The Economics of the Brain Drain: Pros, Cons, and Remedies

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The "brain drain" is generally thought of as a dangerous form of piracy that leaves weak, developing nations even weaker after their desperately needed educated manpower has been lured away by the allure of the United States and other countries of the West.


Brain goes where brains are, brain goes where money is, brain goes where humanity and justice prevails, brain goes where recognition and healthy competition is assured.


The term "brain drain" clearly relates to the importance of brainpower, rather than brawn-power of the people, in the development of nations. The race between technological progress and population growth testifies to this fact. Although causes and effects are interwoven and variable, the very existence of international migration of talent and skills proves that there is a discrepancy in the demand for and the supply of human capital. At the same time, it is also known that the level of education and mobility are positively related, and the brain drain expands the scope of the latter into international proportions. Not to be ignored is the nature of "pull" in the rich, and "push" in the less developed countries (LDCs), which includes both

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The author wishes to express his gratitude to those who helped him in various ways, especially to Homer D. Babidge, Jr., Charles V. Kidd, Senator Walter F. Mondale of Minnesota, and Representative Henry S. Reuss of Wisconsin; and to Morris Singer, William P. Snively, late Paul N. Taylor, Ralph Goodell, and William L. Winter for their valuable advice and comments on this study. Errors and shortcomings are, of course, the sole responsibility of the author.

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active and passive characteristics (Barkin (1967); Henderson (1970); P.A.H.O. (1966); U.S.H.R. (1974)). It is not surprising, as Scott (1970, p. 242) pointed out, that the brain drain has emerged as a topic publicized and studied by economists not usually associated with demography, migration, or scientific policy.

While the nineteenth century migration of human capital from Europe to North America was complementary to the export of tangible capital and unskilled labor, the current migration is conspicuous in terms of professional elite migration, scientific-technological capital formation, and direct foreign investment (Thomas (1968), pp. 32-33; Thomas (1954), pp. 83-122; Henderson (1970), p. 1). In particular, the multinational corporations of the advanced nations and the SEPs (scientists, engineers, and physicians) of the poor nations are moving in the opposite directions. Furthermore, no price is paid for the "drained brains" by the receiving countries. This 'unrequited gift' to the rich nations is looked upon as a foreign aid in reverse (U.S.N.W.R. (1967), pp. 78-81; U.S.H.R. (1974), pp. 152 ff.). A recent study conducted by the Subcommittee on National Security Policy and Scientific Developments of the Committee on Foreign Affairs, United States House of Representatives (U.S.H.R. (1974), p. 89, hereafter cited as the Committee on Foreign Affairs) aptly described the situation:

Brain drain, particularly as it relates to the LDCs, derives from structural maladjustments in the economies of the developing countries. An undesirable byproduct of unbalanced national development, brain drain has its root cause in the larger problems of economic development. It is a symptom more than a cause of underdevelopment. Briefly, brain drain can be a consequence of a forced march from a starting point of underdevelopment to what is ultimately expected to be a goal of economic modernity.

This paper analyzes the economic significance of the brain drain, both the pros and cons, in order to propose appropriate remedies.¹

I. The Economic Significance of the Brain Drain: The Pros and Cons

There are five different views, according to the Research and Technical Program Subcommittee of the Committee on Government Operations, United States House of Representatives (1967, pp. 13-16 hereafter cited as the Committee on Government Operations). (1) One view holds that the brain drain is nothing but "hullabaloo." (2) A related view is that the brain drain is not a problem, rather it is

¹ For a brief discussion of causes and remedies, see Kim (1967), p. 8-3 and Kim (1968), Chapter 5.
a boon. (3) A third view emphasizes that there should be a distinction between brain drain from the rich nations and from the LDCs. (4) A fourth view admits that there is a brain drain problem, especially for the developing nations. (5) A fifth view calls for a modification in the official United States position in a number of particulars: a candid recognition by responsible authorities, frank discussion with the losing countries so as to find some remedies, ways to increase the supply of American physicians, and consideration of the effects on foreign scientific manpower of future major Federal research and development (R and D) projects.

These various views could be boiled down to two major aspects: the pros (or “internationalist” approach) and cons (or “nationalist” approach). In this study, the former is renamed as G-macro (global-macro) approach and the latter as G-micro (global-micro) approach. Although the Committee on Foreign Affairs (1974, p. 130) pointed out that “the internationalist and nationalist models create polar opposite positions and thus offer no solution to this very complex problem,” it is nonetheless important to know the differences so that remedies can be more appropriate.

In the context, (A) refers to the “pro” argument, which possesses a G-macro aspect, and (B) refers to the “con” with a G-micro aspect of the brain drain.

1. The Economic Unit

The economic desirability and undesirability of the brain drain, first of all, depend on the nature of the economic unit: the global economy versus national economy.

