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ABSTRACT

Data on the problem of the loss of professional manpower by developing countries to develop countries is reported and analyzed from a survey of over 1,300 foreign students in over 30 U. S. colleges and universities. The ideological and scholarly debate generated by the brain drain and approaches to the study of professional migration are reviewed, and a sociological model of student nonreturn is presented. The sampling and field work procedures for gathering the data utilized for identifying a pattern of student nonreturn in the U. S. are described. Factors considered as operating in responses to student nonreturn include characteristics of the students' countries, opportunities for work and education, social group influences, and motivational states. These factors are seen as operating at two time periods: the period before arrival and the period of study in the U. S. Discussion focuses on social group effects on nonreturn as well as objective opportunities and their perception by students within these two time periods. In the last chapters, multivariate regression models are proposed and analyzed. Finally, some of the policies that have been suggested to deal with the brain drain are discussed and evaluated in the light of the survey findings and analysis. (KSM)

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FINAL REPORT

Grant Number OEG-2-2-B034

SOCIAL DETERMINANTS OF NON-RETURN: Foreign Students from Developing Countries in the United States

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PREFACE

The loss of professional manpower to developed by developing countries promises to be a perennial problem in international relations. At the time of writing, brain drain stories are again appearing in the press, after a long hiatus. Clearly, they are a response to an underlying problem in developing countries.

The data on which this work is based were gathered as part of a massive effort by the United Nations Institute for Training and Research (UNITAR), at the request of the General Assembly and in conjunction with social science centers in various developed and developing countries. The data for this report come from a survey of over 1300 foreign students in over thirty U.S. colleges and universities, conducted by the Bureau of Applied Social Research at Columbia University.

The brain drain has generated a great deal of ideological and scholarly debate. Chapter I reviews what is known about the extent of brain drain and presents the two sides of the debate over its effects. Chapter II deals with the scholarly side of the debate, and after reviewing approaches to the study of professional migration, presents a sociological model of student non-return.

Chapter III describes the sampling and field work procedures for gathering the data.

Chapter IV utilizes the data to describe the pattern of foreign student non-return in the U.S., and discusses some of the contingencies of studying abroad associated with non-return.

In this work, student non-return is conceived as a response to many factors operating at various levels. Among the factors considered are characteristics of the students' countries, opportunities for work and education both here and at home, social group influences, and motivational states. Moreover, these factors may be seen to operate at two time periods: the period before arrival and the period of study in the U.S. Chapter V deals with the former while Chapters VI and VII deal with the period of study abroad. Chapter VI focuses on social group effects on non-return while Chapter VII deals with objective opportunities and their perception by students. In these three chapters, multivariate regression (path) models are discussed and analyzed.

Finally, Chapter VIII discusses some of the policies that have been suggested to deal with brain drain, evaluating them in the light of the survey findings and analysis.

Many individuals have commented on this and earlier versions of the report. I would like to thank Peter Blau, William Glaser, Christopher Habers, John Hammond, Stanley Higgenbotham, Christine Mironesco,

Robert Myers and Herbert Passin for their contributions. Peter Blau was particularly helpful in clarifying theoretical problems raised by multivariate path models. John Hammond helped me to understand some of the intricacies of path analysis. Herbert Passin shared with me his knowledge of foreign students and Asian countries. I am particularly indebted to William Glaser, who helped in all aspects of this work since its beginning.

The preparation of survey data for use in multiple regression, and the use of contextual variables, such as characteristics of the students' institutions, require a great deal of coding and recoding of data before it can be used by the computer. The National Science Foundation provided funds for this part of the work. The Sociology Department at Columbia University provided additional funds for this part of the work. Steve Butts instructed me in the use of the SPSS and UC360 computer programs, on which I relied extensively for analysis of the data. Christopher Habers helped in the computer transformation of some of the contextual variables used in the analysis. Phyllis Rodriguez and Eva Russo coded additional items from the survey. Phyllis Rodriguez aided in typing and editing the manuscript.

CHAPTER I

ISSUES AND PROBLEMS IN THE STUDY OF PROFESSIONAL MIGRATION

The issues in the brain drain stem from a change from manual to highly skilled labor in the pattern of immigration to developed countries.[1] While the U.S. is usually thought of as the country benefiting from large inflows of professional immigrants, Canada and Australia have also been beneficiaries. Canada's occupational mix in immigration has been even more skill intensive than the U.S.'s.[2] As for Australia, one fifth of its professional labor force in 1966 was born overseas.[3] Professional migration became an international issue when some observers in the countries of emigration, especially Britain, began to complain of large losses of their educated manpower and the harmful effects on their economies. For example, in 1967, Richard M. Titmuss of the London School of Economics, said that the U.S. had saved $4 billion by not having to train the 100,000 scientists, engineers, and physicians that

1. Issue on "The New Immigration," Annals of the American Academy of Political and Social Sciences, September 1966, especially article by Thomas J. Mills. pp. 33-42.
2. S. Watanabe, "The Brain Drain from Developing to Developed Countries," International Labour Review, Vol. 99, No. 4, April 1969, pp. 403-405.
3. R.T. Appleyard, "The Contribution of Professionally Trained Immigrants to Australia's Recent Economic Growth," in the Committee on the International Migration of Talen, Education and World Affairs, The International Migration of High-Level Manpower, New York, Praeger Publishers, 1970, p. 647.

that had immigrated since 1949.[4] In the same year, a committee composed of industrialists and academicians issued a report charging that Great Britain was entertaining costly losses of skilled manpower.[5] Other European countries experienced losses of skilled manpower as well.

Around the same time, some observers began to point out that while Britain and Europe in general may have been losing skilled manpower, the countries of Asia, Africa and Latin America were experiencing even greater and more serious losses. The same committee that charged losses by Britain also stated,

> "We know that in certain fields, such as medicine, Britain receives people from less well-endowed countries, principally in Africa and Asia, who partly replace British subjects who have emigrated."[6]

A similar phenomenon exists in Canada: large numbers of Canadian professionals migrate to the U.S. but their numbers are more than replaced by an inflow of professionals from developing countries into Canada. A related phenomenon is the use of Canada as a way station by professionals from developing countries entering the U.S.: one third of all professionals entering the U.S. from Canada are non-Canadian.[7]

In the eyes of many observers, brain drain from the developing

4. Cited by Richard L. Worshop, "World Competition for Skilled Labor", Editorial Research Reports, Washington, June 21, 1967, Vol. 21, No. 23, p. 444.
5. Committee on Manpower Resources for Science and Technology, The Brain Drain, Report of the Working Group on Migration, London, 1967.
6. Ibid., pp. 12-13.
7. Louis Parai, Immigration and Emigration of Professional and Skilled Manpower During the Post-War Period, Ottawa, Economic Council of Canada, Special Study No. 1, June, 1965, p. 30.

countries is a more serious phenomenon than brain drain from Europe and other developed areas of the world. One fear of many is that the brain drain from developing countries is depriving them of badly needed manpower, thus contributing to further increase the income gap between poor and rich countries.[8]

While some professionals contribute to brain drain by direct migration, large numbers create a drain by remaining abroad after completion of their studies. A National Science Foundation study reports that 60 percent of foreign scientists and engineers were living or had lived in the U.S. as temporary residents prior to becomming immigrants. Of these, 45 percent came originally as non-exchange students.[9] For some nationalities (e.g., Taiwan, India, Korea, Iran) 70 to 90 percent of professional migrants were students previously.[10]

Recognition of this problem has raised questions about the process and consequences of educating large numbers of foreign students. One of the most worrisome issues in international education is the extent to which the curricula of developed countries fit the needs of developing countries. Some educationalists feel that the educational system in developed countries in this way contributed to the brain drain:

> "What may need examination is the tendency to train some foreign students to such levels of competence and interest in advanced research in the physical and life sciences, that they cannot possibly find outlets for their skills

8. For example, Brinley Thomas, "From the Other Side: A European View," in "The New Immigration," op. cit., pp. 70-72; House of Representatives, Committee on Government Operations, "Scientific Brain Drain from the Developing Countries," Washington, March 28, 1968; Ebsan Naraghi, "L'exode des Competences: un Obstacle Majeur au Developpement," Politique Etrangere, Vol. 32, No. 3, July 1967.
9. National Science Foundation, Immigrant Scientists and Engineers in the United States, Washington, D.C., February 1973, p. 3.
10. "Scientific Brain Drain from the Developing Countries," op. cit. p. 7.

> and developed interests except in the United States or Western Europe at this time. This problem is less acute in the social sciences, but it also arises in connection with the health sciences."[11]

Another issue in student non-return is the extent to which government and educational institutions can contribute to solving the problem through administrative changes in entrance requirements. Less than 15 percent of foreign students in the U.S. are sponsored -- non-return among them is very low, since the J (exchange student) visa requires leaving the U.S. for at least two years (by law now, J-visa students must spend two years in their country of origin before applying for new visas).[12] Students who come in with F-visas are not as subject to administrative controls (although their reliance on government supported university employment to stay in the U.S. has been pointed out).[13] To encourage return among this group, more indirect measures would be needed.

Another issue is the extent to which the causes of student non-return are located in the student's country of origin and not in the U.S. or other developed countries. In testimony before a Congressional hearing on the brain drain, Dr. Charles Kidd claimed that the greatest anxiety about the brain drain is found in developed countries; officials in developing countries seem quite placid about the course of events. He went on to suggest some of the fundamental causes of brain drain

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11. Statement by the Rev. William J. Gibbons in House of Representatives, committee on Government Operations, "The Brain Drain of Scientists, Engineers, and Physicians from the Developing Countries into the U.S.," Washington, January 23, 1968, p. 11. See also remarks by Dr. Willian C. Thiesenhusen, pp. 25-41.
12. Public Law 91-224, 91st Congress, S 2593, April 7, 1970.
13. Prepared statement by Dr. John C. Shearer in "The Brain Drain of Scientists, Engineers, and Physicians from the Developing Countries into the United States," op. cit., p. 18.

found in these countries: a tradition of access to jobs based on influence rather than ability, unequal salary structures, traditions which center authority on a few senior positions and deny initiative to younger men.[14]

While observers disagree about the consequences of the brain drain for the development of the poor countries, all agree on the need for more and better statistics on the extent of the brain drain. Since the first discussions of the brain drain a great deal of migration data has been collected so that we now know more about the dimensions of the problem.

EXTENT OF THE FLOW OF PROFESSIONALS AND STUDENTS FROM DEVELOPING TO DEVELOPED COUNTRIES

The brain drain debate has influenced a number of countries to publish statistics about the migration of professionals to them. In addition private and international organisms have published statistical studies related to the problem. Since an adequate, detailed picture of these flows is given in other publications,[15] I will limit the discussion to the overall migration patterns found by investigations.

The skill-intensive nature of postwar immigration has been remarked upon previously. The percentage of professional, technical and kindred workers has remained around 10 percent of total immigra-

14. Ibid, pp. 41-42.
15. Most notably, Gregory Henderson, The Emigration of Highly-Skilled Manpower from the Developing Countries, New York, United Nations Institute for Training and Research, Study No. 3, 1970.

tion to the U.S. in the past fifteen years, and the percentage of scientists, engineers and physicians among these has fluctuated around one-third of all professional immigrants (see Table 1). In Canada, the percentage of professionals among total immigrants seems to have increased slightly through the 1960's from 11.0% of total immigrants in 1962 to 16.7% in 1966.[16]

While the brain drain debate is now passe, not so the processes which first brought it to the attention of policy makers. The percentage of skilled migrants into the U.S. remained stationary in the 1960's, but not the regional component of that migration. Immigration statistics show a rapid increase in the share of the total professional immigration by the developing countries. In the 1950's, approximately one-fifth of all professional and related immigrants to the U.S. came from developing countries. In the mid-60's, their percentage increased to two-fifths. In 1970, the share of developing countries has been estimated to be around 75% of all professional immigrants (see Table 2). Among scientists, engineers and physicians, the share by the developing countries has increased from 20% in 1952 to 46% in 1966 to over 75% in 1970. Thus, we may see that the trend is for the developing countries to send absolutely and relatively greater numbers of professionals into developed countries -- even at a time of economic recession, when there has been some talk of a reverse brain drain.[17] From the figures in Table 2, it is clear that there has been no reverse brain drain in the developing regions but only in Europe and other developed countries:

16. From Canadian immigration statistics cited by S. Watanabe, op. cit., p. 405.
17. "Brain Drain: Fewer Scientists Enter U.S., More Seek to Leave," Science, Vol. 169, No. 3945, August 7, 1970, pp. 565-569.

TABLE 1

TOTAL IMMIGRATION, IMMIGRATION OF PROFESSIONAL, TECHNICAL AND KINDRED WORKERS, AND IMMIGRATION OF SCIENTISTS, ENGINEERS AND PHYSICIANS INTO THE UNITED STATES, 1956 AND 1962 TO 1970

Year	Total Immigration	Immigration of Professional, Technical and Kindred Workers	Percent of total immigration	Immigration of Scientists, Engineers and Physicians	Percent of total professionals
1956	--	18,995	--	5,373	28.5
1962	283,763	23,710	8.5	5,956	25.1
1963	306,260	27,930	9.1	7,896	28.3
1964	292,248	28,756	9.8	7,810	27.2
1965	296,697	28,790	9.7	7,198	25.0
1966	323,040	30,039	9.3	9,534	31.7
1967	361,972	41,652	11.5	14,608	35.0
1968	454,448	48,753	10.7	15,285	31.2
1969	358,579	40,427	11.3	12,310	30.2
1970	373,326	46,151	12.4	15,423	33.2

Sources:

Scientific migration 1956 to 1966: House of Representatives, Committee on Government Operations, "The Brain Drain into the U.S. of Scientists, Engineers and Physicians," Washington, July 1967, Table 1, p. 2.

Total immigration 1956 to 1970, and professional migration, 1967 to 1970: Department of Justice, Immigration and Naturalization Service, Annual Indicator of the In-migration into the U.S. of Aliens in Professional and Related Occupations, Washington, 1968, 1969, 1970 and 1971, Charts 1 and 2.

TABLE 2

SHARE OF DEVELOPING COUNTRIES IN PROFESSIONAL, TECHNICAL AND KINDRED IMMIGRATION TO THE UNITED STATES, 1952 AND 1962 TO 1970, BY REGION

8 Year	Percentage immigration from Africa	Percentage immigration Asia and Oceania	Percentage immigration Latin America	Total Share developing countries	Total professional immigrants all countries
1952	--	--	--	(18-20)	--
1962-1966	--	--	--	41.5	139,226
1967*	1.2	29.2	13.0	43.4	41,652
1968	1.7	25.2	15.5	42.4	48,753
1969	4.2	40.3	15.6	60.1	40,427
1970**	6.0	49.9	23.0	78.0	46,151

* No separate figures for Cuba given; figures for "other North America" excluded from estimates.

** The use of limitations in the presentation of the 1970 figures, the regional estimates included countries excluded in the previous years' estimates, i.e., Japan, South Africa, Canada, Cuba, New Zealand and Australia are included.

Sources:

1962-1966: S. Watanabe, "The Brain Drain from Developing to Developed Countries," International Labour Review, Vol. 99, No. 4, April 1969, Table 1, pp. 404-405.

1967-1970: Immigration and Naturalization Service, Annual Indicator of In-Migration into the U.S. of Aliens in Professional and Related Occupations, Washington, 1968, 1969, 1970, 1971, Chart 3.

Note: Percentages were estimated from total figures by country for the years 1967 to 1969. The following countries were excluded from the estimates of developing countries: Japan, South Africa, Canada, Cuba, New Zealand and Australia; Turkey was included among Asian countries.

the share of the three continents in immigration, especially the share of Asia and Africa has increased tremendously.

So far I have refered only to professional migration into the U.S. Other developed countries share in the migration of professionals from developing countries, notably, Canada, Great Britain and France. Other European countries and Australia also have been getting increasing numbers of professionals from a few countries. In Canada, the percentage of professionals emigrating from countries other than Europe and the U.S. increased from 7.2 in 1946 to 37% in 1967.[18] Great Britain also imports professionals, especially from Commonwealth countries. For example, Britain lost 26,800 engineers from 1961 to 1966 while gaining 19,000 during approximately the same period.[19] France is also known to have a fairly large influx of professionals, but since most of these are from former French African colonies and since they are not considered formally as immigrants, it is hard to estimate the total.[20]

Like France, most of the other developed countries of professional immigration display a pattern of migration from ex-colonies or countries of special relationship. Immigration from Commonwealth countries makes up the largest part of the influx into Great Britain and Canada. European countries like the Netherlands and Germany have professional immigration from countries of special historical linkage, such as Indonesia in the case of the Netherlands. The U.S., as the main country of attraction in the world, has representatives from almost every country among its

18. Gregory Henderson, op. cit., p. 20.
19. Ibid., p. 26.
20. Ibid., p. 37.

professional migrants, but Latin Americans constitute a large portion of that immigration (one-quarter in 1970).

Table 3 presents some indicators of professional immigration and student non-return from developing countries in the U.S. Column (1) shows that total numbers of professional, technical and kindred (PTK) workers admitted as immigrants in 1968. The figures by country have been taken as a basis for some of the generalizations about which countries are the large and which are the small "drain" countries. Thus, Asian, some Middle East, and some Latin American countries show large numbers of migrating professionals (among these, the Philippines, Taiwan, India, Hong Kong, Korea, Iran, Israel, Jamaica, Colombia, Argentina, Mexico, Trinidad and Egypt, all countries which sent more than 400 professionals to the U.S. in 1968). Some countries sending few professionals to the U.S. we would expect constitute part of the drain in other developed countries. Such would be the case with Francophone African and North African countries, which send large numbers of their professional core to France.

Since immigration figures show only absolute numbers, the point has been made that they represent varying proportions of the country of origin's professional labor force. A large drain might become unimportant when viewed in this way, and conversely, a small number of immigrants might constitute a tremendous drain for a country with a small professional core.[21] Column (4) of Table 3 shows the total

21. Subiah Kanappan makes this point with regard to the case of India, whose drain has been estimated to constitute no more than 2% of its professional labor force; "The Brain Drain from Developing Countries", International Labour Review, Vol. 98, No. 1, July 1968, p. 6.

TABLE 3

INDICATORS OF IMMIGRATION OF PROFESSIONAL, TECHNICAL AND KINDRED (PTK) WORKERS FROM DEVELOPING COUNTRIES TO THE U.S. AND STUDENT NON-RETURN

Country	(1) Total PTK immigration in 1968	(2) Adjustment of F-1 to immigrant status in 1968	(3) Adjustment as percentage of PTK immigrants 1968	(4) 1967-1969 Ratio of PTK migration to total PTK in labor force	(5) Percentage of nationality changing F-1 to immigrant status 1967-1969*	(6) Myers' student non-return rates 1964
ASIA						
Afghanistan	16	3	18.8	--	6.63	1.9
Burma	70	12	17.2	--	51.76	11.3
Ceylon	35	3	8.6	0.0819	13.95	14.0
Cyprus	10	3	33.3	0.5073	4.62	12.7
Hong Kong	826	345	41.8	2.9622	--	15.4
India	1925	1262	65.9	0.2130	45.34	7.2
Indonesia	83	22	26.4	--	9.11	2.8
Iran	435	212	48.8	0.7110	14.23	17.8
Iraq	87	48	55.0	--	30.20	11.4
Israel	738	165	22.4	2.0416	21.79	13.0
Jordan	106	38	35.8	2.6514	12.92	14.0
Korea	680	378	35.6	0.9449	38.22	11.0
Laos	7	1	14.0	--	5.88	3.7
Lebanon	303	48	15.8	--	18.35	10.8
Malaysia	54	20	37.0	0.2634	13.93	6.8
Nepal	7	0	0	0.1009	2.20	0
Pakistan	135	65	48.0	0.0902	17.16	2.9

TABLE 3, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Philippines	4844	288	5.5	3.9189	29.36	8.8
Syria	61	39	64.0	0.6741	25.16	14.3
Taiwan	1718	1358	79.5	7.7242	64.17	11.7
Thailand	213	50	23.4	0.4277	3.35	3.6
Turkey	174	35	20.0	0.2633	11.97	9.1
Vietnam	66	17	25.8	--	6.12	5.4
Yemen	1	0	0	--	0	0
Other Asia	149	47	31.4	--	--	--
AFRICA						
Algeria	10	1	10.0	0.0149	5.13	0
Burundi	4	0	0	--	14.29	0
Cameroon	2	1	50.0	--	1.61	0
Central African Republic	0	0	0	--	0	0
Chad	1	0	0	--	0	--
Congo	21	0	0	--	0	--
Congo Republic	40	1	2.5	--	2.22	1.4
Dahomey	0	0	0	--	0	0
Ethiopia	16	4	25.0	--	1.42	2.3
Gabon	1	0	0	--	0	0
Ghana	47	10	21.2	0.0201	6.63	3.7
Guinea	1	0	0	--	0	0
Ivory Coast	0	0	0	--	0	0
Kenya	51	15	29.4	--	8.03	0.4
Liberia	31	4	12.9	1.2607	5.08	2.9
Libya	13	5	38.4	0.4227	5.91	2.1
Malagasy Republic	2	0	0	--	11.11	0

TABLE 3, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Malawi	3	3	100.0	0.2639	5.48	0
Mali	2	0	0	--	0	0
Morocco	27	1	4.2	--	10.14	3.9
Niger	2	0	0	--	0	0
Nigeria	83	45	54.4	0.0563	6.82	1.6
Rwanda	0	0	0	--	0	0
Senegal	2	0	0	0.1807	0	--
Sierra Leone	5	1	20.0	--	2.71	1.3
Somali Republic	0	0	0	--	1.06	2.5
Sudan	8	1	12.5	--	2.52	1.7
Tanzania	16	7	43.8	--	4.35	1.0
Togo	1	0	0	--	0	0
Tunisia	11	0	0	0.0797	3,88	4,4
Uganda	18	5	27.5	--	4.00	0
United Arab Republic	398	65	16.3	0.6125	21.53	7.5
Upper Volta	0	0	0	--	0	0
Zambia	10	3	37.3	0.3436	3.26	1.6
Other Africa	34	10	29.4	--	--	--
NORTH AMERICA						
British Honduras	67	0	0	29.7500	0	20.0
Costa Rica	122	0	0	1.4857	0.55	14.1
Dominican Republic	274	3	1.1	3.6368	1.37	20.6
El Salvador	83	0	0	1.1428	0	24.5
Guatemala	144	0	0	1.1797	0.94	18.0
Haiti	510	1	0.2	14.9461	0.19	30,6
Honduras	90	0	0	1.4681	1.44	17.9

TABLE 3, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Jamaica	1456	0	0	20.3232	0.07	7.1
Mexico	824	5	0.6	0.5147	0.64	18.8
Nicaragua	25	0	0	0.7841	0.48	14.4
Panama	109	0	0	1.7280	0.37	15.9
Trinidad & Tobago	521	1	0.3	7.3472	0.25	10.2
Other North America	471	5	0.1	--	--	--
SOUTH AMERICA						
Argentina	633	2	013	0.3346	1.52	21.6
Bolivia	81	2	2.4	--	0.47	25.7
Brazil	324	10	0.3	0.1050	2.99	8.2
Chile	176	1	0.6	0.3536	0.76	13.3
Colombia	764	1	0.1	0.9060	0.34	15.2
Ecuador	328	0	0	1.6413	0.19	15.0
Guyana	192	2	1.0	5.6637	1.14	10.7
Paraguay	14	0	0	0.2863	0	9.4
Peru	168	2	1.2	0.4264	0.94	15.7
Uruguay	52	1	2.1	0.2248	0	13.6
Venezuela	153	7	4.6	0.4372	1.32	8.8
Other South America	0	0	0	--	1.15	--
OCEANIA						
Fiji Islands	20	5	25.0	--	--	16.0
Pacific Islands	5	0	0	--	1.59	2.7
Tonga	4	2	50.0	--	--	15.4
Other Oceania	7	1	14.0	--	--	--

Sources for Table 3:

Total immigration of professional, technical and kindred workers: Department of Justice, Immigration and Naturalization Service, Annual Indicator of In-migration into the United States of Aliens in Professional and Related Occupations, Washington, D.C, 1968, 1969,1970, Chart 3.

