment become greater than social returns, because of the prospect of higher wages upon emigration.[22] Given the shift of the PMB curve, human capital flight then becomes the source of negative externalities indicated by CDE*, thus harming its development prospects, because gains from human capital investment are no longer contained within the source country.

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[22] Psacharopoulos, G. and Patrinos, H.A. *'Returns to Investment in Education: A Further Update'* in Education Economics, Vol. 12, No. 2, August 2004 (Taylor & Francis, 2004) Online Resource http://isites.harvard.edu/fs/docs/icb.topic1222150.files/Session%207/PsacharopoulosFutherUpdate.pdf Accessed 29/04/2013

**Conclusion**

In conclusion, I believe that I have thoroughly presented evidence to demonstrate that brain drain can be an obstacle to development in developing countries, and therefore is a problem. Revisionist approach to brain drain holds that concerns are largely unwarranted; affirming that sustained migratory flows are associated with large remittance flows; that migrants may return home after acquiring more productive skills; and that the ability to migrate abroad may boost the incentive to acquire skills by home residents.[23] Others assert the brain circulation model which takes an aggregate measure of the migration, to conclude that globalisation and regionalisation, in encouraging people to travel across national borders, facilitates the circulation and spillover of skills, education and technology, thus rendering the concept of brain drain outdated. Though I agree that these are valid advantages of Human Capital Flight I do believe that the welfare lost to the developing country as a result of HCF is, as an absolute, more valuable because of the positive externalities that result from human capital investment, and that the growth in inequality between developed and developing countries is evidence of this.

# Word Count 2819

[23] Faini, R, *'Is the Brain Drain an Unmitigated Blessing?',* at page 1

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