(A). The concept of the brain drain is apt to be related to nationalistic anti-colonial sentiments on the one hand and anti-American sentiments on the other (Johnson (1968), p. 70). This is because of a general assumption that a net migration is directed from the former colonies to the ex-imperial European nations, and from Europe and other developing countries to the United States (U.S.H.R. (1974) p. 33). Johnson (1968) declares:

I adopt a cosmopolitan liberal position, and regard nationalism as one of the less pleasant mental vices in which mankind indulges itself, or as one of the characteristics of childish immaturity out of which I hope the people of the world will ultimately grow.²

This strong view is reflected in articles written by Grubel (1966), and Grubel and Scott (May 1966, August 1966, Fall 1966) whose study on the international migration of highly trained people was directed by the author of the above quotation. Grubel and Scott

² Johnson (1968) p. 70.
likewise criticize those nations, which are concerned with the brain drain as their losses, as “outmoded nationalist” whose objectives are to maximize their military and economic power as well as national prestige (Grubel and Scott (May 1966), pp. 289, 274). They specify the fact that economic power does not depend as much on aggregate national output as it does on per capita income. The world economy, therefore, is a valid unit.

(B). The “nationalist” or G-micro view strongly disputes with the G-macro approach. An implicit assumption of the internationalist view is that nationalistic countries are interfering with the free flow of human capital in an international market. This kind of opinion, however, already reflects to a highly significant degree a demand for the brain-power “generated by the nationalistic considerations of the United States government defense and space programs” (Patinkin (1968), p. 106). Patinkin (1968) elaborates this point:

Clearly this [space] program has a highly nationalistic motivation and is not being undertaken purely for its scientific importance; correspondingly, one can seriously doubt whether the “world social welfare function” is being maximized by devoting so much “brain power” to it.³

Each nation-state presents distinctive characteristics in economic performances and aspirations. Westoff (1973, p. 86) prefers to restrict immigration into the United States, which reflects a nationalistic view: “obviously, the fewer people we have, the easier it will be to solve our many problems.” Ceilings on immigration into Canada were also proposed in 1975 by a joint parliamentary policy committee (NYT, Nov. 1975, p. 1). Canada requires immigrant medical doctors to have positions arranged before they arrive or to agree to practice in areas such as the Arctic where medical care is deficient (NYT, Feb. 1975, p. 9). A similar development in the United States is to create an independent, private organization, composed of individuals from a wide variety of backgrounds to oversee the nation’s medical system and to help correct its problems. One of them includes “how many foreign graduates of foreign medical schools should be allowed to study and work” in the United States (NYT, March 1976, p. 30). At present, 60 percent of the residents and interns of New York City’s nineteen municipal hospitals are graduates of foreign medical schools (NYT, Jan. 1975, p. 22).

Many of the problems resulting from the brain drain arise because of certain fundamental differences in national economies. From the point of view of economic development the brain drain is a more serious one and “more important than physical capital” (Boulding,

³ Patinkin (1968), p. 106.
Physical capital is indeed merely human knowledge imposed on the physical world. The post-war reconstruction and “economic miracle” of Germany and Japan, for instance, have shown this notion. It was equally a “nationalistic” performance, at the height of the 1950’s so-called McCarthyism, that the United States deported a Chinese scientist who in the 1960’s completed the missile system for delivering a nuclear weapon (Adams (1968), p. 259). The economic structure and growth of the world, as Kuznets has made clear, can be studied best if we view mankind as organized into nation-states (Kuznets (1964), p.3).

2. The Individual’s Aspect

(A). While immigrants as a whole might suffer from the language barriers, possibly bad working and living conditions, inadequate skills and/or psychological preparation for their job, social and religious discrimination, limited mobility and settlement problems, such a great vulnerability to dismissal in case of redundancy, the brain-drainees transcend most of these shortcomings. They are prone to be better off because of competent talent and knowledge which are internationally marketable. Tycho Brahe of Denmark encouraged such an emigration:

And when statesmen or others worry him [the scientist] too much, then he should leave with his possessions. With a firm and steadfast mind one should hold under all conditions, that everywhere the earth is below and the sky above, and to the energetic man, every region is his fatherland.

It is well known historical incident that human capital under Hitler’s hegemony precisely followed Brahe’s advice. Laura Fermi has written about the exodus of the brain power from Europe, driven to American soil by forces of intolerance and oppression (Fermi (1968)). Those who came to the United States found not only a haven of comfort but a stimulating “home” in which they could carry on their work. Their contributions are by no means small. Medical R and D (research and development), including Dr. Alexander Fleming’s discovery of penicillin in 1928 and Dr. Jonas E. Salk’s vaccine for polio, benefits all mankind.


Thus the individuals have a free will to choose unless the private benefits from migration are in one way or the other obtained at a social cost. The Universal Declaration of Human Rights proclaims: “Everyone has the right to leave any country, including his own, and to return to his country.” (Article 13, Paragraph 2). Those who possess “universal” knowledge and skills are more fortunate wherever their productivity is the highest. Scholars also seek academic freedom and better research facilities. The rich nations offer both of these. The young German physicist and Nobel Prize winner Rudolf M. Mössbauer came to the United States because of the University of Munich refused to provide the laboratory equipment that he requested. Those who have returned after completing their higher education in, say, the United States usually found themselves in a position where these two items are often missing.