Adjustment of F-1 to Immigrant Status: Annual Indicator, Chart 24.

Numbers of professionals in the economically active population: International Labour Office, Yearbook of Labour Statistics, Montreal, 1970, Table 1B.

Foreign Students in the U.S.: Institute of International Education, Open Doors, New York, 1969, Table 1, pp. 22-28.

Student Non-return rates: Robert G. Myers, Education and Emigration, Study Abroad and the Migration of Human Resources, New York, David McKay Company, 1972, pp. 130-135.

* The base for nationalities is the foreign student population in 1968.

numbers of PTK personnel admitted to the U.S. in the period 1967-1969. expressed as a percentage of the total number of PTK workers in the country of origin's economically active population in the 1960's. Viewed in this way, the speculations of some observers are confirmed concerning what the real magnitude of brain drain for some countries might be. India, for example, has lost a relatively small percentage of its professionals through emigration. Somr African countries with a small core of professional manpower show greater losses, even though they have lost few professionals in absolute terms (for example, Liberia lost a core of professionals equivalent to one percent of its professional lavor force in the 1960's. Jamaica, British Honduras and Haiti have lost a significant percentage of their labor force through emigration. So have Hong kong, Israel, Jordan, the Philippines, Taiwan and Guyana. Some countries are losers in both absolute and relative terms: Taiwan, Israel, Jamaica, Trinidad and Jordan.*

Professional Migration through Student Non-return.

Non-return as an alternative mode of immigration has been considered a serious problem in the U.S. as well as other developed countries. Little is known about the extent of student non-return in developed countries other than the U.S. except the common knowledge that many

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* Interpretation of these figures is subject to the usual cautions in analyzing comparative data. The accuracy of the census data varies by country. The data were collected at different times during the 1960's. Immigration figures do not record return flows, which one would expect to vary by country. Moreover, some countries with few professional immigrants in the U.S. have large numbers in other developed countries.

students never return to their countries after completing their studies.[22] In the U.S., the actual extent of student non-return from developing countries has been more earnestly looked into and some figures are available as guidelines.

The overall non-return rate in the U.S. has been estimated as 15-25%, although estimates have varied from as low as 1% to as high as 95%, depending on the population the researcher was studying and his definition of non-return.[23] (The 15-25% rate is based on Myer's analysis of the question on return intent in the Institute of International Education's annual consus of foreign students.)

Several indicators of student non-return are shown in Table 3. Column (2) shows the numbers of adjustments of F-1 to Immigrant visas in 1968 by nationality, and Column (3) shows these adjustments as a percentage of all professional immigrants admitted in the same year. Column (5) shows the number of F-1 adjustments in the period 1967-1969 as a percentage of the foreign student population in 1968, and Column (6) shows the non-return rates derived by Myers in his analysis of the IIE foreign student census. The figures in Column (3) corroborate some of the generalizations about the extent to which study abroad is a mode of immigration for some nationalities. Thus, among Asians, Chinese

22. Some rough estimates of non-return have been made: 30% for the U.K., 14% for Canada, and 20% for France. See New Society, (March 7, 1968), p. 346, Bruce Wilkinson, "Some Economic Aspects of Education in Canada," Thesis for the Ph.D., Massachusets Institute of Technology, 1964, p. 149, and United Nations General Assembly, 23rd Session, November 5, 1968, Outflow of Trained Personnel from Developing Countries, Report of the Secretary General, 68-24459, pp. 32-33, cited in Robert G. Myers, Education and Emigration, Study Abroad and the Migration of Human Resources, New York, David McKay Company, Inc., 1972, p. 51.

23. Myers presents a chart with the rates that have been estimated and the bases in ibid, pp. 53-59.

(Taiwan and Hong Kong), Indians, Iranians, Iraqis, Koreans, Pakistanis and Syrians are nationalities among whom at least 50% of its immigrant professionals entered the U.S. as students with F-1 visas. Among Africans, the total number of professional immigrants is small, and no nationality had F-1 adjustment rates higher than 50%, with the exception of Nigerians, the second highest nationality of immigration among Africans. Egyptians were the largest immigrant group from the African continent, but the percentage of them entering originally as students is small (16%). Latin Americans show the smallest percentage of adjustment of F-1 visas, since Western hemisphere immigration is on a non-quota basis.

Column (5) of Table 3 shows the total number of adjustments of F-1 to Immigrant visas during the period 1967-1969 as a percentage of the number of students from each nationality in 1968. The figures are not intended to be taken as true measures of non-return but only as a basis for comparing non-return potential among nationalities. For this purpose, the Latin American rates should be discounted, since, as indicated previously, these are non-quota nationalities. The rates conform to generalizations about the nationalities of non-return: high rates among Asians and Middle Easterners, especially Chinese, Koreans, Indians, Filipinos, Pakistanis, Israelis and Iranians. Among Africans and North Africans, the base number for most countries is low, but the rates tend to be smaller. Egyptians, which can be counted as part of the Arab world, show a high non-return rate (22%).

The rates of F-1 adjustment may be readily compared with the student non-return rates derived by Myers (Column (6)). These rates give

a truer picture of the extent of non-return among Latin American students and the low rates of African students. Myers is skeptical of the low rates shown among the Asian and Middle Eastern nationalities and estimates that they are higher than those shown.[24] In spite of discrepancies between the two measures of non-return, there is a fairly close consistency between them as indicators. Hervé compared Myers' rates with visa adjustments for the period 1962-1966, divided by the number of foreign students in 1963 and found a Spearman rank correlation of .77 for 38 non-Latin American countries.[25] A rank correlation of .78 between the same indicators of non-return was found for 25 non-Latin American countries with the data in Table 3.

An important question in the brain drain is the extent to which student non-return is a separate phenomenon from professional migration, i.e., are some countries likely to have relatively large numbers of its professionals migrate but have a relatively small number of its students remain abroad after completion of their studies. To determine this, the professional immigration rates shown in Column (4) were compared with the F-1 adjustment rates and Myers' non-return rates. A rank correlation of .56 was found between professional immigration as a percentage of the country of origin's professional labor force and Myers' rates (48 countries). A rank correlation of .77 was found between the same indicator of professional migration and the percentage of F-1 adjustments among students in 1967-1969 (25 non-Latin American countries). It is hard to estimate the difference between student non-return and professional migration among nationalities because of the shortcomings

24. Robert G. Myers, op. cit., pp. 129-138.
25. Hervé, op. cit., pp. IV-10-11.

of the various indicators, but clearly, not all countries of high professional migration have correspondingly high student non-return rates, and vice-versa.

Previous research makes it possible to present a characteristics profile of non-returning students. In his analysis of the IIE census of foreign students, Myers crosstabulated the students' migration intent against various background characteristics. Non-returning students are more likely to be in medicine, engineering and the humanities than returnees; returning students are more likely to be in business, science and agriculture. However, the differences between returnees and non-returnees in any field is only a few percentage points. For example, 31.9 of non-returnees were in engineering; among returnees, the percentage was 26.8. A clearer difference is foung in educational status: non-returnees are more likely to be self-sponsored, are younger, and are more likely to have been studying in the U.S. for a longer period of time than returnees.[26] These background characteristics can also be taken as partial determinants of non-return.

The preceding discussion is intended to summarize what is known about the magnitude of the flows of professional manpower from developing to developed countries. While observers differ in their estimates -- and more seriously, in their definition of non-return -- there is general agreement about which countries are those of large and which are those of small brain drain. When it comes to estimating what the consequences of these flows are for the development of these countries, there is little or no consensus. In the final section of this chapter, I summarize the theories and investigations about the effects of the

26. Robert G. Myers, op. cit., pp. 113-123.

brain drain on developing countries.

THE DEBATE ABOUT THE EFFECTS OF THE BRAIN DRAIN

Discussions about the presumed gains or losses to development involved in professional migration is one of the most tenuous areas of the brain drain issue. Not only are many of the pronouncements based on philosophical assumptions, but there has not been much research done. Morover, most of the empirical investigations have been confined to brain drain from developed countries to the U.S. In the discussions below, I will list some of the claims that have been made about benefits and harms of the brain drain, and whenever possible, refer to research that has thrown light on a particular claim.

The brain drain debate has little argument about an inflow of professionals being harmful to developed countries. The debate centers on supposed harmful effects to developing countries. One position in the debate -- labelled the "internationalist" position -- argues that at the most the brain drain has no ill effects on a developing country; at best is has beneficial effects. In a well known paper, Harry Johnson argued from the assumptions of international trade economics that the unrestricted flow of professional manpower was beneficial to the entire world. In analogy with physical capital, human capital flows to the area of greatest marginal productivity.[27] A similar argument is made by Herbert Grubel and Anthony Scott in one of their many

27. Harry G. Johnson, "Some Economic Aspects of the Brain Drain," Journal of the Pakistan Institute of Development Economics, Vol. VII, No. 3, Autumn 1967. See also his paper in Walter Adams, The Brain Drain, New York , The MacMillan Company, 1968.

many articles on professional migration.[28] They argue that in an economy where persons are paid their marginal product, the emigrant removes both his contribution to society and the income he receives; therefore, his departure leaves the economy unchanged. Both Johnson and Grubel & Scott mention the example of scientific emigration as a source of benefit to both developed and developing countries: the developed country gains scientists who increase their productivity under better working environments and the developing countries gain from the dissemination of the knowledge created by these men.* No attempts at operationalizing this theory have been made, although some related research has been done for developed countries. Thus, Mishan has estimated the values of the careers of British engineers and Michalopoulos estimated the difference between the savings lost through emigration and remittances sent home.[29] On the question of benefits derived from remittances sent home, one observer has estimated that these have a negligible effect because of the relatively small numbers involved in professional migration.[30]

Another beneficial effect of the brain drain has been held to be

* In these arguments, (to my knowledge) the example of applied scientists and technologists has never been followed through to its consequences. Scientific knowledge may be free for all countries, but patents are not.

28. "The International Flow of Human Capital," American Economic Review, Vol. LVI, No. 2, May 1966, pp. 268-274.

29. E.J. Mishan, "The Brain Drain: Why Worry So Much?" New Society, 10, November 2, 1967, pp. 619-622; Constantine Michalopoulos, "Labor Migration and Optimum Population," Kyklos, 21, 1968, Fasc. 1, pp. 130-146, cited in Anthony Scott, "The Brain Drain -- Is A Human Capital Approach Justified?" in W. Lee Hansen, editor, Education, Income and Human Capital, New York, National Bureau of Economic Research, Studies in Income and Wealth, Vol. 35, 1970, pp. 241-284.

30. S. Watanabe, op. cit., p. 407.

the role of immigration as a source of training for future manpower needs. Immigration is conceived of in this view as a way of creating a stock of highly qualified manpower which may be recalled if and when a developing country starts in a period of economic "take-off".[31]

Finally, some observers have seen a beneficial effect of the brain drain in acting as a safety valve for the social order. In those countries where there are large numbers of professionally unemployed, the lack of immigration would exarcerbate the social problems created by this group of highly educated but poor individuals.[32] At the same time, some observers hope that the exodus of professionals will alert policy makers to antiquated salary and bureaucratic structures and stimulate policies to modify those structures.[33]

While the internationalist position uses as its point of reference for evaluating the brain drain the welfare of the population of the country of origin, the opposite side (dubbed the "nationalist" position) is more likely to use as its point of reference the effect of the brain drain on the position of developing nations, especially, its effect in retarding future GNP growth and widening the gap between rich and poor nations. For example, one proponent of this viewpoint counters the welfare theory arguments of internationalists with the view of professional manpower in the developing countries as having the equivalent potential of infant industries.[34] Similar statements about the effects of brain

31. S. Kanappan, op. cit., p. 13.
32. Justus Van Der Kroef, "The U.S. and the World's Brain Drain," International Journal of Comparative Sociology, Vol. 9, No. 3, 1970, p. 235.
33. Grubel and Scott, op. cit., p. 273.
34. Statement by Dr. John Shearer in U.S. Department of State, Council on International Educational and Cultural Affairs, The International Migration of Talent and Skills, Proceedings of a Workshop and Conference, Washington, October, 1966, p. 19. See also his later statement in pp. 29-34.

drain on dynamic growth are found in other discussions.[35] In two papers on brain drain, Dudley Seers and Richard Jolly make more explicit what are the mechanisms involved in professional migration which tend to act in a fashion detrimental to the development of these countries. In one paper, Seers focuses on the effects of international wage differentials on the brain drain. His argument is that the higher wages for professionals in developed countries pose a dilemna for developing countries: on one hand, maintaining existing wage levels will mean loss of professional personnel; on the other, meeting international wage levels increases income inequality and diverts scarce resources toward luxury consumption.[36] In a later paper, Seers and Richard Jolly present a more detailed picture of the economic mechanisms involved in the brain drain. They see it as both a cause and a consequence of increasing unemployment and inequality in the developing countries. Aside from the aforementioned effect on the wage structure, they posit effects on the quantity and quality of social services, on magnifying urban-rural contrasts, on stunting the growth of adequate technology, and on the capacity of vital sectors, such as the export industries, to grow.[37] However, these and other statements of disadvantages of the brain drain have not gone beyond theories. As in the statements of internationalists, no empirical work has been conducted to back up the theory.

35. Among them, Brinley Thomas, op. cit., Don Patinkin,"A Nationalist Model," in Walter Adams, op. cit., pp. 92-108.
36. Dudley Seers, "The Brain Drain from Poor Countries," University of Sussex, Institute of Development Studies, August 1966.
37. Richard Jolly and Dudley Seers, "The Brain Drain and the Developing Process," Discussion paper No. 6 , Institute of Development Studies, University of Sussex, June 1971, pp. 10-13.

Some research has been done on specific aspects of the question of disadvantages ot developing countries. One approach used by economists is to estimate the cost to the country of origin of educating or replacing emigrating manpower. A second approach is to estimate the present value of migrating human capital (i.e., the loss to a society of an individual's contribution to production, as measured by his lifetime earnings). One example of the first approach is Grubel and Scott's calculation of the gains made by the U.S. from inflow and outflow of students in the U.S. Taking into account the extent to which foreign students in the U.S. are self-paid and assuming a non-return rate of 10%, they estimated a $16 million net gain for the U.S. from foreign students abroad. Their conclusion was that the net gain was not sufficiently large to be called a brain drain.[38]

As to the human capital approach to migration, two studies of developing countries have been conducted. Myers calculated Peruvian human capital losses of students in various fields as measured by their projected future earnings.[39] Dorai calculated the human capital loss to India associated with foreign student non-return among Indians in the U.S. He used advertisements by the Union Public Service Commission announcing employment opportunities and salaries in India as an estimate of the present value of their future earnings.[40]

Reviewing the literature on the effects of professional migration on the sending countries, one observation is the lack of solid empirical

38. Herbert Grubel and Anthony Scott, "The Cost of U.S. College Exchange Programs," The Journal of Human Resources, I, No. 2, Fall 1966, pp. 81-89.
39. Myers, op. cit., p. 309.
40. Gopal Dorai, "Economics of the International Flow of Students: A Cost-Benefit Analysis," Wayne State University, Thesis for the PH.D, 1967.

work to back the claims that have been made. Very little is known about how departure of professionals affects the remaining population or the dynamic potential of the economy. In many cases there is no data available with which to test any predictions. In addition, much of the literature is highly theoretical, consisting of criticism of opposing approaches to measuring losses and gains.

The focus of my analysis of student non-return in the U.S. will be different from that of the works reviewed in this chapter. Our data is not designed to deal with macro-economic policy questions, although it can help in interpreting the conclusions of such works. For example, Myers was able to interpret the results of Peruvian students' projected lifetime earnings by taking into account their perceptions of job opportunities in their fields in Peru.[41] The main concern in this analysis, however, will not be the effects of the flow of students into the U.S., but the causes of this flow. I proceed in Chapter II to review the literature on causes of professional migration and suggest some hypotheses about these causes.

41. Robert G. Myers, op. cit., p. 276.

CHAPTER II

A SOCIOLOGICAL APPROACH TO THE STUDY OF PROFESSIONAL MIGRATION

Much of the literature of brain drain consists of general discussions, speculative treatments, and case studies, written usually by experts in the field of international education or science policy.[1] These studies, while having obvious methodological and theoretical limitations, have defined what the various aspects of the problem are, and have guided research into the areas that need study. More scholarly treatments of the subject abound, but most utilize an economic approach. The study of migration could profit from a more sociological focus. In this chapter I intend to show how the sociological perspective could add additional insights to migration behavior by suggesting a sociological model of professional migration to be followed in this study.[2] In order to understand the particular contribution of sociology to the study of migration, I wish to outline the approaches found in migration theory and research, and their applications to the study of the question

1. For, example, Charles P. Kindleberger, "Study Abroad and Emigration," in Adams, op. cit., pp. 135-155; William Thiesenhusen, "A Long-run 'Brain Drain' Policy for the United States," Land Tenure Center, Madison, University of Wisconsin, 1968; Justus M. Van der Kroef, "Asia's 'Brain Drain'," Journal of Higher Education, Vol. 39, Number 5, May 1968, pp. 241-253.

2. J.J. Mangalam and Harry K. Schwarzweller have persuasively shown the mutual profitability to migration studies and sociology of such an approach. However, their main emphasis is on the systemic consequences of migration for a society and not the social determinants of migration. See "General Theory in the Study of Migration: Current Needs and Difficulties," International Migration Review, Vol III, No. 1 , Fall 1968. See also J.J. Mangalam, Some Theoretical Guidelines Toward a Sociology of Migration," International Migration Review, Spring 1970.

at hand.

Approaches to the study of migration

As an academic discipline, the study of migration has been a separate area of inquiry developed outside the traditional social sciences. Since its inception, the study of migration has had an economic orientation, however. Indeed, migration was considered one category of economic thought in the nineteenth century, before economics narrowed its focus of concern in the twentieth century. Much of the theoretical style of migration theory today is close to that of macroeconomics, where the phenomenon of interest is the nature of population movements as aggregates, and the description and prediction of such movements by means of mathematical expressions. Thus, one approach to the study of migration has economic and demographic variables as the variables of explanation, and volume or distance of migration as the dependent variables.

Among theories from the field of migration applied to professional migration, the most common has been the notion of "push" and "pull" factors. More than a theory, the idea of pushes and pulls is a simple paradigm holding that people migrate in response to a combination of negative factors in the home country (pushes) and positive factors in the receiving country (pulls).[3] The push-pull approach incorporates the theoretical predictions that one would expect from economics, for example, that migrants are influenced by salary differentials between sending and receiving countries, but it also includes non-utilitarian types of

3. For a theoretical statement in the study of brain drain, see Enrique Oteiza, "A Differential Push-Pull Approach," in Adams, op. cit., pp. 120-134.

motivations such as reactions to political conditions at home and professional values. However, one problem in a push-pull model is how to establish differentials for non-monetary variables. One solution to this problem is to measure the effects of different push and pull factors without assigning monetary values to each, i.e., to measure the extent to which each factor contributes to a migration decision.[4] Since this type of non-monetary calculus is not as precise as most investigators would want, most measurements of push-pull factors confine themselves to salary or income differentials.[5]

Within the economic orientation to migration we may also include human capital theory. In Chapter I we discussed this approach in relation to questions of gains and losses by countries of professional migrations. Here we discuss the contributions of this approach to the study of the causes of migration. In this respect, human capital theory, in analogy to the theory of physical capital, regards each person as having an amount of wealth measured by the volume of his future earnings. Consequently, the more skilled a person (as reflected by his education and training) the greater the value of his human capital. The value of this approach has been stated succinctly by Anthony Scott:

> ". . . people's investment in themselves should be in forms, amounts and periods which will maximize the value of their human capital, after making allowance for nonpecuniary types of income and for

4. For example, see the discussion of push and pull factors affecting the migration of Latin American professionals in Migration of Health Personnel, Scientists and Engineers from Latin America, Pan American Health Organization, Washington, D.C., 1966, Ch. 5.
5. For example, John R. Niland, op. cit., pp. 50-52, where the salary push by the home country and the salary pull by the U.S. is calculated for five Asian nationalities.

