turning brain drain into BRAIN CIRCULATION

by Ashok Parthasarathi

Immigration policies can be a ticket for scientific talent to recirculate among countries.

In the 1960s and 1970s, the flow of scientists, engineers and medical personnel from developing to industrialised nations was thought to have almost entirely negative consequences for the source countries, affecting their university staffing and availability of industrial personnel.

Recently, however, there has been growing emphasis on reverse flows of knowledge and skills, and of money the migrants send home. What was once termed brain drain is now seen as brain circulation, but this has blurred important issues affecting most developing countries.

Evidence for Reverse Flows

First, although developed countries benefit from immigration of highly skilled personnel, evidence of reverse benefits flowing back to source nations is far from convincing. While for many developing countries, the money sent home by all migrants can be very large, there are good grounds for believing that the amounts sent by highly skilled migrants in particular are fairly modest.

Another supposed reverse flow is the 'diaspora effect', whereby emigrants' skills, networks and knowledge can generate important benefits in their home countries. But much of the evidence of this comes from the very specific circumstances of the substantial contributions expatriate Indians based in Silicon Valley in the United States made to the growth of India's IT sector.

Countries can also benefit when emigrants return home with accumulated skills and experience. But a large part of the evidence for this comes from the experiences of South Korea and Taiwan, China. There, returning emigrants were attracted to fill key roles in what were already advanced research and development environments. In other words, the pre-existence of considerable 'absorptive capacity' appears to be a necessary condition for significant reverse migration.

There are no systematic balance sheets on net flows of skilled scientific personnel, but trends indicate that most brain 'circulation' is highly asymmetric. Reverse flows seem to be far smaller than initial outward flows, and the latter can sometimes be massively destructive, as happened in Ghana with the wholesale emigration of many doctors and nurses.

Meanwhile, the argument that the possibility of emigration and expectations of higher incomes abroad will increase incentives for developing countries to invest in their human capital does not hold true.

An Economic Analysis

Efforts to design a 'pro development' response to this situation must not include restrictions on migration as they violate the fundamental values of human rights and individual freedom. In addition, from the perspective of the global allocation of resources, overall efficiency and welfare increase when human capital migrates from areas of low return to ones with high returns.

But development is not just about accommodating resource allocation. It is the taxpayers of poor countries who make the investments in human capital that give rise to the migration-derived benefits in rich countries. From a returns-to investment perspective, two crucial points arise: there are substantial flows of skilled scientific and technological capital from poor to rich countries; and so there are poor returns on the investment in human capital.

Much of the recent policy discussions have only nibbled at the basic issues with approaches such as voluntary codes and agreements by rich countries to limit recruitment from developing nations, or take steps to promote return migration.

However, almost entirely absent from these discussions has been an approach suggested by noted Indian economist Jagdish Bhagwati in the 1970s. This rested on the idea that the losses incurred by developing countries should be offset to some degree by the transfer of resources from the beneficiaries of migration.

Bhagwati proposed levying a low tax—say 5% of salary costs—on companies in rich countries that employ of highly skilled immigrants, and using the proceeds to create a global fund for developing human capital in poor countries. From the United States alone, this could yield as much as US$2.5 billion a year.

Such a fund could promote 'diaspora' contributions to development and measures to accelerate return migration. But it should also take a long-term view by aiming primarily at strengthening capabilities in developing countries to offset losses from asymmetric brain circulation. In the scientific sector, for instance, it could focus on innovative ways to strengthen capacity in engineering and related management skills, and on developing infrastructure, manufacturing, agriculture, mining and other industries.

Policies Promoting Recirculation of Talent

Among the key reasons that highly-skilled migrants are often reluctant to go home is that they fear losing the cultural, scientific or entrepreneurial environment necessary to maintain or enhance their skills base. Most foreign graduate students from developing countries fear that after their return they will be cut off from knowledge exchange because of administrative hassles and restrictions on visa applications.

It is essential, therefore, to accompany any reform of how such workers are recruited in rich countries, with a better 'offer' closer to their wishes in their home nations.

This could be solved if recipient nations issued 'permanent visas' to scientists and other skilled workers. In The Netherlands, for example, the director of the University of Maastricht has proposed awarding foreign graduates a permanent visa, allowing a voluntary 'recirculation'—at a time of their choice — that both their country of origin and country of training could support rather than block.

Patrick Weil, director of research at France's National Centre for Scientific Research, says that under a 1998 law foreign workers who retire after spending at least 15 years working in France have the right to a 'retirement card' which lets them to move freely between their country of origin and France, without fear of being refused a visa.

This policy concept could be extended to workers on shorter-term contracts, who could be granted multi-year permits. Similarly foreign graduates from Western universities could be granted a permanent visa that lets them move to and from their country of origin.

Such facilitation of 'return tickets' or 'recirculation' according to a regime adapted to each category of migrants will be one of the new tasks for immigration policy in the 21st century and could be a useful way to tackle the brain drain.

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Higher Education

INIS Reaches Up and Out

From brain drain to brain "retain", there is no "quick fix" on the horizon to try and attract the next generation of scientists, engineers and specialists in the fields of nuclear science and technology. But one initiative gaining ground is the efforts of the IAEA to bring nuclear information and science to students around the world.

The International Nuclear Information System (INIS) is the world's leading information system on the peaceful uses of nuclear science and technology and is operated by the IAEA in collaboration with its Member States and co-operating international organizations. Today 114 Member States and 22 international organizations are participating in INIS.

Outreach to Universities

The IAEA recognizes the importance of nuclear knowledge transfer and the need to attract students to nuclear fields if there is hope of reversing the projected shortfall of specialized expertise. Access to reliable information—especially to students in the developing world—is key to keeping pace. INIS provides students and researchers with access to reliable resources that demonstrate the importance and the advantages of nuclear science and technology .

The INIS Database is available on the Internet and free of charge to students at universities and academic institutes in Member States. To date, the response has been positive and 307 universities in 59 Member States have database access.

"For our nuclear scientists at the Romanian Institute for Nuclear Research (INR), the INIS Database is the first place any nuclear scientist looks for information," says Mrs. Daniela Diaconu, Administrator of the database at INR. "Information is knowledge and helps to confirm theories or results of technology developed by our researchers."

Inside INIS

INIS processes most of the world's scientific and technical literature that falls within its subject scope covering the peaceful uses of nuclear science and technology. The database currently contains over 2.6 million bibliographic references with English abstracts.

Central areas are nuclear reactors, reactor safety, nuclear fusion, applications of radiation and radioisotopes in medicine, agriculture, industry and pest control as well as related fields such as nuclear chemistry, nuclear physics and materials science. Legal and social aspects associated with nuclear energy are also covered. And, from 1992, the economic and environmental aspects of all non-nuclear energy sources are also included. INIS also maintains an extensive collection of documents of grey literature not available elsewhere.

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