At any rate, migration of human capital is an economic advantage to both the individuals involved and the world economy as a whole. Productivity, employment, and output are much higher. A higher standard of living and a greater economic stability are realizable. And it is only logical for a man to try to emigrate in order to assure for himself and his family a better future (Stark (1967), p. 4).

(B). The G-micro approach maintains that it is always the best brains “the seed corn” elements that depart. Another unique yet negative effects of the brain drain on the LDCs are the possible genetic implications. This hypothesis is developed by Richard Lynn (U.S.H.R. (1974), pp. 162-164). He begins with an assertion that intelligence is principally determined by inheritance and the production of intelligent children by the intelligent people. Thus, if the brain drain from the developing nations continues, the genetic quality of the remaining population is “likely to deteriorate.” He also cites the resultant impairment of Germany’s scientific achievements during the Hitlerian period when many scientists fled the nation.

In addition, the brain drain implies the loss of actual and potential leaders, scholars, entrepreneurs, artists, and innovators. The consequence is not only the loss of investment in human capital but also the loss of national prestige. Advancement of scientific-technological knowledge are delayed and government revenues may also be reduced. Needless to say, emigrating professional elite are likely to be ones who pay higher taxes than the average people. From the nationalistic point of view, therefore, those who leave the country should be considered as “traitors to the country.” It is small wonder that the Pan American Health Organization’s Advisory Committee on Medical Research fully endorses Houssay’s statement:

Science does not have a homeland, but the scientist does — the land where he was born and educated; the land that nurtured
him, gave him his schooling, and gave him a place in his profession; the home of his friends and family...

Every man has a tacit, unsigned commitment to help his country. His education has been made possible by the labor of the entire population — farmers, industrial workers, and professional people — who produced the resources that maintained him and supported the schools and universities. He should repay the people by devoting his highest efforts to the advancement of his country.6

3. Surplus versus Shortage

(A). A shortage of qualified manpower in the rich nations and the available supply of human capital in the poor nations, at least in the short-run, are evened out by migration. Again, the G-macro view insists that the benefit is mutual and both parties can enjoy the pressure-relieving effect. In this instance emigration provides a natural safety valve rather than constituting a brain drain as such (Johnson (1968), pp. 72-73). For example, productivity for certain professions in Greece would be much less if there were not an average annual outflow of nearly 25 percent of new graduates during the past decade. This kind of migration allows for more efficient organization and utilization of remaining human and natural resources (U.S.H.R. (1974), p. 138). Thus, international migration is a silent protest against a lack of systematic manpower policies and diseconomies in the sending countries.

It is universal that physicians prefer the cities to the countryside and also prefer the rich nations to the poor ones. Some countries try to correct this internal brain drain of doctors by making it mandatory for young doctors to serve in rural areas for a few years. The result is often far from the desired goal. Many Israeli physicians left the country and came to the United States.

(B). Emigration of physicians does not justify the above statement. Actually, most of the developing nations face a shortage, not a surplus, of physicians. Perhaps the short-run demand may be lacking, but there are long-run needs. The physician-population ratio is very low in the poor nations. Even in the United States the ratio is not yet at an ideal level. There are 140 counties in the United States (covering 138,463 square miles, or approximately 3.9 percent of the total land area, with 497,000 inhabitants) which have no physicians engaged in rendering patient care (U.S.H.R. (1974) p. 174). The Committee on Foreign Affairs (1974) reports:

The doctor-to-population ratio for other advanced nations is also high. In 1960, Austria had 560 inhabitants for every doctor;

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Belgium, 700; West Germany, 650; Italy, 610; and France, 840. The ratio for the LDCs is in sharp contrast with those from the advanced countries. In 1960, the doctor-inhabitant ratio in the LDCs of Africa was one M.D. for every 10,100 inhabitants; Asia, 5,700; and North and South America, excluding the United States and Canada, 1,800 . . . the lowest ratios were Burman with 11,700 . . . .

It should also be noted that the detection of outstanding scholars at a younger age is almost impossible. Accordingly, the loss involved in the outflow of young Ph.D.'s is greater than usually considered. In Mondale's view, this is a "potential catastrophe," for the talented professional or student is more than mere manpower in the developing countries. He is a leader in his "nation's upward movement from colonial subservience to full participation in the world community." The principle of free movement is certainly a more convenience principle for the gainers than it is for the loser.

4. Costs versus Benefits

(A). Remittances are a good example of the benefit. Emigration results in a "vertical mobility" — from low income to high income employment. It also constitutes a remedy for low wages in the sending nations. At the same time, the capital brought back by the returning migrants and the family allowances sent by the social security authorities to the families remaining in the country of origin are equally significant. Table 1 presents the emigrants' remittances to some European countries.

There is no way to separate remittances sent by the "drained" brains. Italy and Greece, as well as Spain, show increasing trends of remittances in terms of national income. In a percentage change, Italy's receipts have increased by more than three times between 1953 and 1962, from 0.6 percent to 1.9 percent of national income. The figure also represents more than one-fifth of Greece's imports. This allowed these countries a larger consumption of raw materials and machinery plus an opportunity to continue the process of transforming the national economy. For those economies which are at the beginning stages of economic development, the migratory flows represent a lightening of unemployed manpower (Parenti (1967), p. 224). The possibility of the sending country disposing of an additional quota of imports without upsetting the balance of payments is a positive factor in the migrating country's process of development.