> leisure. This application is clearly positive. It should lead to the prediction of decisions about schooling, location, and jobs, and in aggregate, can help to explain group behavior or attitudes to investment in educational facilities, migration, and to collective bargaining for working conditions, pensions, and retirement provisions."[6]

Several brain drain studies using this general aggregate movements orientation may be cited. In these studies, the dependent variable has usually been migration or non-return rates. Some have tested the predictive power of economic characterisitics of the sending countries. Because of the accessibility of national income accounts to research, this hypothesis has been tested in a few studies of professional migration. In these, the results have been largely negative. In his analysis of the 1964 IIE foreign student census, Myers found a weak correlation between per capita income and non-return rates, and a weaker correlation between per capita income and "manpower loss" (an index of the effect of non- return on the manpower needs of the country of origin).[7] In a study of fourteen developed and developing countries which send students to the U.S., Psacharopoulos found little correlation between income differentials between the home country and the U.S. and migration rates (as measured by migrants as percentage of enrollment in higher education).[8]

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6. Anthony Scott, "The Brain Drain - Is a Human Capital Approach Justified?," in W. Lee Hansen, editor, Education, Income and Human Capital, Conference on Research in Income and Wealth, Studies in Income and Wealth, Vol. 35, National Bureau of Economic Research and Columbia University Press, 1970, p. 260.
7. R.G. Myers, op. cit., p. 1585. The correlations were .256 and -.100 respectively.
8. George Psacharopoulos, "On some Positive Aspects of the Economics of the Brain Drain," Minerva, Vol. IX, No. 2, April 1971, p. 241.

A plausible explanation of the weak relationship between national income and migration is that professional migrants would respond to market demand rather than the magnitude of the GNP. Professionals in relatively rich countries would migrate if there were little demand for their services, while those in relatively poor countries would stay is there were such a demand. Hervé tested this proposition for forty-six countries in the case of migration of physicians and for seventy-eight the case of student non-return. For physicians, the dependent variable was the number of licenses granted in the U.S. to M.D.'s from each country; in the case of students, non-return rates were measured by visa adjustments. Market demand for each group was determined from a regression on Gross Domestic Product and total number of physicians (or students) in the home country. Those countries which were close to the regression equation were deemed to have a balanced market demand; the deviant cases were those having either an excess or a shortage of professionals. In the case of physicians, Hervé found that some countries with excess professional manpower were not losing significant numbers of professionals to the U.S. (although, with his data, he could not show that they were losing them to other developed countries). Nations with shortages of manpower were nevertheless losing large numbers of professionals to the U.S. In the case of students, Hervé found little correlation between excess manpower and non-return, but a high correlation between the total number of students in the U.S. and non-return, which would indicate that the factors accounting for non-return among students are to be found either in other characteristics of the home countries or

in their educational experiences abroad.[9]

One innovation in aggregate analyses of the brain drain has been the extension of explanatory variables to other than economic ones. For example, in his analysis of student non-return, Myers tested for the effect of political elitism (the existence of modernizing elites) and the degree of educational development in the country of origin, together with the usual economic indicators. Using regression techniques, Myers reached a conclusion similar to Hervé's, namely, that characteristics of the countries of origin predict little in comparison to characteristics of the student nationalities in the U.S.[10]

A second approach within migration studies is concerned with "selectivity", i.e., an attempt to discover which background characteristics of people are related to migration. The reasons behind this approach are linked to the push-pull paradigm previously discussed: given the fact that complete populations are not pushed away from the home region or pulled by the receiving region, students of migration have tried to specify on which types of persons are these forces exerted. Thus, for example, young adults have tended to predominate in migration movements because of greater adaptability and fewer roots at home. The literature on professional migration abounds with findings about characteristics of migrants and non-returning students. In many cases, the research does not involve a non-migrating population for comparative

9. Michel Hervé, op. cit., pp. II-2 to II-6 for physicians, p. IV-1 for students.
10. Myers, op. cit., pp. 138-149.

purposes, so we do not know the explanatory power of the statuses.[11] In other cases, the effect of a certain status is reported without any attempt at gauging what the meaning of the relationship is. For example, it may be found that younger students are more likely to migrate than older ones, but no attempt will be made to find out if the controlling status is really educational level, or marital status.

We summarize below the main criteria of selectivity which have been found in studies of professional migration:

1. The younger the individual, the greater the intention to migrate.

This relationship has been found to be generally true, although there is one study where it was not found to be so.[12] If we look at professional migration statistics, we find that most scientists from developing countries in the U.S. are young (sixty percent were under 40 in 1964).[13] Although we have no statistics on the age distribution of non-migrating scientists, the findings of various surveys suggest that the latter are likely to be older. For example, in her study of Filipino migration,

11. For example, Migration of Health Personnel, Scientists and Engineers from Latin America, op. cit., which describes the age, field of specialty and other characteristics of Latin American professional migrants.
12. Ines C. Reca, "Algunos Aspectos Teoricos y Empiricos del Exodo de Profesionales Chilenos," Escuela Latinoamericana de Sociologia, FLACSO, Oficina de Planificacion Nacional, and UNESCO, Santiago, Chile, 1970, p. 51. Reca found a tendency of Chilean professionals to migrate at middle age (45-64). Another study of Chilean professionals in the U.S. found the usual pattern of greater migration at younger ages: c.f., Sergio Gutierrez Olivos and Jorge Riquelme Perez, "The Emigration of High-Level Manpower: the Case of Chile," Pan American Union, 1966, p. 24.
13. From tables given by Herbert Grubel in "Foreign Manpower in the U.S. Sciences," in Research on Income and Wealth, N.Y., National Bureau of Economic Research, 1968, pp. 70-71.

Cortés found the greatest migration incidence among those under 30 (among those 25-29 years old, 43.5% stayed in the U.S. after their studies; among those 30-35, 8.9% stayed in the U.S. after studies).[14]

Ritterband, in his study of Israeli student non-return, suggests what some of the correlates of the age relationship might be. He found that young Israelis are more likely to be poorer academic students, who did not make it through the tight educational hierarchy in the home country; therefore they have less opportunities for the employment that passage through the Israeli educational hierarchy assures. Similarly, younger students are less likely to be married, therefore, less likely to be subject to the social pressures of the spouse's advising return to the home country. No relationship was found between age and intent when the younger and older students were standardized on marital status and level of education.[15]

2. The higher the socio-economic status, the lower the intention to migrate.

Most studies have found this relationship to be true, with some exceptions.[16] Myers found the expected relationship in a case study of Peruvian students in the U.S., using a composite index of parents' education, occupation, and income as an indicator of SES.[17] Yung Wei,

14. Josefina Cortés, op. cit., p. 59 and Table 26, p. 187. A similar relation between age and migration intent was found by Robert G. Myers in his analysis of the 1964 Institute of International Education census of foreign students in the U.S., op. cit., p. 116.
15. Paul Ritterband, The Non-returning Foreign Student: The Israeli Case, N.Y. Bureau of Applied Social Research, Columbia University, 1966, (mimeo), pp. 111-113.
16. Cortés, op. cit., p. 22, found no significant statistical relationship between father's education and occupation and migration of Filipino students.
17. Myers, op. cit., p. 304; .

in his study of 109 returnees to Taiwan, found that the majority belonged to the "upper and middle echelons of the Taiwanese society.[18] Hekmati, in her study of Iranian students in the U.S., found that sons of members of the elite were more likely to return.[19]

Ritterband, while finding a similar relationship between socio-economic status and non-return, suggests and tests two alternative explanations for the relationship. One explanation is that higher SES students have access to influentials, therefore, better employment opportunities. The alternative explanation holds that social class has an effect on socialization, which in turn determines intent. He found that higher SES Israeli students were more likely to come from strong Zionist backgrounds, and in turn, students wiht stronger Zionist backgrounds were more likely to return to Israel.[20] One expects that the two alternative explanations of the effect of SES may differ from country to country, or according to the characteristics of countries.

3. Members of ethnic minorities in their countries of origin are more likely to migrate than majority group members.

Early observers of the brain drain noticed the relative predominance of minority group members (i.e., from the point of view of each particular nationality) among non-returnees. Later research confirmed these observations. For example, Robert Myers found a higher intent by non-

18. Yung Wei, "Socio-Psychological Variables and Inter-Nation Intellectual Migration: Findings from Interviewing Returnees in the Republic of China," Department of Political Science, Memphis State University, (mimeo), p. 23.
19. Mehri Hekmati, Alienation, Family Ties, and Social Position as Factors Related to the Non-Return of Foreign Student, New York, Thesis for the PhD, School of Education, New York Univervity, 1970.
20. Ritterband, op.cit., pp. 60-62.

Catholic Peruvians to remain in the U.S. after study.[21] Ritterband found a similar intent by Israelis of Oriental background (although the relationship was not significant when standardizing Oriental and European background Israelis on Zionist background and social class).[22]

4. Individuals married to non-compatriots are more likely to migrate than those with spouses from their countries of origin. The latter are more likely to return home than unmarrieds.

The case of the foreign student who decides to stay on through marriage to an American (or Canadian, etc.) has been well discussed in the literature. Findings of various studies support this common sense observation. In his study of Chinese returnees and non-returnees, Charles H.C. Kao found that 7% of the stay-ons had American wives; among returnees, all but one had Chinese wives.[23] Cortés found that of the 24 persons married to non-Filipinos, all but two had migrated, while only 16% of those married to Filipinos had migrated.[24]

5. Professionals in the natural sciences are more likely to migrate than those in engineering. The highest migration rates are among health personnel, with the lowest being among those studying the humanities.

The field of specialization, one area in which there is some divergence on migration intent from country to country, includes not only the demand for a particular field in a particular country, but also the structure of that field and its effect on the motivations of professionals.

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21. R.G. Myers, op. cit., p. 259.
22. Ritterband, op. cit., p. 65.
23. Charles H.C. Kao, Brain Drain: A Case Study of China, ms., Department of Economics, Wisconsin State University at River Falls, 1970, pp. 63 and 136.
24. Josefina Cortes, op. cit., p. 77.

For example, among Peruvians, natural scientists have a greater tendency to migrate than engineers; the opposite is the case among Israelis, even though Israeli students are aware of the greater market demand for engineers in comparison to scientists in Israel -- a fact which Ritterband explains in terms of the greater prestige given to basic sciences in Israel.[25] However, the humanities and social sciences are fields which seem to have low migration rates in most countries.[26] The opposite is the case with the health field, which has high migration rates.[27]

6. Self-sponsored students are more likely to migrate than sponsored students.

In his analysis of the 1964 IIE forwign student census, Myers found that independent students are more likely to migrate than sponsored ones --those sponsored by their home government being especially inclined to return.[28] Similar findings were reported by Cortés in her study of Filipino professional migration.[29]

7. Undergraduates are more likely to migrate than graduate students.

Myers found a slightly higher tendency for undergraduates to intend to stay in the U.S. than graduate students. Among graduate students, Masters candidates were the least likely to migrate.[30] In his study

25. Myers, op. cit., p. 107., and Ritterband, op. cit., p. 96.
26. This is specially the case in countries with other than Western languages c.f. Charles H.C. Kao, op. cit., pp. 75 and 139, and Yung Wei, op. cit., p. 25.
27. Robert G. Myers, op. cit., p. 107. Students in medicine had the highest non-return rates in the Institute of International Education census of foreign students.
28. R.G. Myers, op. cit., p. 114.
29. Josefina Cortés, op. cit. p. 58. See also Paul Ritterband, "Law, Policy, and Behavior: Educational Exchange Policy and Student Migration," American Journal of Sociology, Vol 76, No. 1, July 1970, p. 73.
30. R.G. Myers, op. cit., p. 112.

of Chinese returnees, Kao found a preponderance of Masters, with some Ph. D.'s (no comparisons could be made with his sample of non-returnees, since holding a Ph.D. was a criterion of selection for that sample).[31]

There exist other characteristics of students and professionals which have not been adequately researched as yet. Sex, for example, has been paid little attention in the literature. Christopher Habers, of the UNITAR project found women foreign students in the U.S. and Canada to have higher non-return rates than men, while the rates for both sexes in France were the same.[32] Cortés found a similar pattern among Filipino students.[33]

Perhaps the most important policy-related characteristic in the brain drain is ability. Little is known about the ability of returnees and non-returnees, despite claims and counter-claims in the literature about precisely which types of professionals the developing countries are losing to the West.[34]

A perusal of the various characteristics associated with non-return shows that they raise as many questions as they answer. On would want to know how they could combine to further predict non-return, as well

31. Charles H.C. Kao, op. cit., p. 135.
32. Christopher Habers, The Universal Minority; a Study of the Female Brain Drain of Students from Developing Nations in Three Developed Countries, thesis of the M.A., Columbia University, 1972, p. 61.
33. Cortés, op. cit., p. 61.
34. Glaucio and Mirella Soares, in a study of Panamanian secondary school students show that those planning to go abroad to college are less likely to have failed courses or received academic suspensions, but the differences are minimal, besides which they do not show percentages in the opposite direction; "La Fuga de los Intelectuales," Aportes, No. 2, October 1966, Paris, pp. 62-3.

as how they would fit other types of explanatory variables. While many of the studies quoted confine themselves to a mere listing of characteristics of migrants, others try to show how these characteristics may be linked to conditions, socialization experience and motivations of professionals both in the country of origin and in the developed country. This is the line of analysis that I follow in this study.

A third focus in migration studies is the motivation of migrants. Here, in effect, the focus has shifted from an aggregate to a social psychological emphasis. And while one may logically generalize social psychological propositions to propositions about collectivities, the method of gathering social-psychological data does not permit one to make statements about aggregates with the same assurance one would have if the variables involved were census-type data or characteristics of the areas of in- and out-migration. The problems involved may be seen in the migration research pioneered by Stouffer[35] and the subsequent studies of migration movements that it generated. As formulated in his 1960 [illegible] article, Stouffer's theory states that the number of migrants from City 1 to City 2 is proportional to the number of opportunities in City 2 divided by the number of opportunities intervening between City 1 and City 2, and the number of other migrants competing for opportunities in City 2. Subsequent research found that the higher the socioeconomic status of the migrant, the smaller the number of intervening opportunities,

35. Samuel Stouffer, "Intervening Opportunities: a Theory Relating Mobility and Distance," American Sociological Review, Vol. 5, December 1940, pp. 845-867; "Intervening Opportunities and Competing Migrants," Journal of Regional Science, 2, Spring 1960, pp. 1-26.

hence, the greater the distance migrated.[36] The importance of Stouffer's theory vis a vis social psychology is that no assumptions need be made about the motivations of migrants. In reply to a critique of Stouffer's theory for its lack of attention to such presumably diverse motivations, two followers commented:

> Clearly, Stouffer's model depends on no particular model of the behavior of individual migrants. Rather the model asserts that moves are in the aggregate a function of opportunities and the social distance traversed. The Stouffer model is of course not completely irrelevant to psychological formulations about migrant behavior, since any psychological model which yields aggregate behavior patterns contrary to those predicted by Stouffer can be eliminated. Nevertheless, Stouffer's point stands - the system
> 9 can be largely explained without any specific set of psychological assumptions.[37]

Thus, migration studies dealing with motivations are clearly focusing on different theoretical questions. Discovering motivations other than the economic ones assumed by aggregate models of migration does not necessarily imply a theoretical failure on the part of these models. This is important to keep in mind, since many motivational studies of migration have been concerned with the question of economic versus non-economic motives.

Some migration studies have gone beyond the simple economic/non-economic dichotomy and tried to descern various motivational types.

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36. Arnold M. Rose, "Distance of Migration and Socioeconomic Status of Migrants," American Sociological Review, Vol. 23, 1958, 420-423; Holger R. Stub, "The Occupational Characteristics of Migrants to Duluth: A Retest of Rose's Hypothesis," American Sociological Review, Vol. 27, Number 1, February 1962, pp. 87-90.

37. Omer R.Galle and Karl E. Taeuber, "Metropolitan Migration and Intervening Opportunities," American Sociological Review, Vol. 31, No. 1, February 1966, pp. 11-12.

For example, Taylor found four different types of migrants in his study of British coal miners: those who left because of perceived economic pressures, those who left because of higher aspirations, those who left because of weak ties to the community, and those who left for random reasons. He was able to show that the different motivational types had an effect on the process by which the migration decision was reached and the adjustments made in the area of immigration.[38]

In motivational surveys of professional migration, the reasons for deciding to study and work abroad have been the principal targets of investigation. Most researchers in the studies reviewed present respondents with lists of reasons which are considered important factors in migration and ask them to rate the importance of each reason. Reasons included vary from study to study; usually found are factors relating to salary, job opportunities, and professional advantagees, family, political conditions, and identification with the home country and the developed country. The report of the study usually confines itself to pointing out those factors which were relatively important to the respondent and those which were not. Some studies correlate these motivations with characteristics of the individuals. Some of the studies go beyond a mere listing of motives and try to build motivational typologies by means of some statistical technique using correlations. The results of these suggest some hypotheses to be pursued. Before discussing motivational typologies, however, I will outline some of the findings in the

38. R.C. Taylor, "Migration and Motivation, a Study of Determinants and Types," in J.A. Jackson, ed., Migration, Sociological Studies, Series, Number 2, Cambridge University Press, 1969, pp. 120-123.

literature about individual types of motives for migration.

One clear finding in studies of migration motivations is the greater importance of career values over economic considerations among professional migrants. In his study of Asian engineering students, Niland found that two-thirds of all respondents agreed on the availibility of research facilities as important in their decision to delay their return home; salary levels counted as an important factor(using the same two-thirds criterion) for only two of the five nationalities in the sample.[39] In Myers' study of Peruvian students "use of professional skills" counted slightly higher than job opportunities and economic considerations as factors influencing non-return intent.[40] The same finding is reported in a study of Latin American professional migrants, although percentage differences are not reported.[41]

Among economic considerations inducing migration, perception of opportunities in the labor market has been reported in other studies as a strong factor. Ritterband found that those who perceived their chances in the labor market as "good" or "excellent" were more likely to return than those who perceived their chances as "fair" or "poor".[42] Similar findings were reported by Tai Keun Oh in his study of Chinese students, and Cortés in her study of Filipino migrants.[43]

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39. John R. Niland, op. cit., p. 60.
40. R.G. Myers, op. cit., p. 267.
41. Migration of Health Personnel, Engineers and Scientists . . ., op. cit., pp. 40-41.
42. Paul Ritterband, op. cit., p. 89.
43. Tai Keun Oh, The Role of International Education in the Asian Brain Drain, Thesis for the Ph.D., Madison, School of Industrial Relations, University of Wisconsin, 1970, p. 124; Josefina Cortés, op. cit., p. 172.

A desire to help in the development of the country and family obligations count heavily as factors inducing return to the country of origin. The latter was the factor most strongly associated with return in Myers' sample of Peruvian students.[44] Myers also found that certain types of motives were associated with social class and type of sponsorship: family ties are important to high SES students, the use of professional skills is important to sponsored lower SES students who must return and to unsponsored lower SES students who will remain abroad.[45]

Attempts at building typologies of motivations have been made in some studies of professional migration. In her study of Filipino migration, Cortés built two motivational scales, one relating to feelings of identification with the home country (the "Anchorage" scale), the other relating to perceptions of opportunities in the Philippines (the "Comparative Opportunity Scale"). Although both scale were good predictors of migration, each one included motivational (and other factors) which in other typologies would constitute separate dimensions. For example, the Anchorage scale includes motivational items relating to politics, Filipino culture, and the family, all of which may pull professionals in different directions. The case is similar for the Comparative Opportunity Scale: perceptions of the home country are included with job expectations, assessment of life chances and the job history

44. R.G. Myers, op. cit., p. 267. See also Yung Wei, op. cit., p. 27.
45. Myers, ibid.
46. Josefina Cortés, op. cit., pp. 20 and 22-23.

of the professional.

Ritterband developed a threefold typology of characteristics of jobs important in the choice of a country to live and work in. He defined as "intrinsic" work factors those in which work is perceived as a reward in itself (e.g., work autonomy, creativity, opportunity to contribute to the development of the field), "extrinsic" those factors in which work is seen as a means to other ends (e.g., good income, public recognition, good labor market), and "non-work" those factors in which work itself offers no reward (e.g., free time, job security, preventing tension and hard work). The probability of return to Israel was greatest among those motivated by intrinsic work factors and lowest among those motivated by non-work factors.[47]

I have mentioned perception of opportunities in the home and the developed countries as one of the motivational questions that has been studied in brain drain research. This is one area where studies based on economic aggregates and social psychological studies share the same assumptions about individual behavior -- especially where the assumption is made that job advantages may be expressed in monetary terms. One other area where similar assumptions about motivations are shared by the two approaches is the question of income expectations. In his study of Asian engineering students in the U.S., Niland calculated the difference between the ratios of expected and prefered incomes both for

47. Paul Ritterband, op. cit., pp. 92-94.

the home country and the U.S.* For all nationalities, the ratio between expected and prefered income at home was less than 100 (therefore, a "push" factor), and the ratio between the two incomes in the U.S. was greater than 100 (therefore, a "pull" factor). He labelled the difference between the push and pull differentials the "salary drain factor". For all nationalities, the greater this salary drain factor, the longer the individual planned to remain in the U.S.[48]

Other investigators have not measured salary expectations in as detailed a manner as Niland. Myers and Ritterband both measured them in the home country only, and both found that these expectations exerted no influence on migration intent.[49] Moreover, their samples were more diverse than Niland's.

To summarize --studies of migration, including brain drain have been concerned with three general areas of inquiry:

1. The study of migration as movements of aggregates and the relation of other aggregate type factors to these movements.

2. The study of "migratory selection" -- those characteristics of people associated with migration. In this approach, aggregate or survey-type data are equally used. (If the latter, one could build up to descriptions of aggregates).

3. Social psychological studies of migrants, typically centering around the questions of motives for migrating. As with studies of

* Similar questions were asked respondents in the UNITAR study of professional migration.

48. Niland, op. cit., pp. 50-51.

49. Paul Ritterband, op. cit., p. 90; Myers, op. cit., p. 303.

migratory selection, aggregation is possible, but only insofar as the study adopts the assumptions about human motivations found in economic theory.

In my analysis of student non-return I will utilize a social-psychological model of migration. The dependent variable will therefore be the student's decision whether to return to the country of origin or stay abroad. As in previous migration studies, motivations will be an important component of the model, but by no means the only one. The model will incorporate characteristics of the respondents and objective factors which may explain the motivations of the students. Among objective factors will be included characteristics of countries of origin as well as social -situational factors in the countries of origin and the U.S. In the pages below, I will show how these various factors may combine to explain the students' migration decisions.