8 Mondale (1967).
9 This part is restricted to the pecuniary aspect alone.
<table>
<thead>
<tr>
<th>Year</th>
<th>Italy</th>
<th>Greece</th>
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<tr>
<td></td>
<td>Remittances (%)</td>
<td>Imports (%)</td>
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<tr>
<td>1953</td>
<td>103.1</td>
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<td>1954</td>
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<tr>
<td>1955</td>
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<td>1957</td>
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<td>1962</td>
<td>638.1</td>
<td>9.0</td>
<td>1.9</td>
<td>153.3</td>
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Henderson (1970, pp. 125-126) also points out the fact that the remittances of portions of overseas earnings to the home country reduced the balance of payments deficit substantially. Turkish workers abroad, probably mostly unskilled, sent a total of $70 million home in 1965, equivalent of 15 percent of Turkey's export proceeds or 12 percent of its import bill. During the period 1964-1968, medical personnel from South Korea working abroad remitted a total of more than $14 million. He concludes that some no doubt send home more than they could have saved and sometimes more than they could have earned, if they had worked in their own countries (Henderson (1970), p. 126). Lebanese send home between $130 million and $200 million annually. This amount is estimated to be between 10 and 15 percent of its GNP. Remittances by Filipinos abroad amounted to $102 million for the period January, 1955 and July, 1969 (U.S.H.R. (1974), p. 160).

The emigrating nations as a whole do not have enough facilities for R and D or the qualitative aspect of human capital formation. Moreover, inadequate scientific-technological infrastructure, and lack of qualified teachers and graduate institutions are equally prevalent (U.S.H.R. (1974), pp. 92-93). The brain drain reduces these disadvantages because the scholars probably would never have been able to carry on their research work if they had not migrated. They are given the necessary equipment and facilities, not to mention academic freedom, so that inventions and discoveries would flourish.

The Japan Times adequately sums up the sentiment:

We give scholars little in the way of facilities and even less in research funds. The bitter competition for these meager funds and facilities creates pressures in the form of factionalism and jealousy where there should be collaboration. By comparison, scholars in the United States are given equipment and funds beyond the wildest dreams of their Japanese colleagues... The fault lies with ourselves. It does seem that the Government and industry have both been guilty of being penny-wise and pound-foolish. The simple truth is that we are not paying enough for research talent and facilities. Our failure to do so may leave deep scars on future generations to come.10

In this age of the "revolution in modern communications," new technology, as well as new knowledge, can quickly be diffused throughout the world. In our "global village" (U.S.H.R. (1974), p. 110), a common market for brain power has developed, transcending national boundaries. Grubel and Scott (May 1966, p. 274; Fall

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1966, p. 98) conclude that the brain drain increases overall world welfare. The United States is engaged in a transfer of resources to developing countries, including the training of students. They insist on the free movement of human capital and on the expansion of the United States foreign student exchange program.

(B). The trouble with the brain drain, and migration as a whole, remains with the concept of unrequited gift. While the immigrating nations reap the fruits of services of human capital, they have not paid any of the “drained” brains’ educational and training costs prior to their admittance. According to a recent study of the brain drain by the UNCTAD (United Nations Conference on Trade and Development), the United States, Britain, and Canada gained some $50 billion from the 230,000 skilled personnel who migrated to these three countries from the LDCs between the early 1960’s and 1972.11

In general, human capital from a developing country brings with him a value of education, training and skill. Henderson (1970, p. 131) assumes these costs per professional is about $10,000. On the other hand, both the Research and Technical Programs Subcommittee of the Committee on Government Operations (U.S.H.R. (1967), p. 7), and the Subcommittee on National Security Policy and Scientific Developments of the Committee on Foreign Affairs (U.S.H.R. (1974), p. 152) of United States House of Representatives took $20,000 per person in education and training. This is based on Charles V. Kidd’s estimation. The following data, therefore, would give the scope and magnitude of “foreign aid in reverse” to the United States:

.. In 1956-60, 7.79 percent or 111,193 of the total 1,427,841 immigrants were professionals. In 1961-65, the percentage jumped to 9.01 percent or 130,641 of the total of 1,450,312. During 1966-70 the percentage increased to 11.06 percent or 207,022 of the total of 1,871,365 incoming immigrants. This period reflects the changes made in the 1965 Immigration and Nationality Act. The immediate effects were to increase the inflow of professionals in the fiscal year 1967, the first year when the law came into effect. The second effect was the increase in Asian professional from 7.2 percent in 1965 to 29.7 percent in 1967 and on to 52.9 percent in 1970...12

Where one uses the $10,000 per person figure or $20,000, the result is simply amazing. Another study on the total foreign medical graduates (FMGs) in the United States use an estimated figure of $83,000

12 Committee on Foreign Affairs, Brain Drain ..., op. cit., p. 36.
per person in education and training. As of December 1970, there were 63,391 FMGs and this represents a theoretical savings for the United States, if the equivalent number had been produced from native American stock, of roughly $5,261,453,000 (U.S.H.R. (1974), p. 176).

Well-educated and fully grown persons are the benefits for the new nations but all "costs" of education and training are paid for by the old (sending) countries. Besides, their "foregone earnings" are foregone forever. This item is an additional loss or real cost to the emigrating nations. So long as we have a nation-state-based economic unit, these costs are more significant in terms of G-micro approach. The global-macro model cancels out some of the foregone earnings and the "cost savings" for the receiving nations.

In reality, an impression of the universal availability of technical knowledge is partly an illusion. Scientific discoveries, research and development are often aimed at the solution to a specific problem in a specific country adapted to the resources it possesses. On the whole, the spread of the industrial system is slow in this competitive world. "The pioneer countries," as Kuznets (1961, p. 21) discloses, "use their economic superiority to impede growth elsewhere."

The "replacement period" as a result of emigration of the key persons and leaders requires a longer span of time in the LDCs. Their emigration (or even mobility within a nation) may lead to disintegration of a system and demoralizes those who remain. The internationalist model fails to mention this kind of consequences.

5. Income Distribution and Redistribution

(A). A study conducted by the Committee on Foreign Affairs (U.S.H.R. (1974), p. 137) indicates that the LDCs are not without some benefits from the brain drain:

Lacking institutional resources for developing an educated elite, they resort to the ready-made and available academic institutions of the United States and other advanced Western countries. They can reap dual benefits: Directly from the many returnees who contribute their share to nation-building, and indirectly from the successes of their nationals abroad who participate in advancing knowledge. Loss to economic development may be exaggerated, but even so, emigration brings compensating benefits by eliminating the economic liability of oversupply, effecting rational manpower management, increasing productivity, and releasing social pressures of dissatisfaction. Finally, emigration can contribute to social change that in turn can act a corrective to the basic problem of underdevelopment.
In addition, some of those who stay in the rich countries may not be the “cream” or the ablest students, and may be some of them are “professional students” who are unemployable in the rich or poor nations. In this situation there is no adverse income distribution problem in sending countries. Some treat the brain drain as a mismatch of educated people and underdevelopment of the economy.

Following a process of decolonization, there are economic and political factors which tend to expand the university system in the LDCs. This not only results in an oversupply of educated people in an unreactive society but also in an inflexible system of “educational factories” with too much abstract education. A Say’s law of graduates is not applicable, and there is intellectual unemployment and underemployment. Clearly, the employable brain drain in such a case increases the world output as a whole and global welfare is increased.

(B). The evil side of the brain drain is an unequal distribution of income due to the loss of “income creating” factors. The result is more than a zero sum game: existing income difference between developed and developing countries is already too wide. It is becoming wider. Under the institution of private ownership of assets and properties, emigrants carry their wealth and capital with them. Of course, the other side of the coin is true: the returnees bring their accumulated wealth along with their knowledge.

Another adverse economic consequence is the income-reducing effect. A newly independent poor country with a less developed system of higher education suffers from an acute shortage of human capital. The brain drain during this stage is most serious. “At least,” states one writer, “we should not run a vacuum cleaner over another nation’s limited pool of trained people.”13 If this missing component is not replaced, emigration produces its full investment-curtiling effect, and national income is reduced. That is:

...either because there is nobody to replace them or because their departure and that of their families has resulted in such a fall in demand in the particular branch or branches of production in which they were previously employed as to make their replacement unnecessary.14

With respect to the oversupply of college-educated people in developing nations, this phenomenon is a result of underemployment. As an economy gains momentum, the demand for human capital itself

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is being modified by (a) an increase in Western-educated faculty members, and (b) an improvement in development plans which recognize the importance of highly trained human capital as a leading factor. A certain degree of intellectual unemployment is also due to traditional custom certain castes reject manual work.

Foreign aid is commendable but its magnitude and reliability, as well as interference by the donor, connotes more of a nationalist attitude. "If the United States and Russia ever become friends," Nasser once remarked, "only Heaven could give us aid." Patinkin (1968, p. 101) comments:

There are indeed flows of aid from one nation to another — but the relative impact of such aid on the world distribution of income is surely much less than that achieved by a nation-state within its borders. Thus even if we approach the problem of the brain drain from the viewpoint of maximizing "world welfare" the existence of nation state is a relevant factor.

Thus far we have examined the pros and cons of the brain drain between the G-macro aspect and G-micro view. Each side presents merits and demerits, and these are not entirely from value judgments. Nevertheless, some backgrounds have been established for more appropriate remedies.

II. Remedies for the Brain Drain

The variety of views on, and the economic significances of the brain drain imply that there is no easy solution. Neither the G-micro (or nationalist) approach nor G-macro (or internationalist) approach could be a proper policy guide. To demand a complete cessation of the international migration of human capital is unthinkable. In a sense, therefore, most of the remedies proposed by students of the brain drain tend to overlap between the national and international solutions. Now a few original suggestions are included.