A MODEL OF STUDENT NON-RETURN

In studying decision making, one element to be taken into account is time. That is to say, there is always some time involved between the original formulation of a goal and the decision to act on that goal. How long the time between these two steps may be depends on the type of decision at hand. Some decisions, which may be fairly important in their consequences for a collectivity, may involve a short or even instantaneous time period, such as, "impulse" buying. For other types of decisions, we may expect longer time periods to be involved, as, for

example, voting. In distinguishing time periods for analysis, the goal is to identify stages at which pivotal events occur which in turn affect the decision in question. For example, in the study of careers, sociologists may speak of the stage prior to entering a career, the "novice" stage, and additional stages leading to identification with a particular career status (mental patient, medical student, etc). The idea of stages suggests that one may identify a crucial time period (or periods) and then describe the way in which particular explanatory factors enter into the process.[50] A foreign student's decision whether to return to his home country of stay abroad may be visualized within this conception of process. The migration decision may have originated early or late in this process. Some students may have gone abroad with one intention and changed their minds afterwards, while other may have stood by their original intentions. My goal is to identify those factors determining the hypothesized changes of intentions. The data allows us to identify two time periods -- the one before the student decided to go to study in the U.S., and the one of study in the U.S. I discuss these two stages separately before combining the factors in them in our final model.

Factors in the home country

In the discussion of brain drain, an implicit assumption is that foreign students are lured to stay in the U.S. and other developed

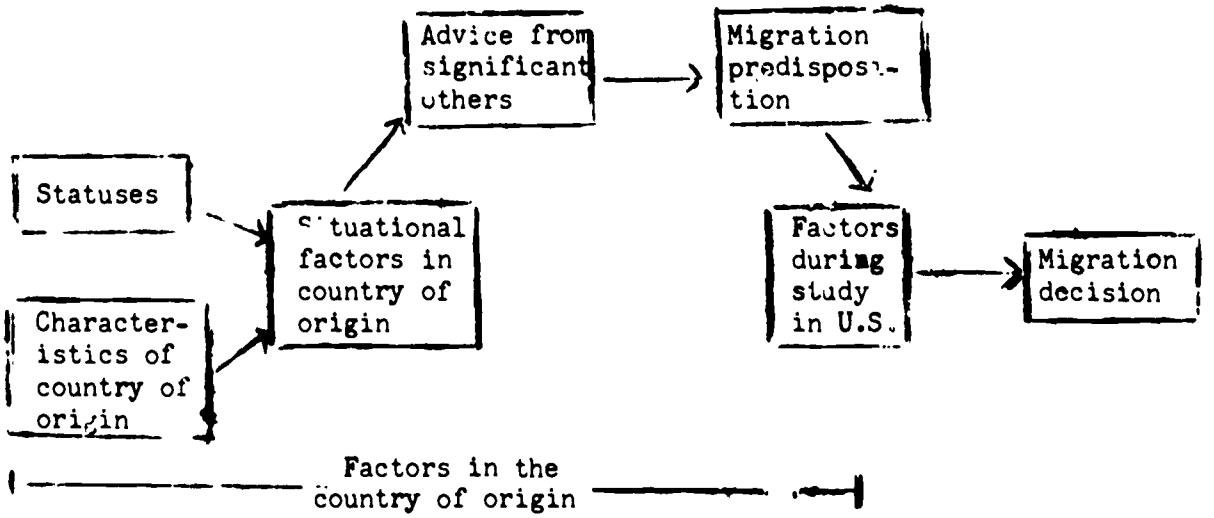
50. H.S. Becker, "Careers, Personality, and Adult Socialization," American Journal of Sociology, LXII, November 1956, pp. 253-263.

countries by specific offers of employment or by the general cultural and socio-economic climate in the developed countries -- the contrast between the rewards available to professionals in their own countries and in developed countries. One may ask to/what extent and for how many there already exists a predisposition to migrate prior to coming to study in the developed country. This predisposition may by a powerful determinant of a students's final decision to stay abroad, even when one takes into account the particulars of his study experience in the developed country. Therefore, we would want to know what factors in the first stage will determine the students' migration predispositions.*

Most studies of professional migration to date have dealt implicitly with factors in effect before going abroad to study. Factors that arise at this stage are characteristics of the country of origin, background characteristics, advice from significant others, and motivations (reasons for going abroad to study). In addition, I consider institutional ties in the country of origin to be relevant to the model. Thus, I expect that students who had job experiences, for example, may have built opportunity ties which pull them back to the country of origin after they complete their studies. These situational opportunities may be related forward to migration predisposition through advice from significant others and backward to antecedent statuses. For

* We have two indicators or migration predisposition: the respondent's estimate at time of arrival in the U.S. of the number of years he would stay in the U.S., and his indications of the importance to him of numerous reasons foreign students may have for coming to study in the U.S. The rationale for these indicators is discussed in Chapter V.

example, a member of a majority ethnic group in the country of origin may have greater access to jobs at home, therefore, be less predisposed to migrate. A schematic model of the factors for the first stage may be presented.



Factors affecting the migration decision while studying in the U.S.

It is assumed that the experience of studying abroad, the contacts and opportunities open to students while here, are a second source determining the decision to migrate. One important question is whether -- for some students, at any rate -- the predisposition at the time of departure for the developed country is so potent that experiences in the U.S. are selected accordingly. Therefore, one would want to know the various possible factors during the period of study in the U.S. which may affect the students' decisions. To begin with, I will discuss the possibility that the decision to migrate or return is affected by the various groups and individuals the student comes into contact with.

It is well known that groups are important in determining an individual's decisions, perceptions and attitudes. Reference group

theory tries to account for the fact that quite often in social life, individuals have attitudes not in accordance with their own groups, e.g., workers with middle class attitudes or intellectuals with working class attitudes. In our survey, respondents were asked how frequently they are in contact with their compatriots and with Americans. One may expect that, for some students, Americans will be a reference group while for others their own compatriots will serve that function (some have mixed contacts as well). It is assumed that contacts with each group will serve both as sources of self-definition and self-evaluation -- normative and comparative functions,[51] although the data do not allow us to distinguish between the two.

One theoretical problem in reference group theory is that of the factors accounting for reference group selection. Put within the context of our study, we would be asking, for example, what factors account for a student's selection of compatriots as his reference group as opposed to Americans. On this question, the literature distinguishes two factors. One involves similarity between the selector and the group. This similarity may be shared values or statuses.[52] A second factor deals with the social situation in which the reference group selection is made. This refers to social conditions in the individual's

51. Herbert H. Hyman and Eleanor Singer, editors, Introduction to Part I of Readings in Reference Group Theory and Research, New York, The Free Press, 1968, pp. 8-12.
52. Leon Festinger, "A Theory of Social Comparison Processes," in Hyman and Singer, op. cit., pp. 123-146; Ruth E. Hartley, "Personal Characteristics and Acceptance of Secondary Groups as Reference Groups," ibid., pp. 238-246.

environment which may positively or negatively affect his ability to choose a particular group. For example, in a study of the blind, Strauss found that few chose other blind people as a basis for self-evaluation, but those who had been socialized in schools for the blind were more likely to do so.[53] Our data contain various measures for social situations of the students, including the existence of compatriots in their place of residence, sources of migration advice, jobs held in the U.S., and job offers in the U.S. and country of origin. These factors will have an incremental effect on the choice of reference groups. Thus, for example, given a predisposition to migrate, the existence of compatriots in the student's area will tend to decrease his contacts with Americans, and to that extent, lessen the likelihood of staying abroad. For other situational factors, we might no so readily establish a causal connection a priori. For example, one might imagine that receiving job offers only in the U.S. might dispose a student to look for contacts with Americans, but the causal direction might well run the other way.

In previous studies of professional migration, various indicators of objective characteristics of the situation of students have been considered. For example, Myers found that Peruvian students from high quality schools were more likely to return to their country.[54] Cortés found that students from private universities in the Philippines were

53. Helen May Strauss, "Reference Group and Social Comparison Processes Among the Totally Blind," in Hyman and Singer, op. cit., p. 231-235.
54. R.G. Myers, op. cit., p. 256.

more likely to migrate than those from public universities (private schools in the Philippines tend to be of lower quality).[55] Niland also found a similar relationship between quality of the school and return to the home country among all Asian nationalities in his sample with the exception of Indians.[56] To my knowledge, no other objective characteristics of the environment of foreign students has been considered, either by itself or in connection with the sources of social influence on the students' migration decision.

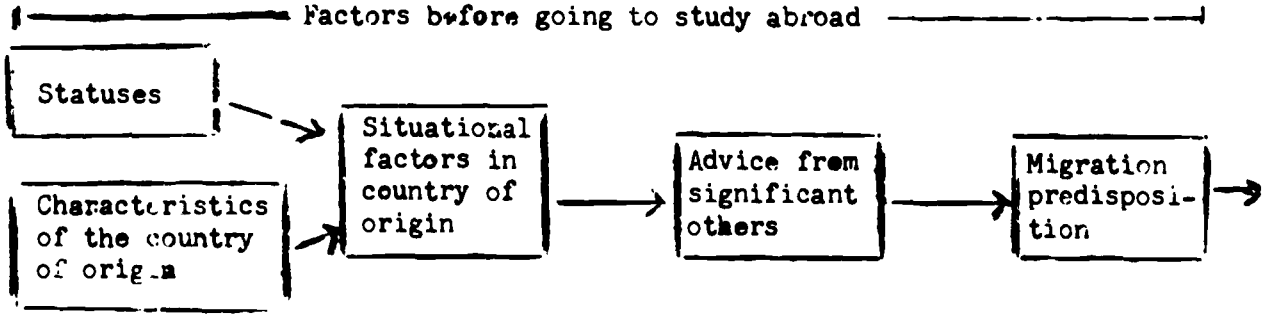
Values and perceptions of opportunities

So far I have discussed a set of factors believed to be operating at the time before departure for the U.S. and a set of reference group and situational factors operating at the time of study in the U.S., and the connections between these factors. Between the latter factors and the migration decision I now interpose one final set: the students' motivations and their perceptions of opportunities in the country of origin and abroad. We have already seen that these two social-psychological factors have been shown to be involved in migration decisions in previous studies of professional migration. To paraphrase the conclusions of these studies, I expect that a utilitarian or non-work

55. Josefina Cortés, op. cit., pp. 70 and 207. References to the quality of private education in the Philippines are found in Heather Low Ruth, "The Philippines," in The Committee on the International Migration of Talent, editors, The International Migration of High-Level Manpower, its Impact on the Development Process, New York, Praeger Publisher, 1970, pp. 55-60.
56. John R. Niland, op. cit., pp. 77-84.

orientation will be associated with a decision to stay in the U.S., while an altruistic or a career orientation will be associated with the decision to return to the home country. The students' perceptions of opportunities here and at home, including their expectations about salaries in the two places will also enter into the migration decision.

Finally, I consider the effects of reference group behavior and situational factors on the students' motivations and perceptions. Given the number of factors involved, several causal connections are possible. Thus, the students' social situation (for example, where he has received job offers) may affect his choice of reference groups, and through this, his salary expectations. On the other hand, the social situation might work more directly on the perception of opportunities. Several other possible causal connections between the factors may be envisioned. Furthermore, factors conceived to operate earlier in the process may in fact turn out to be stronger predicters in the second stage. Because of these quite possible complications, I indicate the causal connections in the schematic model below in the most general fashion possible:



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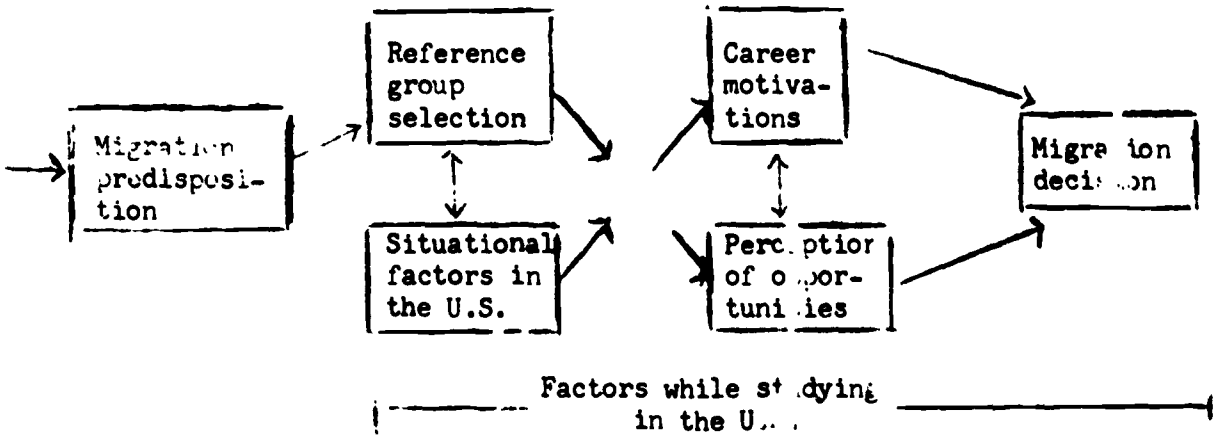

To summarize: previous approaches to migration, including the study of professional migration, have focused on three topics: the economic and demographic determinants of migration viewed as the movement of aggregates, the characteristics of migrants, and the motivations of individual migrants. Other possible factors commonly used in sociological analysis, viz., the effects of objective social situations and group influences, have hardly been considered in the study of migration decisions. The model in this work takes into account the factors traditionally considered in migration studies as well as the more sociological ones mentioned above. Statuses of students as well as characteristics of their countries of origin jointly determine the effect of situational factors in the country of origin on the influence of reference groups and the students' predisposition to migrate; the latter in turn -- in association with situational factors in the U.S. -- determine the students' choice of reference groups in the U.S. Reference group behavior, in con-

junction with situational factors, determines the student's job motivations and perceptions of opportunities here and in the home country; and the last two conjointly determine the student's decision whether to stay abroad or return to the home country. I foresee the likelihood that the relations between these factors may not be as logically ordered as pictured in the model, for example, social influences, being close to attitudinal factors, will be likely to excercise strong direct, as well as indirect effects on non-return. But the more intricate interconnections that may arise are left to the analysis section of the work.

CHAPTER III

THE UNITAR SURVEY OF STUDENTS FROM DEVELOPING COUNTRIES IN THE U.S.

In order for the reader to assess the reliability of the data, a brief description of the sampling and field work for the survey is necessary. In this chapter, I will also present some criteria by which we may evaluate the results of the survey operations.

Sampling

The United Nations Institute for Training and Research had been charged by the General Assembly with the task of finding reasonably scientific criteria for the many policy proposals that had been made about the brain drain. At the same time, the Institute, staffed as it was by social acientists with experience in crossnational research, were also conscious of the need for a survey design which would be attractive to the social science community. Policy and practical considerations in the preliminary discussions of the project generated some sampling decisions which restrict the representativeness of the data:

--The decision was made to exclude health personnel from the sample* because of the World Health Organization's stated intention of conducting a crossnational survey of health workers at a future time. It was the hope at the time that large portions of the two questionnaires

* In the following discussion I refer to all samples in the project, not only the survey of foreign students in the U.S.

would be identical, in order to merge the data files.* Thus, no finding in the analysis pertains to medical personnel, the initiators of the brain drain controversy. There is an advantage in this as well. The problems of medical immigration are very specific to the status of that professional in many developing countries, and inclusion of doctors and pre-medical students would have necessitated additional questions in an already hefty questionnaire. Israeli students were also excluded from the sample for similar reasons; i.e., Ritterband (in the study previously cited in this work) had already done a detailed study of that nationality. (In fact, the UNITAR project adopted many of Ritterband's questionnaire items).**

--On methodological grounds, political refugees from developing countries in the socialist bloc were excluded, as well as those from countries engaged in political conflicts. The aim of the project was to research a population relatively free to make choice, i.e., where there was no question of expulsion of voluntary exile due to political upheavals. For this reason, Chinese, Nigerians, and students from Socialist bloc countries were excluded.

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* W.H.O. will now do such a project, but the data will not be comparable to UNITAR's. See World Health Organization, "A Multi-national Study of the International Migration of Physicians and Nurses," Washington, D.C., 1973.

** Inclusion of Israelis would have presented a problem for my own analysis of foreign student non-return, however. I would question the inclusion of Israel among what is now called Third World countries -- both on cultural and economic grounds. The same reasoning led me to exclude Greek students in the U.S. who were added to the student survey sample at the request of UNITAR's research partner in Greece. This does not deny the real brain drain problems that Israel, Greece and other western countries may experience.

--A central question of the UNITAR project was the effect of higher education abroad on the students' and professionals' career decisions. For this reason, those who had never studied abroad were excluded from samples in the various countries where surveys of professional stay-ons were made. In addition, college freshmen and students with no secondary education in the country of origin were excluded from the student surveys. The purpose of this was to have students in the sample who had had a substantial educational socialization experience in the two countries.

Within these overall sampling guidelines, attempts were made in all countries where surveys were conducted to obtain as representative a sample of the population as possible. The success of the attempts depended very much on the availability of figures on the professional and student populations, and of accurate lists. In the case of the U.S., we were fortunate in having good data on the number of foreign students here. The accuracy of the lists of students we compiled did not fulfill our expectations, as will be made clear below, but our sampling plan still remains the most successful of all the student surveys in the project.

The excerpts below are from a description of the sampling procedure in the U.S. survey by its director, Dr. William A. Glaser:

> The problem was to pick a representative national sample of students from developing countries at all American universities, regardless of size. Basic information about American universities was obtained on a data tape from the American Council for Education. The national census of foreign students for 1969-1970 was obtained from the International Institute of Education (IIE), and this was converted to the totals of foreign

students of each nationality at each institution of higher learning. Tabulations were then performed from a data tape for all American institutes with foreign students (N=1331), including their totals of foreign students from developing countries. These 1331 colleges had 58,225 students from developing countries that might be eligible for the survey. The goal was to draw about 2,000 respondents from 30 campuses.

The first stage of the sampling procedure was to create a frame based on region of country, quality of institution, and numbers of foreign students. The institutional data tape had all three variables. Quality was measured by the average NMSQT score of the entering freshmen. (NMSQT is the National Merit Scholarship Qualifying Test taken by most entering freshmen in colleges in the United States.) When we correlated the average scores per college with the many other measures of quality of student body on the data tape, NMSQT proved the most useful measure).

The document proceeds to describe the sampling frame and the mechanics of picking the educational institutions. One out of thirty colleges was picked within each cell of the sampling frame.

We experimented with various sampling procedures before adopting our final design. We could see the outcome of each procedure, since we knew the total numbers of foreign students of each nationality at each institution in the country. During these simulations and for the final sample, we could enter the institutions and the students of each country in their student bodies on the attached form. Our calculations were an approximation of what we were likely to obtain when we went into the field during the academic year 1970-1971. Our figures were from the academic year 1969-1970, and our calculations were made during the summer of 1970, before the enrolments during the academic year 1970-1971. But, of course, the enrolments for 1969-1970 correlate highly in composition and relative size with the enrolments during 1970-1971.

We then asked the foreign student advisors at the campuses selected to send us the lists of names and addresses of all their foreign students during the fall of 1970. We drew the samples from these lists. One out of three were picked from all nationalities except India. The very numerous Indians were sampled at the rate of one out of five. No variations were made between campuses. If all had been picked in the proportion of one of three, no weights would have been necessary, but we would have had more Indians than we needed for our analysis. The different sampling fractions for Indians

and others require two weights during much of our statistical analysis, to compensate for the variations.[1]

Table III-1, columns (1) and (2), compares the frequency distribution of major nationalities in the sample with nationalities in the foreign student population in the U.S. Column (2) includes only nationalities eligible by our sampling criteria. It may be seen that the sample reflected the population for most of the major student nationalities by ±.02 in each nationality. Most nationalities are overrepresented in the sample, due to the fact that Indians were undersampled (with the proviso that they would be weighted when the questionnaires were gathered). Thus, the sample was fairly representative of the foreign student population the study set out to observe.

Field work

To conduct field work, the U.S. student survey project hired a professional field work firm. The design called for delivery and pick-up of questionnaires by field representatives. Seven out of the thirty colleges in the sample were in remote locations and had few respondents. These were covered by mail from our office at the Bureau of Applied Social Research.

Various problems developed after the selection of colleges in September 1970, which caused delays in the start of field work until March of 1971. While most Foreign Student Advisors responded promptly

1. W.A. Glaser, "Sampling of foreign students in the United States", Memorandum, Bureau of Applied Social Research, April 5, 1972.

TABLE III-1

FREQUENCY DISTRIBUTION OF MAIN NATIONALITIES IN U.S. STUDENT SURVEY SAMPLE, U.S., FOREIGN STUDENT POPULATION, AND SURVEY RESPONDENTS

Nationality	(1)* Percentage in sample	(2)** Percentage in eligible foreign student population -- 1970-1971	(3) Percentage filling out questionnaire
India	.128	.178	.157
Korea	.068	.055	.073
Philippines	.051	.039	.053
Thailand	.050	.080	.061
Pakistan	.040	.028	.044
Other Far East	.036	.016	.048
Iran	.101	.091	.065
Turkey	.034	.020	.033
Lebanon	.023	.017	.025
Jordan	.020	.014	.012
United Arab Republic	.015	.016	.012
Other Mid East and North Africa	.041	.077	.038
Trinidad	.033	.013	.029
Jamaica	.038	.022	.040
Guyana	.025	.012	.020
Mexico	.027	.038	.025
Venezuela	.028	.026	.027
Brazil***	.022	.021	.036
Colombia	.029	.031	.037
Argentina	.016	.012	.019
Chile	.014	.014	.015
Peru	.021	.020	.019
Other Latin America	.081	.100	.071
Ghana	.011	.009	.010
Other Africa	.052	.047	.031
Total	1999 =100%	70,268 =99.6%	1122 =100%

* Prior to replacements during field work.

** Source: International Institute of Education, Open Doors, 1971, Table 1. The figure of 70,268 excludes those nationalities from developing countries deleted from the sample.

*** Excluding additional Brazilian respondents selected for a study by the UNITAR research partner in Brazil. Ultimately all Brazilians in the student survey were included in the sample but they were weighted to concord with their numbers in the foreign student population in the U.S.

to our requests for lists, many delayed sending in their lists (most for legitimate administrative reasons). The lists came in various forms and required extensive reviewing before being usable for sampling. There were numerous delays in the printing of questionnaires. More important, we discovered that foreign students change addresses often during the academic year. This caused field representatives to spend a great deal of time tracing students through foreign student offices and acquaintances, (as well as a great deal of bargaining between us and the field work organization over the rules for tracing and substituting "can't locate").* In retrospect, it would have been useful to devote more staff time and money to personally procure and verify the lists supplied by the Foreign Student Advisors. Given the inflation in costs between the year the budget was approved and the date of field work, this was impossible. Given the late starting date, the field work organization was asked to conduct follow-up deliveries and pick-ups in the Fall 1972 semester.