A. Remedies: The International Level

1. The I.M.P.O. (International Manpower and Placement Organization) Proposed.

The best remedy, it would seem to this writer, is close cooperation among nations. For this he proposes the establishment of the I.M.P.O. under the auspices of the United Nations. The fundamental philosophy is based on its Charter, especially Article 55. There are several national and regional establishments of manpower policies and placement (employment) services. The I.M.P.O. would integrate all of these on a global scale so that the exchange of skilled personnel by pooling surplus human resources, unified research and planning, and
the solution of urgent problems could be implemented so as to meet both the short-run and long-run needs.

Figure 1 represents a tentative organizational chart. Each one deserves a brief explanation. The numbers in the chart correspond to explanatory notes.

(1). Both functional commissions (particularly Statistical, Social Development, and Population Commissions) and regional commissions (Europe, Asia and the Pacific, Latin America, and Africa) would be coordinating and rendering assistance to the I.M.P.O. In addition, legal and other international relations could be solved through the Economic and Social Council which in turn would cooperate with other United Nations organizations.

(2). Advisory Council: Among specialized agencies of the United Nations, UNESCO, United Nations Institute for Training and Research (UNITAR), and International Labour Organization are closely related to the purpose of the I.M.P.O. These three agencies, whose wide experiences are enormously valuable, could form an advisory council so that both qualitative and quantitative aspects could be handled.

(3), (4), (5), and (6). There are four major “Offices” within the I.M.P.O. The Office of Manpower Research and Planning (6) would conduct the global survey and research the supply of and demand for human capital. This should be based on each national manpower administration or government’s voluntary cooperation. Programming and assessment of national manpower could be more objective and reasonable. Appropriate policies could be proposed for the short-run and long-run requirements. International exchange of human capital could be implemented on the basis of this Office’s recommendations. This way we could share our surplus human capital and eliminate the emotional connotations of the brain drain.

The Office of Placement and Migration (5) acts upon corresponding offers and requests, either provisional placement or permanent migration. By doing so, the “brain drain” could be more constructive and mutually beneficial. This is because of the fact that a perfect autarchy of human capital within a nation is impossible.

If the two Offices (5 and 6) are unable to meet the needs or to reduce the discrepancy, the Office of Education and Training (4) arranges a positive approach in terms of education and training in various countries. UNESCO has been publishing information on foreign study — financial aids, the number of “foreign” students, and other related data. All these could be materialized under the Office of Information and Publications (3) through which each national government, rather than the individuals, could seek and secure necessary published materials, including translated ones. The individuals could
Figure 1
The International Manpower and Placement Organization (I. M. P. O.)
A Tentative Organizational Chart

Notes: ---: Voluntary cooperation, ---: Direct relationship.
*United Nations Institute for Training and Research.
subscribe to periodicals and other academic journals through their national agencies. Those who have returned to their native lands after completing their studies in developed nations yearn for academic journals. Thus, this kind of service could render not only satisfy of their needs but also the prevention of a certain degree of the brain drain.

Another important area of consideration is a “Bureau of Translation” within the Office of Information and Publications. Even in the United States, one can testify to the insufficiency of translated materials about Asia, Africa, and Latin America. The developing nations need more translated materials but funds are the most crucial bottleneck. This “Bureau” could cooperate with respect to the selection of good materials, editing and choosing proper terms in different languages.

If possible, a “Book Bank” could be added so that the supply of certain relevant materials, for instance textbooks for needy nations, could be shared. The richer countries could help the poorer ones by sending surplus or old-edition-but-useful books to schools or libraries. The major national libraries, such as the Library of Congress in the United States, could render valuable, and otherwise inaccessible, services to other nations, and vice versa. Even exchanges of rare books could be attempted.

The Office of Education and Training (4) and the Office of Placement and Migration (5) are good initiators with respect to counselling and vocational guidance in developing nations that do not have this type of service. An International Counselling and Vocational Guidance Seminar was held in Turin, Italy in April, 1968 at the invitation of the Italian Minister of Education. The Seminar discussed the problems and tasks of educational and vocational guidance at universities and the institute of higher education together with the forms and methods of guidance and counselling for students. These services are fundamental and urgent if the brain drain is to be prevented. The I.M.P.O. is more meaningful if the domestic efforts could solve the major problems; it is an appropriate organization which could sponsor counselling and vocational guidance.

These four “Offices” are also responsible for coordinating their activities with corresponding “Divisions” (8) at the regional level.

(7). Regional Manpower and Placement Services: The I.M.P.O. is divided (tentatively) into four major regional “Services.” This division is the same as the regional economic commissions of the United Nations. A.M.P.S. (African Manpower and Placement Service) embraces all African nations. E.M.P.S. (European Manpower and Placement Service) is divided into two groups: Eastern Europe and Western Europe. Asian Manpower and Placement Service (As. M.P.S.) consists of the North-Eastern Group, the South-Eastern Group, and the Middle-East Group. It is also possible that part
of the Middle-East and North Africa could form the Arab Manpower and Placement Service. Latin American nations could form a “Service” while North America could be divided between Canada and the United States. These divisions are arbitrary and provisional; they are flexible in nature according to the needs of particular regions or nations.