Fifty-six percent of the students sampled filled out the questionnaires. The refusal rate, however, was quite low -- nine percent. Ten percent were students who were ineligible because the lists supplied by the college did not specify information which would have excluded them from the sample, i.e., they turned out to be freshmen, or to have had no secondary education in the country of origin, or were the wrong nationality. These were replaced as they were encountered. Forty percent

* Only those who could not be located or had left the college were replaced. Refusals were not.

of the sample, including replacements, could not be located or had left the colleges.

Column (3) of Table III-1 shows the percentage distribution by major nationality of the respondents who completed questionnaires. The percentages may be compared with column (1) to determine the representativeness of the actual sample. Most nationalities among those completing questionnaires reflect their frequency in the original sample by ±.01. Far Easterners, especially Indians, completed questionnaires in numbers above their frequency in the pre-field work sample (and in the U.S. foreign student population). Middle Easterners, Africans and some Latin American nationalities are underrepresented in the sample of respondents. Iranians, in particular, completed questionnaires far below their frequency in the sample and population in the U.S. No pattern between non-response and non-return is discernible. For example, Iranians have high non-return rates (as measured by prior brain drain studies) but so do Filipinos, who are accurately represented in the sample.

One question that remains is whether non-locatable students are those most likely to stay abroad, thus making our non-return rate unrealistically low. The question is not directly answerable, since the respondents could not be located, but at least we can compare the non-return percentages of those who were more or less difficult to locate. Table III-2 shows the non-return percentages of those who had to be traced to a different address and those who did not move, controlling for the field interviewers' impressions of their attitudes toward the

survey. Less than ten percent were judged to be "hostile" or "suspicious" by the field interviewer. Thirteen percent of them planned to stay abroad, while twelve percent of the "favorable" planned to do likewise. (However, one fourth of the "hostile" or "suspicious" and eleven percent of the "favorable" were uncertain of their plans.) "Suspicious" respondents were no more likely to move than "favorable" ones. Among "suspicious" respondents, those who had moved were more likely to stay abroad than those who had been at the address in the Foreign Student Advisor list, but these were a minute number. Among the "favorable" group, having moved had little to do with migration plans.

In many cases, field interviewers had to make more than one visit to deliver the questionnaire. Therefore the question arises whether making more than one visit involved some sort of evasion by the respondent, and whether evasion of the field interviewer was related to the respondents' migration plans. Table III-3 shows the relationship according to the field interviewer's judgment of the respondent's attitude toward the survey. The number of visits to deliver the questionnaire had little to do with the respondent's attitudes toward the survey and little to do with respondents' migration plans. Thus, if one can assume that those harder to reach are similar to those who could not be reached at all, we have indirect proof that the latter group would not be more likely to stay abroad* than those who were located and completed the questionnaire.

* Indeed, sixty of them could not be located because they had returned to their countries!

TABLE III-2

FIELD INTERVIEWERS' LOCATION OF RESPONDENT AT ADDRESS AND PERCENTAGE NON-RETURN, ACCORDING TO EVALUATION OF RESPONDENT'S ATTITUDE TOWARD THE SURVEY

Respondent located at address given on list supplied by Foreign Student Office	Attitude toward Survey: Hostile or suspicious	N	Favorable	N
Yes	11	(54)	12	(710)
No	21	(14)	12	(209)
Total		(68)		(924)

TABLE III-3

NUMBER OF VISITS TO DELIVER THE QUESTIONNAIRE AND PERCENTAGE NON-RETURN, ACCORDING TO EVALUATION OF RESPONDENT'S ATTITUDE TOWARD THE SURVEY

Number of visits to deliver questionnaire	Attitude toward Survey: Hostile or suspicious	N	Favorable	N
One	16	(25)	12	(389)
Two	10	(20)	11	(228)
Three or more	11	(18)	14	(138)
Total		(63)		(895)

Note: In Tables III-2 and III-3, totals exclude respondents reached by mail and those who gave no answers.

Weighting the nationalities in the sample

In the sampling plan, all nationalities with the exception of Indians and Brazilians were sampled at the rate of 1/20. Indians were undersampled because of their large numbers, while Brazilians were oversampled in order to supply additional questionnaires for the Brazilian research partner's companion study of their students in the U.S. In addition, a 1/4 sample of Brazilian students in other colleges and universities was conducted by mail for our research partner in the academic year 1971-1972. All Brazilians completing questionnaires are included in the sample used in my analysis, but weighted to reduce oversampling. The sampling fractions and weights for nationalities are summarized below:*

Nationality	Sampling fraction	Weight
Indians	1/40	2.0
Brazilians (1970-71)	1/12	0.6
Brazilians (1971-72)	1/4	0.2
Other nationalities	1/20	1.0

* According to the formula,

$$\frac{\text{Sampling fraction of group under or oversampled}}{\text{Sampling fraction of other nationalities}} = \frac{x}{1.0}$$

CHAPTER IV

THE MIGRATION PATTERN

This study asks one single question about foreign students in the U.S.: what factors determine the decision of some to stay abroad while others choose to return to their home countries. It should be obvious that other questions related to this decision may legitimately be asked. What developed countries do they choose to work and live in? How permanent is their stay abroad? How voluntary is their decision? While these questions are not the focus of my theoretical concern, they merit some discussion because of their inherent interest and because they help us to better understand the significance of the non-return decision.

Before discussing these questions, consideration of the reliability of the dependent variable might be in order. Respondents were asked about their travel intentions after completion of their studies; the response choices indicated the intensity of their committment ("definitely return", "probably return", "uncertain", "probably stay abroad", and "definitely stay abroad"). The assumption here is that intention will correspond to some future behavior. Thus, we assume that the migration intention of any particular nationality, as measured by a survey question, will correlate highly with the actual migration rates for that nationality, as we know them from immigration statistics. Only one brain drain study has followed up a respondent's migration

intention with inquiries about his actual conduct, but its results indicate that the two correlate highly.[1] There are also indirect indications that intent is correlated with behavior on this question. For example, in Chapter I, it was indicated that Hervé compared non-return as measured by visa adjustments with non-return intention as measured by the annual census of foreign students conducted by the Institute of International Education. He found that if the (non-quota) Latin American countries were excluded, there was a Spearman rank correlation of .77 between the two non-return indicators.[2] I found a similar correlation for the data shown in Table I-3, columns (4), (5) and (6). Niland also found such a congruence between non-return intention and visa adjustment for five Asian nationalities in his study of non-return.[3]

Non-return rates

The first discussion of the brain drain and student non-return tended to paint a dark picture of the number of professional migrants in developed countries. Subsequent studies found that the percentage of foreign students deciding to stay in the U.S. and other countries was somewhat smaller than the first accounts indicated (in the U.S., for example, between 10 and 15 percent of all foreign students).[4] Table IV-1 shows the respondents' answers to the question about mi-

1. R.G. Myers, "International Education, Emigration, and National Policy (A Longitudinal Case Study of Peruvians Trained in the United States)", Comparative Education Review, Vol. XVII, No.1 (February 1973), pp. 81-82.
2. Hervé, op. cit., p. IV-5.
3. Niland, op. cit., p. 42.
4. R.G. Myers, op. cit., pp. 53-59.

gration intention in the American, Canadian and French surveys of foreign students. In contrast to France and the U.S., Canada is clearly a country of high student migration. Comparisons of the U.S. and other student samples are outside the scope of this work, but I should mention the findings of co-workers in the UNITAR project. These indicate that foreign students in Canada are more likely to be perma-

TABLE IV-1

RETURN INTENTION AMONG FOREIGN STUDENTS IN THE U.S., CANADA, AND FRANCE

"What do you expect to do in the future, i.e., what do you realistically anticipate rather than prefer?"	U.S.	Canada	France
"Definitely return to my country of origin"	50%	41%	63%
"Probably return to my country of origin"	26	18	16
"Uncertain whether to return there or stay abroad"	12	15	8
"Probably remain abroad to live and work permanently"	8	13	8
"Definitely remain abroad to live and work permanently"	4	13	5
Total	(1357) 100%	(889) 100%	(474) 100%

nent immigrants rather than temporary stay-ons seeking work experience. For example, foreign students in Canada are less likely to retire in the country of origin after having worked abroad for a long time.[5]

France and the U.S. appear to be more similar in terms of the percentages of students staying abroad.* However, in sheer volume, the U.S. remains the country of highest migration, since we have the largest foreign student body of all developed countries. Under the assumption of a ten percent non-return rate and a population of students from developing countries of 70,000,** we could estimate that 7,000 of these students will stay in the U.S. and other developed countries for sizable periods of time, many of them permanently.

Table IV-2 shows the migration intention of respondents in the U.S. student survey according to the main nationality groups in the sample. These may be separated into three groups:

Countries of comparatively high non-return	Countries with average non-return rates	Countries of comparatively low non-return
Trinidad	Jamaica	(Central American countries)
Haiti	Peru	
	Argentina	Brazil
Mexico	Ghana	Turkey
Colombia	Iran	Pakistan
Chile		Thailand
	Korea	
United Arab Republic	India	
Lebanon	Malaysia	
Jordan	Guyana	
Philippines	Venezuela	
Indonesia		

5. William A. Glaser, The Migration and Return of Professionals, with the assistance of "Christopher Habers, N.Y., Bureau of Applied Social Research, Columbia University, September, 1973, p. 25.

* In fact, non-return rates are probably lower than the data indicates, since Lebanese (a high non-return nationality) were oversampled in that survey; Glaser, op. cit., p. III-3.

** This would exclude some countries not included in our sample, the most important being Hong Kong with 9,000 students in the U.S. by 1971.

Among the first groups are nationalities which have been identified in previous studies as countries of brain drain, e.g., the Philippines, the U.A.R. and Colombia. But in the "average" group nationalities which have also been tagged as brain drain countries are found, among them Argentina and India. Thus, much of this identification of brain drain countries by experts and the public has little to do with actual rates of non-return. India is one example where the large numbers of students abroad hides the actuality of non-return.

Table IV-2 compares the non-return rate of nationalities in the U.S. sample with the non-return rates for the same nationality in all student samples combined. From the table it is obvious that a selection process takes place in study abroad, with students of some nationalities who intend to migrate picking certain developed countries for study. Thus, one can see that West Indians studying in the U.S., for example, are less likely to be migration minded than their counterparts studying in other countries (in the case of West Indians, Canada). Similarly, migration-minded Iranians, Turks, Indians, Egyptians, and other Asians are more likely to choose Canada as the country of study. One possible opposite line of argument is that the educational and general environment of the developed country generates the differential migration intentions. Again, such comparisons are beyond the scope of the present work.

Choice of country of emigration

The country in which the student is educated is, in most cases,

TABLE IV-2

RETURN INTENTION AMONG THE MAIN NATIONALITIES IN THE U.S. STUDENT SAMPLE AND ALL STUDENT SAMPLES COMBINED

Country of origin	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total, U.S. students	Definitely or probably stay abroad, all student samples*	Total, all student samples	
Jamaica	80%	11	9	(46)	22%	(67)	100%
Trinidad	69%	12	19	(32)	33%	(152)	
Mexico	68%	11	21	(28)	21%	(28)	
(Central American countries)	84%	11	5	(38)	--	--	
Colombia	81%	2	17	(41)	26%	(49)	
Venezuela	83%	7	10	(30)	2%	(29)	
Guyana	86%	5	9	(22)	9%	(22)	
Peru	76%	14	10	(21)	10%	(21)	
Brazil	91%	5	4	(96)	12%	(220)	
Chile	65%	12	23	(17)	--	--	
Argentina	80%	10	10	(20)	39%	(30)	
Ghana	91%	0	9	(11)	12%	(76)	
Iran	65%	25	10	(72)	19%	(125)	
Turkey	81%	14	5	(37)	22%	(35)	
United Arab Republic	57%	14	29	(14)	61%	(192)	
Lebanon	79%	7	14	(28)	33%	(135)	
Jordan	64%	14	22	(14)	--	--	
Korea	73%	15	12	(81)	27%	(116)	
India	74%	13	13	(350)	30%	(300)	
Pakistan	92%	4	4	(48)	10%	(116)	
Thailand	91%	6	3	(68)	--	--	
Malaysia	80%	10	10	(20)	--	--	
Philippines	53%	27	20	(61)	--	--	
Indonesia	50%	13	37	(16)	--	--	

* William A. Glaser, The Migration and Return of Professionals, with the assistance of Christopher Habers, New York, Bureau of Applied Social Research, Columbia University, September 1973, p. III-9. Some entries in the column were derived from cross-tabulations not appearing in Glaser's manuscript.

the first choice to live and work in among those who intend to stay abroad. Among those foreign students in the U.S. who are uncertain about their plans or intend to stay abroad, and indicated some preference as to choice of country, two-fifths indicated the U.S., while one-third indicated a combination of the U.S. and other western countries -- the rest indicated a combination of western and non-western countries (see Table IV-3 below).* A similar pattern is reported for other countries of study; i.e., most students in Canada making a choice indicated Canada as the country to live and work in, while most students in France indicated France.[6]

TABLE IV-3

CHOICE OF COUNTRY TO LIVE AND WORK IN AMONG NON-RETURNEES AND UNCERTAIN STUDENTS

U.S. only	121
Combination of U.S., United Kingdom, Canada, France, and West Germany	77
Other countries	79
Total number of students indicating a choice	277

Permanence of stay after completion of studies

Table IV-4 shows the number of years the respondent expects to

* The U.S. was invariably the first choice listed even among those indicating a combination of countries.

6. William A. Glaser, op. cit., p. III-18.

stay abroad according to his return intention. While intention and duration of stay are strongly related, the percentages in the table shows that policy makers may expect variable consequences from a student's simple decision about migration plans. Thus, while most returnees expect to return to their countries immediately after completing their studies, over one-fourth of them will stay abroad for a period of five years before returning. By the same token, some respondents who see themselves as probable migrants plan a relatively short stay abroad: among those who will "probably" stay abroad permanently, one-third indicate this period as being five years or less, while another third expect to stay abroad for under ten years. Some students may plan a short stay abroad and think about migrating because they might plan to return to the home country, and <u>then</u> migrate -- especially for exchange students bound to return. Here is one case where a behavioral indicator may not be as reliable as an indicator of intention.

A short stay abroad for work experience is more typical of foreign students in the U.S. than other countries of study. Table IV-5 shows that one fourth of students in the U.S. plan to work for a short period abroad before returning to their countries. Among students in Canada, less than one-fifth intend to do the same while the corresponding number in France is ten percent. Of the three countries of study, Canada is the one attracting the most permanent emigrants; France is the one attracting the greatest number of purely academic, temporary students.

TABLE IV-4

RETURN INTENTION AND NUMBER OF YEARS EXPECTED TO STAY ABROAD AFTER COMPLETION OF STUDIES

Expected number of years respondent will stay abroad after completion of studies:	Definitely return	Probably return	Uncertain	Probably stay abroad	Definitely stay abroad
One or less	78%	51%	11%	5%	0%
Two to five	20	42	54	28	5
Six to ten	2	5	27	33	16
Eleven or more	0	2	5	15	23
Permanently	0	0	3	19	56
Total	(592) =100%	(297) =100%	(117) =100%	(66) =100%	(39) =100%

TABLE IV-5

SHORT AND LONG RANGE MIGRATION EXPECTATIONS*

Plans immediately after studies	Permanent expectations	Students in: U.S.	Canada	France
Return home	Stay home	48%	41%	71%
	Uncertain	1	1	1
	Stay abroad	0	0	1
Stay abroad	Stay abroad	12	26	12
	Uncertain	11	13	5
	Return home	28	19	10
Total		(1352) =100%	(827) =100%	(458) =100%

* Data presented by William A. Glaser, op. cit., p. III-23.

Length of stay in the U.S. and non-return

One generalization that has been fairly well verified in brain drain literature regarding living abroad is that the longer the stay, the less the likelihood of return. Our findings confirm this. Less than four percent of those who have been here for under two years plan to stay abroad after completing their studies, while over one third of those who have been studying here for more than eight years plan to stay. One assumption that may be made is that a self-selection process is operating here, i.e., those who have been abroad for a long period of time and expect to stay abroad represent the remainder of a cohort, most of whose members expected to stay abroad for a short time and have already returned to their countries. Similarly, students who have been here recently but expect to spend a long time in the country may be expected to have just as strong a non-return tendency. Table IV-6 shows that this is the case: length of stay has little effect on non-return among those who originally planned to stay abroad for a long time. (A small group originally intended to stay abroad for a short period, but wound up here for a longer period. These show strong non-return tendencies as well.)

The undecided

Brain drain has been conceived as an "either-or" process. Either a professional migrates and becomes a loss to his country, or he stays in his country (or returns after studying abroad). In practice, all kinds of gradations exist. We have seen that, at any

TABLE IV-6

DURATION OF STAY IN THE U.S. AND PERCENT NON-RETURN ACCORDING TO ESTIMATE OF YEARS TO BE SPENT ABROAD AT TIME OF ARRIVAL IN THE U.S.

Actual number of years spent in the U.S.:	Number of years estimated: 2 or less	N	3 - 5	N	6 - 8	N	9 or more	N
2 or less	3	(127)	6	(320)	5	(66)	48	(21)
3 - 5	0	(36)	11	(271)	14	(139)	24	(57)
6 - 8	12	(16)	24	(72)	17	(23)	56	(14)
9 or more	31	(3)	39	(23)	0	(11)	38	(16)

time, a large percentage of the total foreign professional body in a developed country consists of temporary stay-ons. A related idea is that a foreign student clearly decides on one course of action or another. In practice, a good number of students are uncertain about their plans. In the U.S. and France, the numbers of definite stay-ons and undecideds are about equal -- in Canada, they constitute a smaller percentage of the sample (see Table IV-1).

The respondents' answers to other migration-related questions allow us to predict what the actual decision of the undecided will be. Most students who are uncertain about their plans are also not sure of what they want, but as may be seen from Table IV-7, among those whose plans and preferences differ, a desire to return home is as likely as a desire to stay abroad. However, when plans are cross-tabulated with the student's estimate of the duration of his stay abroad (Table IV-4), the undecided turn out to be more like non-returnees than returnees. Thus, five percent of returnees expect to stay

abroad for more than six years following completion of their studies, while one third of the undecided expect to stay abroad for the same duration. While two-thirds of returnees will return home immediately after completing their studies, only ten percent of the undecided will do likewise.

Some nationalities with low non-return rates reveal the existence of strain on their decisions by the large numbers of undecided students among them. This is the case among Iranians, Koreans, Peruvians, Turks, and other students from Middle Eastern countries. Other nationalitites, such as Colombians and Lebanese show little indecision but large percentages of non-return (see Table IV-2). Still others, such as Egyptians and Filipinos, have both large percentages of undecided and non-returnees.

CONTINGENCIES OF STUDY IN THE U.S. AND NON-RETURN

The non-returning student is not the sole source of professional migration to developed countries. Most migrating professionals (with the exception of some nationalities) are admitted to the U.S. directly from their countries, while adjustments of student to immigrant visas account for less than one fourth of all professional immigrants. What is not known (but suspected to be large) is the number of former students in the U.S. who returned to their countries' and <u>then</u> came back to the U.S. to work as immigrants.

Some professionals may have returned to their homelands after completing their studies abroad and then decided to migrate after job disappointments or a new opportunity in the developed country. Some professionals may return to their countries solely because of the requirements of the exchange student visa, and may eventually be expected to return. Students with the exchange (J) visa overwhelmingly return to their countries, testifying to the efficacy of this administrative measure, as may be seen from Table IV-7. The table shows the common pattern of adjustment of student or other types of non-exchange visas to a more permanent type of visa. It may be also seen from this table that many individuals found among the foreign student body in the U.S. were already immigrants at the time of arrival in the U.S. Many of these came at an early age with parents or other relatives, although they fit the criteria of our sampling procedure, i.e., they have had some secondary education in the country of origin. The pull from the home country is evident in this table. Even among immigrants, one finds a substantial minority who are uncertain and a larger minority who contemplate returning to the home country.

Most students do not change their visa classifications while studying here. The most common pattern of change occurs among those with tourist visas, most of whom managed to change their classification to "F" (student), while some changed it to immigrant status. Among those who originally had "F" classifications, one out of ten changed to immigrant status. Those who originally had a "J"

TABLE IV-7

TYPE OF VISA AT THE TIME OF ARRIVAL IN THE U.S.
AND RETURN INTENTION

	Intention:			
Type of visa:*	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
F visa	78%	12	10	(904) 100%
Tourist	67%	17	16	(121) 100%
J visa	89%	5	6	(164) 100%
Immigrant	36%	25	39	(82) 100%

* A small number of more unusual visas foreign students may have, such as diplomatic or student spouse visas, are excluded from the table.

classification or came in as immigrants did not change their status while studying here. Changes in status do not lead to higher (or lower) return intention than that registered by the original visa classifications.

Source of scholarship and non-return

Forty percent of the students in the sample are beneficiaries of of one or another type of scholarship. Table IV-8 shows the return intentions of students according to the type of scholarship they held when they began their studies in the U.S., and at present. The unsponsored do not appear to be particularly prone to migration, but this is due to the fact that there are two types of self-sponsored students: those who are supported by their families and the self-supporting. It is the latter who tend to be migrants. Table IV-9 shows the percentage of non-return among sponsored and unsponsored students according to the importance they ascribed to financial reasons and relatives' aid in their reasons for coming to the U.S. to study. It may be seen that non-return percentages among self-supporting, self-sponsored students are greater than non-return percentages among the supported.