On January 28, 1976, six countries India, Indonesia, the Republic of Korea, Pakistan, the Philippines and Thailand signed an instrument providing the creation of an Asian Center for Training and Research in Social Welfare and Development. The Center will provide a “pivotal role” in concerted regional efforts to improve the quality of life and living conditions of the poor is to be established in Manila. The other regional institutions operating under the auspices of the United Nations ESCAP (Economic and Social Commission for Asia and the Pacific) are the Asian Center for Development Administration in Kuala Lumpur; the Asian Development Institute in Bangkok; and the Asian Statistical Institute in Tokyo. Thus, within the proposed As.M.P.S., for example, regional projects have materialized already.

The proposed As.M.P.S. within the I.M.P.O. would integrate all of these “regional centers of excellence” in a feasible way so that nationalism and apathy could be transcended, and more cooperation could be realized. A unified and realistic manpower policy within a nation could become a reality. Each one of these regional “Services” has four Divisions (3), collaborating with international Offices (3 through 6). The main functions of “Divisions” are the same as (3) through (6) explained above. These would have more detailed and unique features than the “Office” level.

In addition to the International Manpower and Placement Organization, the rich nations could arrange generous provisions, by letting “brain drainees” serve two to three years in their original countries, a revised version of the Peace Corps. Let us call it the “Development Corps.” Herein lies a new and challenging field of American foreign policy in the year of bicentennial. Of course, this device must be voluntary. During their sabbatical leaves, these “brains” could join the Development Corps or work for the I.M.P.O., more precisely regional Manpower and Placement Service, would work with existing national committees of World University Service.

2. The “Development University System” Proposed

While the I.M.P.O. (International Manpower and Placement Organization) is urgently needed, it will take time to be seriously considered and realized. Meantime, the brain drain problem is still

with us. Attention, therefore, is directed to the generous cooperation of the United States, and indirectly the United Nations. The proposal is a combination of modified foreign aid and official United States view on the brain drain cited at the beginning of this paper.

To begin with, the present writer proposes that four Development Universities be established in the United States, attached to the existing institutions. Locations and affairs (or specializations) are tentative and flexible: “Western” Development University in the San Francisco area dealing with Asian affairs; “Southern” in the Austin area dealing with Latin American affairs; and “Northern” in the Chicago area dealing with North American affairs; and “Eastern” in the Boston area dealing with European and African affairs. As the United States, along with other rich nations, has been using “ready-made” human capital from the poor nations, would it not be feasible to offer “ready-made” American facilities for educating and training of human resources from other lands for particular purposes? There are signs of excess capacity in facilities and declining enrollment in higher learning in the United States while other nations lack these.\(^{16}\) What are some of the advantages and the main purpose of the proposed System?

(A). The Development University System is not to replace the existing foreign student programs in the United States; rather it is to be an additional “institution” for two major aims: not only to educate more students from the poor nations but also to reduce or even prevent the brain drain.

Since the brain drain occurs mainly in the “F” visa (non-sponsored student) category, students from developing nations who choose to study at one of four Development Universities would be admitted under, say the “D” (for development) visa category. Return to their native lands upon the completion of studies is mandatory. The “D” visa students, therefore, are aware of certain advantages and obligations beforehand over the “F” visa students. This is by no means implying that all of the “F” visa students are permitted to stay permanently in the United States.

The “F” visa students must compete with American students and meet all the requirements and regulations specified by particular institutions, other than the Development University System. They earn regular academic degrees and have to solve their own financial problems. The “D” visa students would be either non-degree special students, or working for regular degree programs, depending on their studies and needs.

(B). During their first year of study, some of the courses could

be taught in the foreign student's own languages by the "drained" brains.\textsuperscript{17} This would reduce frustration, misunderstanding, and disappointment because some foreign students in regular American colleges and universities fail academically only because they are not proficient in the English language, not because of the level of their knowledge. Of course, there can be exceptions. The program also gives a sense of at-homeness in the United States, and perhaps fosters a better adjustment to the new environment in general.

(C). At the same time, the Development University System should not be an exclusive club. The Peace Corps volunteers, specialists on (international) regional studies, representatives of multinational corporations, and other interested American students are to be admitted. Two institutions were already offering graduate programs restricted exclusively to foreigners (Williams) or half-and-half (Vanderbilt). If room-mates could be matched on a one-to-one ratio (between American and foreign student), nothing could be better so far as language and mutual assistance are concerned. This informal "mutual tutoring" system would be more beneficial and would even ease some of the social and psychological problems as well. Where else could experts on other parts of the world meet such a well-represented group of people?

(D). Being an independent education system, the Development University System could offer more relevant subjects so that the graduates could contribute directly and sufficiently when they return to their native lands. At present, foreign students must meet the American academic requirements and specialize in American or Western culture. This is necessary, too. Yet, the returnees need knowledge which is more relevant and technically suited for their country, making it more applicable. This is the reason why each of the Universities could specialize in different "affairs" along with regular curricula.