An interesting finding from Table IV-10 is the large number of students sponsored by U.S. universities who intend to stay abroad. In contrast to the small percentage non-return among those sponsored by government agencies, those who were sponsored by an American university at the beginning of their studies have the

TABLE IV-8

TYPE OF SCHOLARSHIP AND RETURN INTENTION

Type of scholarship held at beginning of studies:	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
Government or private sources in the country of origin	88%	6	6	(81) 100%
International organization	91%	9	0	(26) 100%
U.S. Government	85%	6	9	(86) 100%
American university or college scholarship	70%	12	18	(196) 100%
American university or college assistantships	78%	18	4	(65) 100%
U.S. foundation	85%	9	15	(73) 100%
None	73%	14	13	(739) 100%
Type of scholarship held at present:				
Government or private sources in the country of origin	92%	4	4	(84) 100%
International organization	90%	5	5	(20) 100%
U.S. Government	88%	3	9	(59) 100%
American university or college scholarship	77%	10	13	(175) 100%
American university or college assistantship	79%	11	10	(104) 100%
U.S. foundation	83%	8	9	(72) 100%
None	73%	14	13	(732) 100%

TABLE IV-9

STUDY SPONSORSHIP AND PERCENTAGE NON-RETURN
ACCORDING TO REASON FOR COMING
TO THE U.S. TO STUDY

Percentage non-return among:	Reason rated "very important" or "important"	N	Reason rated "of slight importance", "unimportant", or not applicable	N
	"It seemed easier to support myself while studying by means of a job in the U.S. than in my country of origin"			
Sponsored	17	(125)	7	(380)
Unsponsored	18	(227)	11	(498)
	"My relatives in my country of origin promised me financial aid if I studied abroad"			
Sponsored	7	(41)	10	(461)
Unsponsored	9	(247)	15	(474)

TABLE IV-10

TYPE OF SCHOLARSHIP, HIGHER EDUCATIONAL EXPERIENCE IN THE
COUNTRY OF ORIGIN AND PERCENTAGE NON-RETURN

Type of scholarship:	Attended university	N	Did not attend	N
Government or private agency, home country, U.S. or international	6	(191)	14	(44)
U.S. university	9	(217)	21	(63)
Self-sponsored	12	(409)	13	(323)

TABLE IV-11

TYPE OF SCHOLARSHIP, JOB STATUS IN THE COUNTRY OF ORIGIN AND PERCENTAGE NON-RETURN

Type of scholarship:	On leave from job in the country of origin	N	Not on leave	N	Did not have a job	N
Government or private agency, home country, U.S. or international	0	(84)	11	(9)	12	(133)
U.S. university	3	(29)	8	(12)	13	(224)
Self-sponsored	3	(39)	11	(28)	13	(639)

highest non-return rates next to the self-sponsored. (Most students remain within the same type of sponsorship or non-sponsorship during their sojourn in the U.S. The small numbers involved in those who have shifted from one type of sponsorship to another do not allow us to predict what the effects of these shifts are).

Why this greater migration tendency among the American university-sponsored? One theory I propose and develop in Chapter V is the effect of opportunities. Those who perceive opportunities for advancement as being closed in the home country are more likely to migrate. These opportunities may in turn be related to different types of statuses.

Part of the opportunities available before coming to the U.S. are scholarships abroad tied to education or jobs in the country of origin. Table IV-10 shows how prior educational experience in the country of origin explains the effect of the type of scholarship the student holds. Among those who had some higher educational

experience in the country of origin, holding some sort of scholarship, no matter what source, leads to relatively small non-return percentages. Among those who did not attend a higher education institution in the country of origin, there is a greater tendency to stay abroad, regardless of the type of scholarship held. It is especially among those without educational experience in the home country that American university sponsorship is associated with non-return, but even those with home or foreign official scholarships have a greater tendency toward non-return when they had not attended a home university.

Many scholarships for foreign students are arranged in cooperation with employers in the country of origin. Many students abroad are employees on leave -- this is especially the case among government workers.[7] Students on leave are very likely to return and resume their jobs. Table IV-11 shows the effect of type of sponsorship on return when we consider the student's job status in the home country. According to the table, the majority of self-sponsored and American university-sponsored students had no job before coming to study in the U.S. while a higher proportion of the officially sponsored students did have a job and are on leave from it. By taking job status into account, the effect of sponsorship washes out. Those who are on leave from their jobs have minimal non-return rates regardless of type of sponsorship, while those who were unemployed have higher rates, with no differences by type of sponsorship.

7. For example, Cortés found that many of the officially sponsored Filipinos abroad fit this category; op. cit., p. 58.

In conclusion, the effect of sponsorship is tied to the students' prior access to educational and employment opportunities in the home country. Scholarships from home country, American and international agencies are often tied to students' previous employment and educational experiences at home while American university or self-sponsorship is relatively more common among the unemployed or those without higher education in the home country. Students outside these sources of opportunity are more likely to stay abroad, regardless of the type of sponsorship they were able to obtain.

The effect of grades

One issue in the brain drain is the qualitative side of the loss of professional manpower. It has been argued that some countries may lose few professionals, but the few that they lose might be the ablest. Superiority or inferiority of talent is hard to measure in a survey, but to the extent that grades are an indication of talent, one can say that developing and developed countries are getting equal percentages of talent as a result of foreign study abroad. According to Table IV-12A, one fourth of returnees and non-returnees received grades the equivalent of "excellent" in the country of origin while seventy-five percent of the two groups received grades of "B" or higher in their studies in the U.S.*

* No literature exists on grade equivalents between countries. Admissions officers in the U.S. use rule of thumb to rank foreign applicants to their institutions. To avoid arbitrary judgments, we divided all foreign grades into the highest and anything less than highest. About the same proportion of students received grades of "excellent" in the home country and "A" in the U.S., indicating that they are equivalent. There is very little change in grades from the home country to the U.S.

TABLE IV-12

GRADES IN THE COUNTRY OF ORIGIN AND IN THE U.S. AND RETURN INTENTION

A. Distribution of grades	Definitely return	Probably return	Uncertain	Probably stay abroad	Definitely stay abroad
In the country of origin:					
"Excellent"	30%	33%	27%	28%	27%
Less than "excellent"	70	67	73	72	73
Total	(564) 100%	(295) 100%	(137) 100%	(87) 100%	(45) 100%
In the U.S.:					
A	25%	25%	16%	13%	27%
B	57	54	64	66	55
C or less	18	21	20	21	18
Total	(583) 100%	(305) 100%	(150) 100%	(103) 100%	(44) 100%

B. Grades in the U.S.:	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
A	82%	9	9	(272) 100%
B	72%	14	14	(685) 100%
C or less	74%	13	13	(227) 100%

While admissions officers and prospective employers may use grades as an indicator of ability, students may view their grades as an indicator of employment prospects. It is this aspect of grades that I focus on. Table IV-12B shows the effect of a student's grades in the U.S. on his return decision. The effect is minimal: nine percent of those with grades of "A" and twelve percent of those with grades of "B" or less intend to stay abroad. However, when we consider the effect of grades among various subgroups in the sample, we see variations in the effect of grades. Table IV-13 shows how grades affect the intentions of students in different specialties. Lower grades have little effect among students in the natural sciences and technical fields, while among the humanities, education and home management and social sciences, lower grades spur non-return. Among students in business, grades have an opposite effect: the better the grade, the greater the intention to stay abroad. (When we further control for the student's educational level, the totals in cells become too small, but the percentages suggest that it is only among graduate business students where high grades are associated with staying abroad. Thus, one may assume that this is a special group oriented towards corporate business careers in the U.S. or other developed countries.)

Another way in which grades enter as an intervening variable is when we consider the effect they have among disadvantaged groups. We see from Table IV-14 that male students' non-return decisions are not affected by their grades in the U.S. while females' are: the former

TABLE IV-13

GRADES IN THE U.S., SPECIALTY AND PERCENTAGE NON-RETURN

Grades in U.S.:	Science-technology	N	Humanities	N	Education, home management	N	Business	N	Social Science	N
A	8	(154)	7	(26)	5	(22)	24	(34)	6	(32)
B	11	(345)	19	(69)	28	(43)	13	(130)	11	(90)
C or less	13	(117)	17	(174)	17	(12)	10	(60)	15	(20)

TABLE IV-14

GRADES IN THE U.S., MINORITY GROUP MEMBERSHIP AND PERCENTAGE NON-RETURN

	Sex:			
Grades in the U.S.:	Male	N	Female	N
A	10	(230)	5	(43)
B	12	(586)	22	(99)
C or less	13	(198)	14	(29)

	Racial Status:			
	Minority	N	Majority	N
A	11	(18)	10	(238)
B	32	(48)	13	(598)
C or less	14	(21)	13	(199)

show non-return percentages close to the average non-return rate for the whole sample regardless of their grades. Females show greater non-return rates among those with lower grades. A similar pattern exists among cultural minorities, as shown by the effect of racial status. In effect, the data suggests a "try harder" pattern among disadvantaged groups among foreign students. Those who have the credentials expect to return and be able to find jobs. Those who do not have the credentials - as measured by grades - know that they stand little chance of employment, even against members of majority groups with similar levels of ability. While the student's grades are not included in the model of non-return in this analysis, later chapters will explore the question of the interplay of social statuses and perceptions of opportunity more fully.

Other contingencies of study abroad

The UNITAR questionnaire asked many additional questions dealing with the students' attitudes about their study abroad and the adjustment problems here. These will be reported on in Chapter VIII, where policy suggestions are reviewed and evaluated in the light of this survey's findings.

SUMMARY

Most foreign students in the U.S. expect to return to their countries of origin. The U.S., while attracting large numbers of foreign students, is not as typical a country of permanent immigra-

tion as Canada. Some nationalities which have been considered brain drain-prone turn out to have non-return rates close to the average rate for all foreign students in the U.S., while others do in fact lose a large number of their students abroad -- the Philippines, Egypt and Colombia are some of these large-loss countries. Most foreign students in the U.S. who decide to migrate pick the U.S. as the sole country of work, while those who mention other countries typically indicate a combination of western and non-western countries (other than their own) that they might possibly choose.

Most students in the U.S. expect to return to the home country within one year of completion of studies. In the U.S., a sizable number expect to stay for a period of a few years to acquire work experience, while in Canada, permanent migration is a more typical pattern. France has the greatest number of purely academic, non-training oriented students.

Students are committed to return by institutional ties both here and in the home country. Students with exchange visas and exchange-type scholarships, for example, are almost 100% returnees. Students with tourist or immigrant visas are more likely to stay abroad, although even among the latter group, the majority will return or are undecided. Students with American university scholarships show surprising non-return rates, but only among those not institutionally tied to opportunities in the home country. Unsponsored students have non-return rates commensurate with the entire sample, but family-supported unsponsored students have lower rates, while self-supported

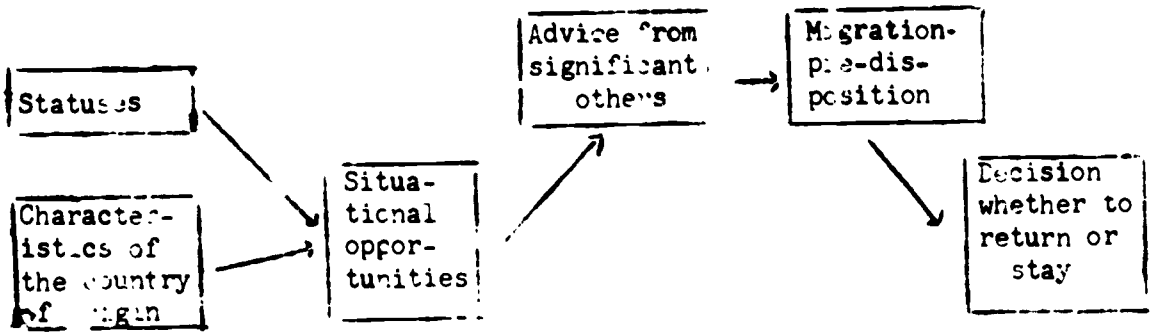
unsponsored ones have higher rates.

Grades per se have no effect on the students' return intentions, but they do have an effect when combined with some social statuses. Thus, we saw that low grades tend to encourage non-return among disadvantaged groups, such as females, while having no effect on other groups. The purpose of this chapter has been to explain the context of the students' return decisions -- differences by nationality, the typical time periods and the countries of immigration involved. Some contingencies of study abroad -- the sources of scholarships and the effects of grades -- have been discussed. While differences in non-return among nationalities are described here, in the next chapter I consider social and economic characteristics of the students' societies which produce migration. The discussion of scholarships leads us to analyze more fully the effect of opportunities, while the effect of grades points to differences in non-return according to socio-economic and other statuses. These questions form the topic of the remaining chapters.

CHAPTER V

FACTORS IN THE COUNTRY OF ORIGIN AND NON-RETURN

It will be recalled that the model of professional migration proposed in this work envisioned factors operating in the past and present, so that the decision whether to return to the home country or stay abroad could be seen as the culmination of a series of steps through time. Theoretically, we could conceive of many possible periods in which the student is presented with alternative courses of action which may differentially affect the migration decision. In practice, our survey distinguished two time periods: pre-arrival in the U.S., and the duration of study in the U.S. Within the two time periods, all variables conceived of have been placed in order of precedence. Thus, a student's social status is logically prior to his exposure to opportunities in the home country, and the latter are antecedent to his frame of mind at the time of arrival in the U.S. For convenience, the schematic model of possible factors operating during the first time period are reproduced below:



As mentioned in Chapter II, the guiding criteria for this model are a combination of prior knowledge of determinants from past brain drain

research, and a reasonable conception of the possible ways in which factors may operate. Indicators of the various factors were analysed through multivariate regression techniques, but prior to this, the effect of each factor is discussed.

The effect of migration predisposition

One possibility given attention in my model is the hypothesis that the migration decision is made quite early in the process of study abroad, i.e., that students who are migration oriented, or who have sets of motives logically linked to a migration orientation, will in fact turn out to be migrants. The placing of the concept of migration predisposition in an intermediate position between statuses and experiences in the country of origin and factors while studying abroad suggests such a hypothesis.

Confirmation of such a hypothesis would be of some practical importance, but would have theoretical consequences as well. Practically, it would alert policy makers to look for the sources of non-return among the types of attitudes that students bring with them when they come to study here, and to discount the process of study abroad as a contributor to non-return. Theoretically, the finding would indicate that some attitudes may be strong enough to withstand the effects of social pressures and conditions militating against them.

In my analysis, two indicators of migration predisposition were considered: one direct and one indirect. The first one is the student's estimate at the time of arrival in the U.S. of the number of

years he would stay abroad. This question is separate from the dependent variable -- the respondent's migration plans at present. The greater the number of years originally estimated, the more indicative of a long term committment to non-return. The correlation between the original estimate and non-return intention, treated as a Likert-type scale is .33*. It should be noted, however, that most respondents reported a fairly low estimate of time to spend abroad -- the mean time was five years. Moreover, there is little difference in percentage non-return between shorter and longer time estimated up to approximately ten years. It is only those who expect to stay abroad for longer than this who have exceedingly high non-return rates:

TABLE V-1

ESTIMATE OF YEARS TO BE SPENT ABROAD AT TIME OF ARRIVAL IN U.S. AND NON-RETURN INTENTION

Original estimate of time to spend abroad:	Definitely or probably return	Uncertain	Definitely or probably stay	N
Less than two years	90%	7	3	(182)
Three to five	79%	10	11	(688)
Six to eight	75%	14	11	(240)
Nine or more	45%	20	35	(107)
Total				(1217)

Note the small percentage of the sample estimating a period abroad of more than eight years, while at the same time, this year estimate seems to be the clear line of demarcation between committed non-returnees and the rest.

* Some respondents indicated "permanently" in answer to the question of their estimate of time in the U.S. at the time of arrival here. Based on an average age of 28 for the sample, this answer was recoded as forty years.

As a more indirect measure of migration predisposition, I considered the students' reasons for deciding to study abroad. In previous brain drain studies, the kinds of reasons students have for studying abroad have been found to predict non-return to a great extent. For example, in his study of Israeli students in the U.S., Ritterband derived three constellations of study reasons by means of cluster analysis. One cluster refered to academic and professionally-related reasons, for example, students who came for curricula related to their careers not given in their home countries. A second type of reason refered to students who were not admitted to higher educational institutions in Israel and chose an education in the U.S. as the only open alternative. This type of motive was more likely to result in non-return. A third type of reason refered to completely non-academic reasons for studying abroad, such as wanting to avoid family pressures. Non-return intention was fairly low among those who fell into the first reason cluster, and increased from the second to the third.[1]

The connection between the reasons for coming to study in a developed country and a predisposition to migrate may now be seen. First of all, for some students, the connection is direct: migration is the reason for study. For others who may have other motives, the connection is more indirect. Thus, some of the students in Ritterband's work came to study in the U.S. because they were not admitted to Israeli institutions. But, as Ritterband shows, the type of reason a student may have

1. Paul Ritterband, "Out of Zion: The Non-returning Israeli Student," N.Y., unpublished dissertation for the Ph.D. in sociology, Columbia University, 1968.

is bound to committments and past experiences in the country of origin. For example, he found Israelis with "ulterior" motives for studying in the U.S. to be less committed to their occupational choices. He also found that those seeking a second academic chance in the U.S. were in fact more likely to have weak academic backgrounds, therefore be less likely to enter the hierarchical Israeli university system, therefore, have less access to job opportunities in the home country.[2] The types of motives for studying in the U.S. may then be seen as a linkage between institutional ties and social statuses in the country of origin, and an ultimate migration decision governed by these factors. This is the mode of interpretation I wish to follow here.

In the UNITAR survey, respondents were given a list of reasons for studying in the U.S. The list consisted of thirty-seven items divided by topic (academic opportunities, courses, financial reasons, personal influence, etc.). The list duplicated most of the reasons in Ritterband's study, plus others culled from brain drain literature. For each item, respondents were asked to rate its importance in their decision to come to study in the U.S. ("very important", "important", "of slight importance", "unimportant", and "did not apply to me, since not present when I made my decision").

To reduce the number of reasons to a smaller number of motivational types, the responses for all items were treated as scores and the cor-

2. Ritterband, "Social Determinants . . .", op. cit., pp. 343-348.

relations between all item scores were cluster analyzed.[3] The types of motives and their correlations with non-return intention are given below:

1. An "academic professional" orientation. The motives here refer to studying abroad for training or contacts related to advancement in the student's profession. (.03)

2. An orientation to the value of an American degree. Two items relating to the prestige and monetary values of American degrees. (-.03)

3. A second academic chance orientation. As in Ritterband's study, a number of respondents in our survey came to the U.S. because of difficulties in entering educational institutions in their own countries. (.04)

4. A personal influence orientation. Most of the items in this cluster deal with advice about studying abroad from relatives and acquaintances. (-.02)

5. A non-academic work orientation. Most of the reasons falling in this cluster deal with the expediency of studying in the U.S. in order to further work-related goals, for example, in order to have qualifications in case one decided to make a career here. This is the closest to Ritterband's "ulterior motives" cluster. (.19)

6. A personal freedom cluster. Wanting to avoid family or

3. Mc Quitty's technique for cluster analysis was used; c.f., Louis L. McQuitty, "Elementary Linkage Analysis for Isolating Orthogonal and Oblique Types and Typal Relevancies," Educational and Psychological Measurement, Vol. XVII, No. 2, Summer, 1957, pp. 207-229.

other committments in the country of origin. (.20)

7. A migration orientation. A few items dealt with explicit migration reasons, for example, coming to study in order to prepare the way for other migrating family members. (.28)

Only three clusters of motives have any measure of relationship to non-return intention: migration, personal freedom, and non-academic motives (.28, .29 and .19 respectively).* This is in consonance with findings in other research, especially Ritterband's. The findings are also in accord with Myers' study of Peruvian students in the U.S., although his questionnaire presented fewer reasons and the latter were not subjected to any scale analysis.[4] It may be seen that relatively few respondents gave importance to the items corresponding to the migration and personal freedom clusters. This accounts in part for the relatively low correlation which these two clusters have with non-return. The relative lack of correlation with non-return in the other clusters is more indicative of lack of association, since higher numbers of respondents gave importance to those clusters.

A relatively large percentage of respondents rated as "important" or "very important" those items found in the "professional-academic", degree's value, and personal influence clusters, but the importance of these to respondents has little to do with their decision whether to stay or return. The low correlation of academic values with non-return

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* Appendix A lists the reasons in each cluster, and the percentage of respondents indicating "very important" or "important" for each item.

4. Myers, op. cit., pp. 265-266.

is interesting, because it indicates that many non-returnees are as likely to be motivated by professional values as returnees. Previous studies have associated this kind of value with returning to the country instead.[5]

Coming to study in reaction to blockages to higher education in the home country is also uncorrelated with non-return, and very few respondents rated the items in this cluster "important" or "very important". Ritterband's finding about the importance of this motive to Israelis is thus a local phenomenon which corresponds only to a small percentage of the students in our sample.*

Given a multi-dimensional scale of reasons, a reasonable mode of procedure would have been to assign respondents to one of the seven clusters on the basis of the highest score in any particular cluster, in order to see how each motivational type is related to non-return. In order to test this, correlations were derived between normalized

5. Ritterband, "Social Determinants . . . ", op. cit. See also William A. Glaser, op. cit., pp. V-33 and V-41-45. The same clusters were derived by Glaser in his analysis of all surveys in the UNITAR sample. Although his table presents the relationship between reasons clusters and non-return in a different fashion, the same clusters are associated with return or non-return -- with the exception of the academic reasons cluster. That is, using all samples combined, academic reasons are positively associated with plans to return to the home country.

* Among nationalities with substantial numbers in the sample scoring high in this cluster are Jamaicans, Trinidadians, Guyanans, Peruvians, Chileans, Iranians, Lebanese, Jordanians, Pakistanis, and Thais. While most of these countries have fairly restrictive higher educational systems, so do other countries whose nationalities did not score high on this particular cluster. Conversely, Lebanon has one of the largest student bodies among developing countries, with enrollment in universities equal to one quarter of the numbers enrolled in secondary schools. In spite of this, Lebanese score high on the second academic chance cluster.

scores in the seven clusters. Table V-2 shows the correlation matrix. There is a fairly high degree of association between any and all cluster scores. A student who came to study because of academically-related reasons may as well be concerned with the value of his U.S. degree, and may even be contemplating migration. In spite of this, the clusters do coalesce into two opposite groups. In terms of high intercorrelations, the migration, personal freedom, non-academic and second academic chance clusters form one set, while the rest of the clusters form a second set.

TABLE V-2

CORRELATION MATRIX . . OF NORMALIZED CLUSTER SCORES FOR REASONS FOR COMING TO STUDY IN THE U.S.