(E). If possible, more of the mature students could be admitted. This point is equally advisable to the "L" visa students. The Institute for International Education in the United States had adopted a policy of discouraging students coming to the United States for undergraduate work. If the level of the Ph.D. programs in their native lands is inadequate, it would be better to offer more of the post-doctoral research. Even during the period when students are writing their dissertations, it is desirable to allow them to go back to their countries if faculty advisers are available. The University

\textsuperscript{17} This is the same kind of program which has been offered for visiting armed forces personnel at various military installations under the auspices of the United States Department of Defense.
of the Philippines-Cornell Graduate Education Program is a good example. Such a device enables graduate students to get started in research under their own conditions and thus, even while being trained, to contribute to the development of their university and country. In general, matured students are well “rooted” in the lands of their birth and less likely to be tempted by the host nations than young bachelors at the secondary and college levels.

(F). Financial aid should be more liberal for the Development University students from other lands. More students could be induced to participate and even encouraged in their studies, and, for sending nations, the costs would be less expensive than losing the “brain” altogether. If the costs could be shared by the United States, it would be more acceptable price for the host country because of promoting mutual understanding and technical aid. The present writer prefers a joint financial method, depending on ability-to-pay by sending nations. The recipients could be convinced that they have obligations, financially and morally, to go back to their own countries. The “D” visa and the financial assistance could be conditional and mutual.

(G). If the circumstances permit, the “D” visa holders should be allowed to engage in the “practical training” period of eighteen months. This would give them an opportunity to “see” and “feel” the United States. No foreign student can report fairly to his own people about the United States if he had been “confined” to an ivory tower.

(H). The System could start with existing university facilities in the United States. As noted, Williams and Vanderbilt are two good examples of pioneering institutions which have launched their programs along these lines. The Act for International Development, the Mutual Educational and Cultural Exchange Act, and many others would be applied to the establishment of the System. Many are concerned about a new directive announced by Immigration Commissioner Lenard F. Chapman, Jr., on April 19, 1974, relating to foreign student summer employment (U.S.H.R. (1974) p. 204). Foreign students must obtain permission from the Immigration and Naturalization Service rather than from school officials before they work during the summer time. This will discourage potential students who planned to come to the United States for their further education. In this sense, the Development University System appears to be more relevant and urgent.

Programs of international education exchange have been an indispensable device to promote international understanding and cooperation. This is what the Committee on Foreign Affairs states (U.S.H.R. 172-173):

These programs virtually revolutionized American advanced education; they contributed enormously to the development of area studies in American universities; they broadened the horizons of American students and educators studying abroad who were brought into direct contact with other cultures and other civilizations; they opened up the American educational environment to new and enriching influence from incoming foreign students; they provided the means for encouraging the inflow of young, energetic, new citizens whose potentialities were yet to be realized as researchers, educators, and professional workers in other fields; and, not least of all they fostered a spirit of internationalism within a new generation of Americans.

B. Remedies: The National Level

The brain drain is a complex problem and its solution is very elusive. The first proposal is usually the attainment of economic development. Even the surplus of human capital itself might be traced to misallocation of resources, and be inversely related to economic growth. Creation of scientific-technological infrastructure is equally important (U.S.H.R. (1974) p. 209). The Committee on Foreign Affairs indicates, regarding Korea for an example, that “Korea had a core-group of newly trained nuclear physicists for creating a scientific research base in the nation but lacked the welders to build the necessary scientific apparatus” (p. 16). It is just as important to train midde-level as top level people.

Many have suggested a better salary scale with structures providing for a flexible promotion based on creativity and excellence rather than experience or seniority alone. More relevant and applicable education in a nation as well as abroad would be desirable. To begin with, improving the foreign student programs should start with a much better overseas selection system. When these selected students arrive in the United States, a better counselling channel should be available since the cultural shock and homesickness alone could baffle them.

An employment service sponsored by the American-Korean Foundation, for instance, could be implemented by other countries. A positive “brain gain” program inducing their nationals to come home would be another way of solving the problem of the shortage of “key personnel.” More systematic and continuous communication between home governments and students abroad is extremely important. This kind of “information gap” should be reduced because
those who stay abroad for a longer period of time tend to preserve
the picture of their home front as of their departure time. No nations
stand still any more do the students themselves.

Above all, the LDCs need a comprehensive and constructive
policy regarding their students in other countries. Investment of both
their tangible capital and their human capital should be complemen-
tary for better economic development. Every nation, developing and
advanced alike, should reduce or eliminate disequilibria in the de-
mand for and supply of human capital. Schultz (1975, p. 843) asserts
that the ability to deal successfully with disequilibria is enhanced by
education and this ability is one of the major benefits of education
accruing to educated individuals in a developing economy.

III. Conclusion

In summary, there is a brain drain problem and there are alter-
native solutions if mutual and inter-national cooperation is realized.
The present writer prefers the term “international migration of talent
and skills” to the term “brain drain,” because of the possibility that
certain suitable responses may result in bilateral or multilateral gains.
Nations must endeavor to move in directions which enhance both
national and global welfare. The time is matured for all concerned
nations to consider constructive alternatives, including those in this
paper, so as to derive a workable, or even a very valuable solution.

Foreign aid alone can only initiate economic development and
cannot solve manpower problems. The recipient country’s use of its
human capital must play a most crucial and indispensable role. “Brain
drain” is a universal situation which must be faced squarely and han-
dled suitably, and the solution should be initiated by the countries that
are losing their precious human capital.

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