Study Reasons Cluster:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Academic-professional	X	.42	.14	.38	.39	.31	.24
(2) Value of U.S. degree		X	.10	.31	.38	.21	.21
(3) Second academic chance			X	.24	.29	.21	.23
(4) Personal influence				X	.37	.29	.29
(5) Non-academic work orientation					X	.36	.57
(6) Personal freedom						X	.45
(7) Migration orientation							X

One expectation in the analysis was that the two measures of migration predisposition -- motives and estimates of time abroad -- would correlate highly, i.e., that one could predict the student's estimate of time according to his motives for coming to study

here. In fact, the correlations are all under .10, and the partial between time estimate and non-return controlling for the various types of motives for study abroad remains the same. Table V-3 shows the relationship between time estimates and non-return controlling for importance of migration orientation (divided into low, medium and high importance). Regardless of the importance to the student of migration-related study reasons, the longer the original estimate of time abroad, the greater the intention to stay abroad. However, among those who attributed high importance in their study decision to migration-related reasons, the initial estimate of time to be spent abroad has less effect, since there is a high non-return rate both among the brief and longer sojourners. At the same time, among those who attributed little importance to migration-related reasons, the initial estimate of years abroad has a non-return effect only among those who estimated they would be abroad for more than nine years. In spite of these subtle distinctions, the finding remains that motives for study and time committments of foreign students do not always go hand in hand. Each operates independently in the non-return decision, and in the multivariate analysis section of this chapter, I try to show the sources of each.

The influence of significant others

Respondents were asked about advice of teachers, relatives, friends, and the spouse or fiancee, both here and in the country of origin.*

* The response choices were: advice to return, advice to stay in the U.S., no advice given, and not applicable. In addition, some respondents indicated mixed advice.

TABLE V-3

ESTIMATE UPON ARRIVAL IN THE U.S. OF YEARS TO BE SPENT ABROAD AND PERCENTAGE NON-RETURN, ACCORDING TO IMPORTANCE OF MIGRATION-RELATED REASONS FOR STUDY ABROAD

Original estimate of years to be spent abroad:	Migration orientation* Low	N	Medium	N	High	N
Two or less	2	(118)	4	(51)	23	(13)
Three to five	7	(353)	10	(251)	28	(84)
Six to eight	11	(104)	10	(110)	15	(26)
Nine or more	24	(45)	41	(41)	46	(22)
Total		(620)		(453)		(145)

* The median score for this cluster was 3.3, out of a range of 0 to 16. "Low" indicates a score of 2 or less; "medium" a score of 2 through 6; "high" any score over 6.

The question asked for the advice of significant persons at present, i.e., while the student is studying here. However, half of the individuals are in the country of origin. One may assume, therefore, that the students received similar advice in the past, before they went abroad. In fact, one may assume that many respondents had in mind advice they received while they were in the home country when answering the question. For all sources the student's plan agrees fairly high with the advice given. Two cumulative indeces of advice (by individuals in the home country and in the U.S.) were constructed. Their correlations with each other and with non-return intention are as follows:**

** If the spouse or fiancee was a non-compatriot, that item's score was not included in the index of migration advice by individuals in the home country. If the spouse or fiancee was a compatriot, that item was included in both advice indeces. This contaminates the indeces somewhat, since a spouse's score is counted twice, making the correlation between the two indeces higher than it should be. A positive score on an index indicates advice to stay abroad.

	(1)	(2)	(3)
(1) Index of migration advice by individuals in the country of origin	X	.47	.32
(2) Index of migration advice by individuals in the U.S.		X	.35
(3) Non-return intention			X

While the correlation of advice in the home country and non-return is high, some sources (the spouse, for example) have even higher correlations with non-return intention. However, since the intent here is to relate advice to other factors, the index of advice is used to facilitate multiple regression analysis.

The effect of institutional ties

Another hypothesis in the analysis is the existence in the country of origin of institutional opportunities affecting the students' future committments to return. For example, having a job in the country of origin prior to studying abroad may be conceived as an institutional tie, a situational opportunity which may affect a student's non-return decision. Presumably, students with jobs will plan shorter stays abroad; this in turn might lead to a certain type of educational experience in developed countries, and finally, to a certain committment to return or not return. One may work backward in time from institutional ties: to a particular status to which these ties are open, or to a particular characteristic of the country of origin which permits these ties to be or not to be present.

Our questionnaire collected data on three types of institutional ties: respondents' jobs, university attendance, and the type of scholarship the student came with to the U.S. The rationale for the latter indicator -- already discussed in Chapter IV -- is the nature of home university or "exchange" type scholarships, such as the Fulbright-Hays, OAS and other governmental scholarships, which are usually the result of arrangements between developing and developed country official agencies.

Table V-4 shows the effects of institutional ties on the return decision. An unexpected finding is that job ties by themselves have little effect on non-return, due to the fact that some students resigned their jobs prior to going abroad. This latter group does have high non-return percentages. One third of respondents attended a home university prior to studying abroad. This group is slightly more likely to return than those who did not attend, suggesting the effect of university attendance in creating career opportunities. The table also shows the effect of exchange-type scholarships, which are usually tied to employment upon completion of studies abroad. Fifteen percent of the unsponsored or those with American university scholarships intend to stay abroad, while the corresponding percentage among exchange scholarship students is seven.

Institutional ties have some effect on the students' pre-migration dispositions. Students who did not attend home universities, who resigned or had no jobs at home, and who were self (or American university) sponsored, are more likely to score high on the migration orientation

TABLE V-4

INSTITUTIONAL TIES AND NON-RETURN INTENTION

Institutional ties:	Intention: Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
Job ties:				
No job	76%	15	9	(563)
Had a job, but resigned	70%	14	16	(401)
Did not resign	89%	5	6	(230)
Attended home university:				
No	71%	14	15	(464)
Yes	78%	11	11	(890)
Type of scholarship at time of arrival in U.S.:				
Exchange*	86%	7	7	(265)
American university**	72%	13	15	(261)
None	73%	14	13	(827)

* This includes international, home government and private, and American government and foundation scholarships.

** Including some American university research or teaching assistantships.

study reasons clusters, and are more likely to have planned long stays abroad at the time of arrival here. (The correlations fluctuate around .12). However, these ties do not control migration predisposition. The fairly high correlation between migration orientation, between time estimates, and non-return drop by only one percentage point when we control for any of these institutional ties.

The indicators of opportunities would be better predictors of non-return if more information about the meaning of a particular job or university tie within each particular country were available. The questionnaire asks only for the respondent's field of work and type of employer. We may assume that the same job may have different meanings according to which firm is involved. Similarly for educational institutions. While being educated at home may create ties to the home country, this may be true only in the case of a prestigious university -- for that matter, in the case of some departments within some universities. For example, in Japan, recruiting into elite positions runs according to the well known "old boy" principle. Elite companies and government agencies are connected to prestige universities through personal ties to professors and alumni. Students outside of these influence networks have no access to the top positions in the society.[5a] In the UNITAR questionnaire, respondents

5a. John W. Bennett, Herbert Passin, and Robert K. McKnight, In Search of Identity, The Japanese Scholar in America and Japan, Minneapolis, University of Minnesota Press, 1958, pp. 35-39.

were asked for the names of all higher education institutions they attended. Therefore, information about the prestige of their home universities could in principle be added to their data files. No doubt this would improve the predicatability of school ties as an indicator of opportunities. Unfortunately, this is a research project in itself, and beyond the resources available for this work.

In the multiple regression analysis in this chapter, the indicators of institutional ties in the home country -- jobs, home university attendance, and the type of scholarship (exchange versus others or none) are combined into an index of opportunities. The correlation between this index and non-return is -.14. The low correlation is not surprising, given the low correlations of each indicator with non-return.*

Statuses and non-return

Much of brain drain research deals with differences in non-return among individuals according to their background characteristics. Two broad categories are discussed in the literature: socio-economic status, which points to the effect of a country's stratification system on its loss of professional manpower, and demographic statuses, which points to the propensity of individuals to migrate according to sex or at different points in their lives. Both types are time-honored lines of research in migration studies.[6] Following this orientation in migration

* While resigning from a job does have a higher correlation with non-return than the other indicators of institutional ties, it is not used in the index because it indicates a disposition on the part of the respondent, not a situation.

6. See Chapter II, pp. 32-39.

research, I will briefly report the findings in the UNITAR survey on the effects of status on non-return.

Various studies have found a general pattern of greater migration propensity among professionals of lower socioeconomic status in the home country, although it should be added that other researchers have found the opposite relationship, while others have found no relationship.[7]

In explicating the role of socioeconomic status, students of the brain drain have reasoned that the lower the status, the lesser the opportunities available in the country of origin. For example, lower status students might have less contact with influentials who might arrange for the right job interviews. In our study, we have included objective measures of opportunities, such as jobs offered, as well as perceptions of jobs and other opportunities the students may have in the country of origin. Students' perceptions and objective opportuni-

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7. Part of the ambiguity lies in the different measures of SES. Some researchers have used father's education as an indicator; others have used father's occupation, while others have used indices including the above plus income and other characteristics as well. Among those finding a negative relationship between SES and non-return are Yung Wei, op. cit., p. 23, and Ritterband, op. cit., p. 59. See also Mohammed Borhanmanesh, "A Study of Iranian Students in Southern California", Los Angeles, Thesis for the Ed.D., School of Education, University of California, 1965, and Mehri Hekmati, "Alienation, Family Ties, and Social Position as Factors Related to the Non-return of Foreign Students", New York, thesis for the Ph.D., School of Education, New York University, 1970. Cortés found a positive relationship between father's education and migration in her sample of Filipino students in the U.S., op. cit., p. 76, while Myers' figures show no relationship between the two in his study of Peruvian students in the U.S., op. cit., p. 259-260.

ties the students may have in the country of origin. Students' perceptions and objective opportunities, and their interrelationship with their background characteristics are discussed in Chapter VI. For the moment I limit discussion to the effect that various measures of SES, in conjunction with other statuses, have on the students' migration decisions.[8]

In our study, respondents were asked to state their parents' occupations and highest educational level. Table V-7 shows the return and non-return expectations of students according to their parents' socioeconomic status. Turning to occupation first, it may be seen that the clearest differences are between sons of manual workers and other occupational categories. Seventeen percent of sons of workers expect to stay abroad, while among other occupational categories, the percentage staying abroad is close to the average non-return rate.

While the higher non-return rates among sons of workers seem to point to the adequacy of the SES hypothesis, the reader should be made aware of the problems of interpretation involved in Table V-7. One of the few shortcomings of the survey is the response to the question about parents' occupations. Students' responses tended to be cryptic. There-

8. It should be added that the question of opportunity structure is not the only possible explanation of the effect of SES on migration decisions. Ritterband makes the point that students from different socioeconomic statuses have different adolescent socialization experiences, which might lead to lesser or greater identification with the home country, regardless of the opportunities available at home. He found this to be a more persuasive explanation of non-return among Israeli students, although it cannot be tested in this study; op. cit., pp. 60-62.

TABLE V-5

SOCIOECONOMIC STATUS AND RETURN INTENTION

Father's occupation:	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
Peasant or farmer	83%	11	4	(103) 100%
Manual worker, technician	70%	13	17	(107) 100%
Clerical, salesman	74%	13	13	(83) 100%
Professional, semi-professional	74%	13	13	(332) 100%
Officials, managers	79%	11	10	(207) 100%
Self-employed businessmen	77%	11	12	(411)1100%
High level government officials	82%	6	12	(32) 100%
Father's education:				
None	79%	12	9	(53) 100%
Some or completed elementary	84%	7	9	(192) 100%
Some or completed secondary	73%	14	13	(451) 100%
Some or completed higher education	56%	12	12	(436) 100%
Advanced	72%	15	13	(164) 100%

fore, I consider that there is quite a bit of overlap between the occupational categories shown in Table V-5. For example, many students related their father's occupation as being that of "businessman", giving no clue as to whether his father was a small businessman or a shopkeeper. Similar problems appear in interpreting such occupational categories as "manager" or "salesman", or even "farmer". Therefore, father's occupation as a variable is not useful in this study.

Table V-5 shows the migration intentions of students according to the father's highest level of education. In the case of father's education, we can claim better reliability of results, but the findings do not support the hypothesis of a negative relationship between SES and non-return. There is very little difference in intention among the various levels of father's education.

Father's education may be expected to correlate with occupation or prestige. In a multinational sample, it becomes harder to indicate precisely what a father's education will measure. It has not been cross-tabulated because we do not know to what extent the coders were unconsciously guided by the answers to father's education to code the cryptic responses to father's occupation.

Another indicator of socioeconomic status in the data is the family's ownership of various goods and services. When we correlate father's education and the family's ownership of goods, there is not much difference between the property of relatively uneducated and educated fathers. For example, fifty-six percent of families where the father has an elementary education or less have domestic help in the household;

among those with fathers having completed secondary or higher education, over seventy percent of families have domestic help. Controlling for any good or service (or an index of wealth combining all goods and services) does not alter the little correlation between father's education and non-return intention.

Ethnic minority status and non-return

A well established finding about the brain drain is the tendency of minorities to migrate. As with socioeconomic status, the assumption is that members of ethnic minorities are subject to discriminating quotas in hiring and education; therefore, they perceive opportunities for advancement to be closed in their countries and are more disposed to seek opportunities at home.[9] In our study, the students' answers to their race, religion, and languages used in various stages of their lives have been coded for minority or majority status.*

Table V-6 summarizes the correlations between statuses (father's education, ethnicity indicators, demographic variables) and non-return. Considering now the ethnicity correlations, it should be pointed out that the low correlations are in part due to the small number of respondents in the sample falling into minority group categories. When one compares the correlation coefficients with the cross-tabulations

9. Ritterband found that Israeli students of oriental background are less likely to return to Israel, although the effect of ethnicity was neutralized when taking SES and Zionist background into account, op. cit., pp. 64-65.

* The procedures employed in coding any particular status are outlined in Appendix B.

TABLE V-6

SUMMARY OF CORRELATIONS BETWEEN STATUSES AND NON-RETURN

Status:	Correlation with non-return	Significance level
Father's education	.07	.01
Racial minority	.12	.001
Religious minority	.13	.001
Language minority	.05	.03
Age	.06	.02
Sex (Male: 1)	-.04	.09
Marital status before arriving in the U.S. (Married: 1)	-.10	.001

TABLE V-7

ETHNIC STATUS IN THE COUNTRY OF ORIGIN AND RETURN INTENTION

Ethnic statuses:	Definitely or probably return	Uncertain	Definitely or probably stay abroad	Total
Racial minority	57%	18	25	(97) 100%
Racial majority	77%	12	11	(1183) 100%
Minority religion	60%	18	22	(159) 100%
Majority religion	78%	12	10	(969) 100%
No religion	78%	7	15	(116) 100%
Chief language of country used during childhood	78%	12	10	(930) 100%
Minority language	71%	15	14	(320) 100%
Both chief and minority languages	75%	8	17	(95) 100%

in Table V-7, the strong propensity of minority groups to migrate is confirmed.*

Ethnic minority statuses act singly and in conjunction. For example, among those students who belong to both racial and language minorities (as the Chinese in South Asia) the effect is to increase the propensity to migrate. Tables V-8 and V-9 show the joint effects of various minority statuses. For any two statuses we may choose, a combination of minority statuses yields the greatest non-return percentages of non-return. But the effect of one status as opposed to the others may also be evaluated. Thus, we see that race and religion seem to have independent effects. A student who belongs to a minority group on the basis of religion and to the majority on the basis of race is as likely to stay abroad (fairly high percentages) as one whose minority group memberships are the converse. Membership in a language minority, while influencing non-return, does not have as strong an effect as racial or religious status. We see in Table V-9 that members of minority race groups have high non-return rates and members of majority race groups have low rates regardless of their membership in a majority or minority language group. Considering the effect of religious status, a similar pattern is seen: members of religious minorities have high non-return rates while members of religious majorities have low rates, regardless of their language

* While beyond the scope of this work, it should be pointed out that other developed countries do seem to show relationship between minority status and non-return. Canada, for example, attracts more migration-minded students from ethnic minorities. See William Glaser, op. cit., p. IV-3.

TABLE V-8

RACIAL STATUS AND PERCENTAGE NON-RETURN ACCORDING TO:

			Religious status:			
Racial status:	Minority	N	Majority	N	No religion	N
Minority	28	(21)	20	(59)	30	(10)
Majority	21	(135)	9	(859)	. . .	(99)

			Language during childhood:			
	Minority	N	Mixture	N	Chief language	N
Minority	29	(48)	10	(10)	23	(39)
Majority	11	(269)	20	(76)	11	(832)

TABLE V-9

RELIGIOUS STATUS, CHILDHOOD LANGUAGE AND PERCENTAGE NON-RETURN

Religious status:	Minority	N	Mixture	N	Chief language	N
Minority	19	(97)	40	(44)	23	(18)
Majority	9	(695)	10	(208)	11	(64)
No religion	10	(70)	22	(39)	13	(7)

affiliations. To summarize the relationship between the ethnicity indicators: racial, language, and religious minority status taken together yield a multiple correlation coefficient of .16.

Demographic status and non-return

When dealing with demographic data, the aim of sociological explanation is to look into the social meaning that a particular demographic status may hold for its occupants, and the way in which that status joins with others to form a particular complex of meanings. As with socioeconomic status, my model hypothesizes that status may be linked to institutional ties in the country of origin and in the U.S. In this section, I briefly discuss the correlations of various demographic statuses with non-return, which are summarized in Table V-6.

Age is one status which may be expected to enter into persons' career prospects, and in that way, into the return decision. In research and theory, migration has been considered an endeavor for the young and unattached. In the brain drain literature, there is no unanimity of findings on this status.[10] In our survey, age has no relationship with non-return, when considered by itself. The slight correlation of .06 drops to zero when we control for duration of stay in the U.S. That is, older students have been around for a longer time. Younger

10. For example, in his study of the 1964 IIE census of foreign students, Myers found the greatest migration propensity among the age groups 15 to 19 and over 40. Since we excluded freshmen from our sample, we have very few students under 20 (the median age is 27). Op. cit., p. II-35. Ritterband and Cortés also found that younger students were more likely to stay abroad, although they derived different effects of age on non-return when controlling for age-related statuses. Ritterband, op. cit., pp. 111-112; Cortés, op. cit., p. 59.

students who have been around for the same time are just as likely to stay as older ones. However, in the multivariate analysis section of this chapter, we will see that age does have a positive relationship to non-return when other factors are controlled.

There is little relationship between sex and non-return intention. In our findings, 17 percent of women intend to stay abroad while only 11 percent of men had the same plans. However, the relationship is not significant.

Considerable attention has been devoted in the literature to the effect of marriage to a foreigner as a source of non-return. Since this is an opportunity which arises for the student only after arriving in the developed country, I deal with it elsewhere. It should be noted however, that ties to the home country through the spouse are present before the student arrives: those who are single prior to arrival are already more likely to stay abroad after completion of their studies.

The effect of societal characteristics

One intention of the analysis is to see the extent to which objective characteristics of the students' environment affect their subjective decisions about where to work and live. Consequently, various characteristics of the respondents' countries of origin have been added to their data files. Table V-10 summarizes the correlations between these and non-return. Since these characteristics of the home countries enter into the analysis here and in other chapters, I will briefly discuss their meanings and significance for non-return.

TABLE V-10

INDICATORS OF SOCIETAL CHARACTERISTICS AND THEIR CORRELATION WITH NON-RETURN INTENTION

Societal characteristics:	Correlation with non-return	Significance level
Economic		
GNP per capita	-.03	.12
GNP growth rate, 1960-1970	-.02	.29
Surplus professional manpower	.11	.001
Educational system		
Enrollment in higher education as percentage of enrollment in secondary education	.07	.004
Political system		
Political elitism	-.09	.001
Westernization	.04	.09
Average yearly riots, 1948-1967	.09	.001

The first two shown in the table -- Gross National Product per capita and its growth rate -- are self-explanatory. The findings of little correlation with non-return are in line with prior research.[11] A country's wealth, or its economic performance, has little to do -- directly -- with its students' migration intentions.[12]

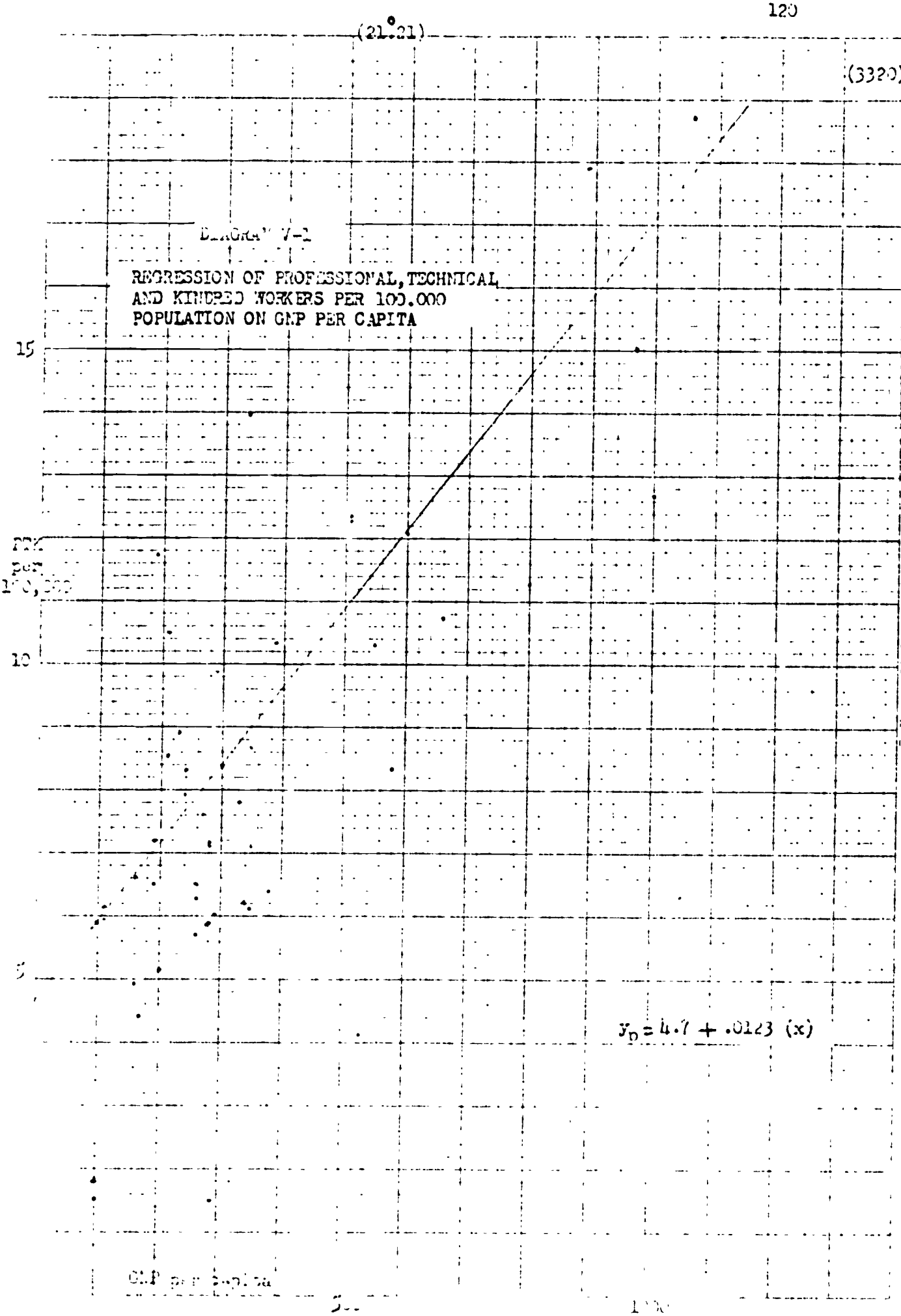
The third economic indicator, the extent of a surplus or deficit in professional manpower, requires explanation. This indicator is similar to Hervé's index of demand for professional manpower (see pp. II-4,5). Hervé ran a regression of the number of physicians in 48 countries on their GNP per capita. A similar procedure was employed in the case of students for 78 countries. Surpluses or deficits in these categories were measured by each country's deviation from the regression line. This demand for professional manpower was found to be highly correlated with his measures of non-return.[13] In my analysis I duplicate this procedure for the nationalities in the U.S. student sample. A priori, one would expect less accuracy in measuring demand for manpower, since no attempt at measuring demand for each professional field in the sample was possible. Diagram V-1 shows the regression on GNP per capita of professional, technical and kindred workers per

11. Specifically, R.G. Myers' analysis of the 1964 Institute of International Education's census of foreign students in the U.S. In effect, he found that the higher the GNP, the greater the intention to stay abroad. However, his sample included nationalities from developed countries, which had the highest non-return rates in the population; op. cit., pp. 141-144.
12. It might be mentioned that these indicators have even less to do with a country's manpower loss, which is Myers' measure of the loss incurred by a country by its professionals' and students' non-return (numbers staying abroad divided by numbers returning and numbers never having left), ibid. p. 158.
13. Hervé, op. cit.

100,000 population*, for all nationalities in the sample for which data was available (46 out of 63 countries). This measure of demand for professional manpower has a correlation of .10 with non-return intention.

In addition to economic indicators, the countries' enrollment ratios for the second and third education levels were included in the respondents' data files. Table V-10 shows that there is little relationship between the percentages of secondary school students going on to higher education and non-return. Table V-11 shows the relationship between the percentage of secondary school students going on to higher education and non-return, controlling for the size of the secondary school population. In countries where the secondary enrollment level and the percentage going on to university are both low, non-return intention is lower than in those where the two are disparate. Among the disparate cases are a few countries with small secondary school populations and high percentages going to the university level. Only one of them has very high non-return percentages -- Indonesia -- and this may be due to political instability. More countries are found among the other disparate case of large secondary school enrollment with relatively few students going on to university. Among these are Guyana, Cyprus, Jordan and Singapore. This suggests a lack of facilities to accomodate secondary school students, and thus, an indirect source of non-return. In other words, Table V-11 suggests the possibility of interaction between large secondary school enrollment in a

* Data on total numbers of PTK workers in each country's labor force was obtained from the International Labour Office, Year Book of Labour Statistics, 1970.


(21.21)
(3320)
DIAGRAM V-1
REGRESSION OF PROFESSIONAL, TECHNICAL AND KINDRED WORKERS PER 100,000 POPULATION ON GNP PER CAPITA
15
10
$\bar{y}_p = 4.7 + .0123\ (x)$

country and the number of students that can be admitted at the third level. However, there is no statistical significance in the difference between R^2's derived from interactive and additive treatments of the two factors.*

Several political system indicators were added to the students' data files. In his analysis of the 1964 IIE foreign student census, Myers tested the relationship between political elitism and non-return. This measure is taken from Banks and Textor's Cross Polity Survey, and is intended to distinguish countries with small modernizing elites, where opportunity for political advancement is high, from those with more established political systems.[14] Myers reported a fairly high negative correlation (-.76) between political elitism and non-return. As shown in Table V-12, there is a slight negative correlation in our survey between the two.

A second political indicator from the Cross Polity Survey added to the data files is an index of westernization. Countries were classified here as to whether they were "traditionally western or significantly westernized since the post-war period."[15] As shown on

* In her analysis of Iranian, Lebanese and Brazilian respondents in the UNITAR student surveys in France, Canada and the U.S., Christine Mironesco found that differences in the "openness" of these three countries' higher educational systems, i.e., the percentages of their secondary school students going on to higher education according to the level of secondary enrollment, explained differences in non-return among the nationalities, as well as the reasons why they went abroad to study. For the case of all foreign students in the U.S. at least, this does not seem to be the case. See C. Mironesco, Reasons for Studying Abroad: A Comparative Analysis of Brazilian, Iranian and Lebanese Students in the U.S. and France, Columbia University, M.A. thesis, 1972.

14. Arthur S. Banks and R.B.Textor, A Cross Polity Survey, Inter-university Consortium for Political Research, pp. 105-6 ; see also Myers, op. cit., p. 139.

15. Ibid., p. 67-68,

the table, this indicator has little direct effect on the students' return decisions.

Finally, a series of indicators of political stability were included in the respondents' data files. A representative one, average yearly number of riots between 1948 and 1967, is shown in Table V-10.* There is a slight positive correlation between political instability, as measured by this indicator, and non-return. Other similar indicators have equal or lesser correlations with non-return. Since these indicators are highly intercorrelated, indexing them does not produce a higher correlation with non-return.

TABLE V-11

PERCENTAGE OF SECONDARY SCHOOL STUDENTS GOING ON TO UNIVERSITIES AND NON-RETURN, ACCORDING TO SECONDARY ENROLLMENT LEVEL

	Secondary Enrollment Level##					
Third level enrollment as percentage of second:#	Low	N	Medium	N	High	N
Low	6	(140)	12	(170)	16	(61)
Medium	14	(370)	12	(182)	10	(219)
High	0	(13)	16	(49)	15	(149)
Total		(523)		(401)		(429)

* The data are from ICPR's Annual Event File, pp. 5-19.

\# "Low" level of university enrollment as percentage of second is classified as a range from zero to .09; "medium" is .09 to .18; "high" is anything above .18.

\#\# "Low" level of secondary enrollment is classified as a range of zero to .20; "medium" is .20 to .38; while "high" is anything above .38.

A PATH ANALYSIS OF FACTORS OPERATING BEFORE ARRIVAL IN THE U.S.

In order to investigate the interconnections between the various factors in the model, a path analysis was conducted. Appendix C shows the Pearson correlation matrix for all variables in the analysis, including those of later chapters as well as some variables dropped from the final multivariate regressions because of insufficient effects. The general assumption of the model, as may be seen from Diagram V-2, was that social influences and motivational factors would have direct effects on non-return, while institutional ties would have indirect effects through motivational factors and social influences. Finally, the effect of background characteristics and societal factors would take place indirectly through institutional ties. Table V-12 shows the direct, indirect and spurious effects of each variable on non-return intention, as well as the estimated and actual correlations with non-return.

In the model in Diagram V-2, those paths having coefficients of less than .10 were eliminated. (Some paths showing less than .10 were kept because they were close to that point; others had coefficients of .10 or more in the original fully recursive model, but had lower coefficients by the final path model).* All coefficients are significant at the .001 level.

Starting first with the background and societal variables, it may be seen that the original hypothesis of only indirect effects did not

* Some variables having correlations of .10 with non-return were eliminated as well because of having minimal correlation with non-return when entered into the regression analysis. Demand for professional manpower and educational characteristics of the countries were among them.

fully bear out. All background characteristics in the model have higher direct than indirect effects (including ethnicity whose residual correlation with non-return is .08). Marital status has a slight negative indirect effect through the fact that older students are more likely to have opportunity ties at home. These indirect effects are offset by their being older, and being older is directly related to non-return. Thus we see a characteristic producing opposite tendencies. This is even clearer in the case of age. The total correlation of age and non-return is minimal (.06), but this is due to masking tendencies of other factors. Older students are more likely to be job-tied, and these ties produce positive committments to return. A second effect of age is through the greater likelihood of older students being married, and marriage's direct effect inducing return (as well as marriage's own contribution to job ties). However, once these effects are controlled, age shows to have a positive effect on non-return. Thus, unlike in traditional migration, we see here a pattern of older people being more prone to migration, once masking factors are taken into account.

Ethnicity shows relatively little influence on non-return, unlike its effects discovered in other studies. Moreover -- in opposition to the original hypothesis -- its greatest effect on non-return is direct. However, ethnic minorities are more likely to be advised to migrate, although this effect is slight. If minority group members show some tendency to stay abroad, the data show no effects through lack of opportunity for education or jobs. Moreover, minority group members show no marked tendency to plan longer stays or to be more migration-disposed than majority group members. It may be pertinent to repeat

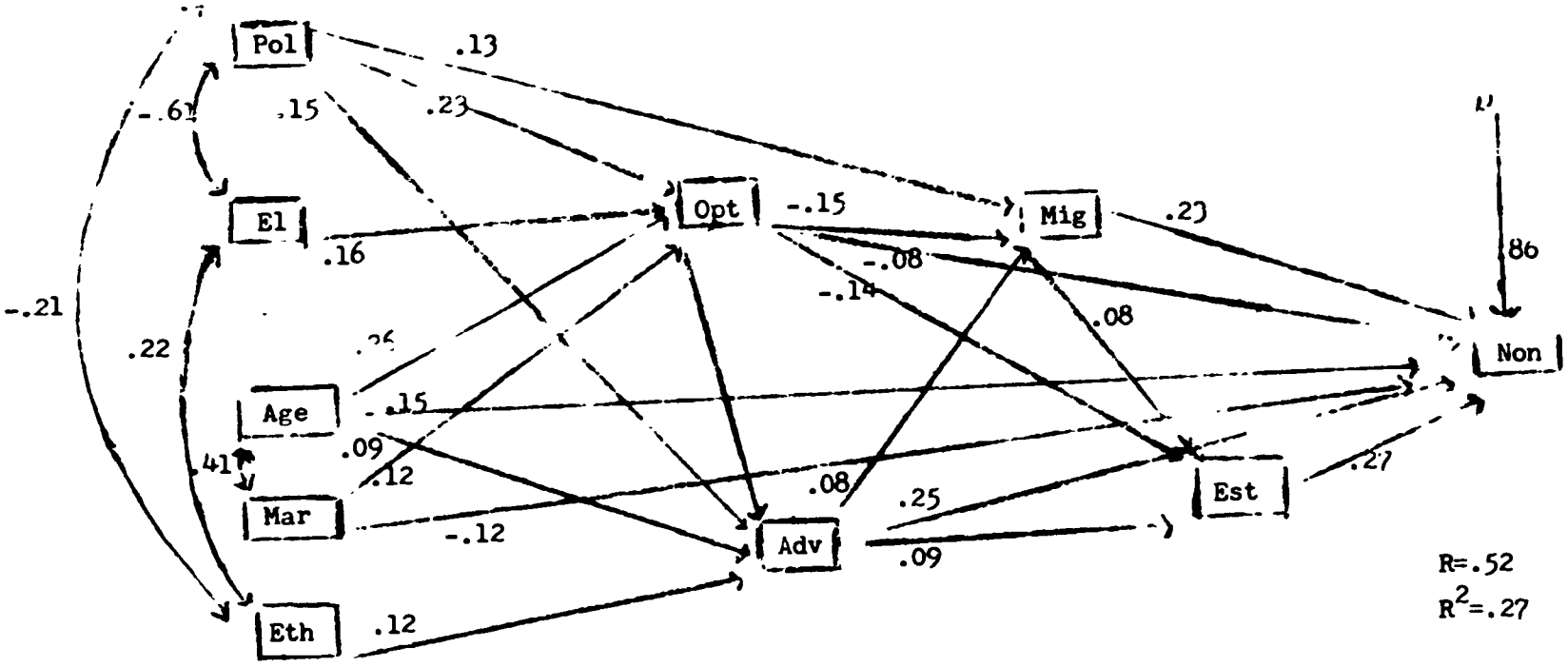


DIAGRAM V-2

PATH MODEL FOR FACTORS IN THE COUNTRY OF ORIGIN

Key: Pol: political instability; El: political elitism; Age: age; Mar: marital status; Eth: ethnic minority status; Opt: index of opportunities in the country of origin; Adv: migration advice by individuals in the country of origin; Mig: migration orientation among reasons for coming to the U.S. to study; Est: estimate at time of arrival in the U.S. of years to be spent abroad; Non: non-return intention.

To facilitate reading of the diagram, residual paths and some paths between exogenous variables have been deleted. The correlations among exogenous variables not shown in the diagram are minimal -- all less than .05. Correlations between residuals are shown in Table V-12.

TABLE V-12

FACTORS IN THE COUNTRY OF ORIGIN:
DIRECT AND INDIRECT EFFECTS ON NON-RETURN INTENTION, AND
EFFECTS DUE TO SPURIOUSNESS OR JOINT DEPENDENCE
OF VARIABLES IN PATH MODEL OF NON-RETURN

Variables:	Direct	Indirect	Joint or spurious	Total correlation with non-return: Estimated	Actual
(Mar) Marital status	-.12	-.02	.04	-.10	-.10
(Age) Age	.15	-.02	-.06	.07	.06
(Eth) Ethnic minority status	.08*	.04	-.01	.11	.09
(El) Political elitism in country of origin	-.03*	-.03	-.02	-.08	-.08
(Pol) Political instability (average yearly riots)	.03*	.04	.03	.10	.09
(Opt) Index of opportunities in the country of origin	-.08	-.11	.03	-.16	-.15
(Adv) Migration advice by individuals in country of origin	.25	.04	.03	.32	.32
(Mig) Migration-related reasons for going to study abroad	.23	.02	.02	.27	.28
(Est) Estimated number of years to be spent abroad at time of arrival in U.S.	.27	--**	.06	.33	.33

* No direct effect posited in model, i.e., correlation between residuals.

** No indirect effects posited.

here that only a small percentage of respondents in the sample could be classified as minority group members, and this contributes to this variable's low correlation with non-return. Thus, the causes of ethnic minority migration must be sought in cultural characteristics of these countries.

Among country characteristics, political elitism is the one most in line with the original assumptions of the model. There is little direct effect on non-return (the correlation between residuals is -.03). The greatest indirect effect of political elitism is on creating opportunities ties before going abroad -- and the consequent direct effects of these on non-return. In his study of student non-return, Myers pointed out that elitist countries present higher job and promotion opportunities to professionals, this being one of the reasons for low non-return rates among their professionals.[16] In addition, there are minimal spurious effects of political elitism due to association with other predetermined variables, most notably, the fact that politically elitist countries tend to have ethnic minorities and this has a slight positive effect on non-return.

Political instability has only indirect effects on non-return. Contrary to the original assumptions the indirect effects also produce negative tendencies on non-return.* While minimal, the positive effect of political instability on opportunities

* One reason may be that one component of the index of opportunities is attendance in a local university; and student upheavals are one of the indicators of political instability as defined here (i.e., average number of yearly riots).

16. Myers, op. cit., p. 139 and 146-147.

tends to influence return through its negative effects on migration predisposition.

Political instability also has minimal indirect positive effects on non-return through its effect on migration-related study reasons (the combined path coefficients are .03). The latter finding is, of course, more understandable. It suggests that those who are predisposed to migrate before arriving in the U.S. do so in part because of unstable political climates in their countries.

Turning to the effect of institutional ties, the model posited effects on non-return only insofar as opportunities created predisposition to migrate and led to advice to do the same by influentials in the student's life. From Table V-12, it may be seen that indirect effects are stronger than direct effects for this variable. That is, the combined path coefficients for opportunities through their effect on advice, migration orientation and estimate of time abroad upon arrival in the U.S. are -.11 (the effects are equal through each variable). The effects of opportunities are also lessened by joint dependence on prior factors, particularly the effects of age.

Migration advice, along with the attitudes of students, remains one of the important factors in the student's migration decision. While older and ethnic minority students, as well as students from politically unstable countries, are more likely to be advised to migrate, these factors do little to explain the relationship between advice and non-return. The relationship is similarly unexplained by the congruence of advice and migration predisposition, which is minimal.

The two motivational factors, migration orientation among study reasons and the estimate of time to be spent abroad also have strong effects on non-return. The migration orientation study cluster also has a modest indirect effect through its connection with the students' time estimates. As was discussed previously, the effect of planning to study abroad for a long period of time is not due primarily to migration-related study reasons. While some students who plan long stays do so because of the latter, many more do so because of factors not tapped in the survey. The path coefficients allow us to see that institutional ties have an effect on the students' time estimates, but these effects are minimal.

In summary, among factors in the period before arriving in the U.S., the students' motivations and advice received remain the strongest factors affecting their decisions whether to return or stay abroad. While they are affected by institutional ties, and the latter are in turn affected by political characteristics of the countries of origin, as well as by demographic statuses, the latter do not explain the students' motivations. Moreover, attitudes and advice are relatively independent causes of non-return: the decision to stay abroad may be due to one or the other.

The analysis of these factors does show that there are definite causes of non-return found in the student's own country. The next question to be explored is how strong do these factors remain when we take into account the students' experiences in the U.S.

CHAPTER VI

SOCIAL INFLUENCES ON NON-RETURN

During the period of study abroad, the foreign student is exposed to new experiences, and forms new relationships with students of the host country, foreign students of other nationalities, as well as other people in and out of the educational institution. For most foreign students, this is a time of conforming to new norms. At the same time, the bonds with family and friends are loosedned to a certain degree, making the norms governing these relationships weaker. Of course, communications from the home country maintain these bonds to some extent; and in the host country, compatriots and nationals' associations do the same. The question in this chapter is to discern what effect these group relationships have on the students' return decisions.

At a more abstract level, these questions touch on several problems of reference group theory. A foreign students has choices to make about the groups he will join and the sources of advice he will need while studying abroad. What governs the choices he makes and how do they determine his decision about where to live and work after completing his studies? One possible answer is anticipatory socialization. In this case, students gear themselves for returning or staying abroad by selecting certain groups to associate with, and these groups in turn reinforce their inclinations about choice of country. In the literature, the selection of reference groups is seen as the function of some perceived congruence between the selec-

tor and the group, for example, similarity of status or values.[1] In the UNITAR questionnaire, there are no indicators to measure similarity of statuses or values between respondents and other groups, but other indicators may be used which run along the same line of the hypothesis. For example, one may expect that students with a migration pre-disposition (as discussed in Chapter V) will be more likely to associate with Americans, and through this association reinforce their non-return decision. It would only remain for the analysis to determine whether the direct effect of such a predisposition is stronger than its indirect effect through joining reinforcing groups.

A second hypothesis concerns the effect of situational opportunities on reference group behavior. The former may be considered objective conditions which affect the degree to which like statuses or values affect the selection of reference groups. For example, Strauss found that people educated in institutions for the blind were more likely to have a blind self-image than those educated in heterogeneous institutions. A blind self-image in turn led to using the blind as a reference group in self-evaluation.[2] Other studies have found propinquity together with similarity of status to be factors in the selection of friends or mates.[3]

1. Ruth Hartley, "Personal Characteristics and Acceptance of Secondary Groups as Reference Groups," Hyman and Singer, op. cit. pp. 247-56.
2. Helen May Strauss, "Reference Groups and Social Comparison Processes among the Totally Blind," ibid., pp. 222-37.
3. Natalie Rogoff Ramsoy, "Assortative Mating and the Structure of Cities," American Sociological Review, Vol. 31, No. 6, December, 1966, pp. 773-86; Leon Festinger, Stanley S. Schacter and Kurt Back, "The Spatial Ecology of Group Formation," Hyman and Singer, op. cit., pp. 268-77.

Following this line of thought, the effect of situational opportunities on the students' choice of groups may be tested. For example, not all students will find themselves in campuses with compatriots. To the degree that they do not, contacts with Americans will be facilitated, and one can trace the effect of the latter on the student's return decision.

Another theoretical problem is the extent to which reference group behavior fits in with alternative explanations of the students' decisions. Do the students' prior institutional experiences in the country of origin and objective characteristics of their societies determine their choice of reference groups? For example, do students who have a job assured upon return tend to associate more often with compatriots and thus reinforce their decision to return?

One final theoretical problem treated in this chapter is the question of significant others' influences -- in this case, influences in the decision whether to return to the home country or stay abroad. One may conceptually distinguish between the choice of reference groups and the influence of reference groups (the latter may be considered part of the normative function of reference groups). As in the case of reference group selection, one may view these social influences as intervening variables, i.e., relate them backward to objective characteristics of the students' situation and forward to their migration decisions. A similar procedure has been employed in investigating the relationship between socio-economic status and achievement, as mediated by social-psycholo-

gical factors.[4]

Students' reference groups and their effect on non-return

Respondents were asked about the frequency of contacts with compatriots, other foreigners and Americans, about their membership in compatriots' organizations in their college area. Information about the date of marriage and nationality of the spouse (if applicable) was also coded in their data files. Table VI-1 shows the relationship between various indicators of social contacts and non-return. The questions about social contacts allow us to distinguish between voluntary and involuntary contacts with groups. It may be readily seen that the greatest effect on non-return is among those who voluntarily seek Americans in their social contacts (or conversely, voluntarily shun nationals' club membership). In the case of spouses, as one would expect, those married to Americans (or other non-compatriots) have the highest non-return rates. It may be noted that the lack of opportunity in social contacts makes little difference as far as non-return is concerned. Those who do not belong to a compatriots' club because it does not exist in their localities are no more likely to stay abroad than those who do belong to such a club. Similarly, there are low non-return

4. William H. Sewell, Archibald O. Haller and Alejandro Portes, "The Educational and Early Occupational Attainment Process," American Sociological Review, Vol. 34, No. 1, February 1969, pp. 89-92; Otis D. Duncan, "Contingencies in the Construction of Causal Models," in Edgar F. Borgatta, ed., Sociological Methodology, San Fransisco, Jossey-Bass, 1969; Otis D. Duncan, Archibald O. Haller and Alejandro Portes, "Peer Influences on Aspirations: A Re-interpretation," American Journal of Sociology, Vol. 74, No. 2, September, 1968, pp. 119-37.

TABLE VI-1

STUDENTS' CHOICE OF REFERENCE GROUPS AND NON-RETURN INTENTION

Reference group indicators:	Definitely or probably return	Uncertain	Definitely or probably stay abroad	N
"Do you belong to a club or association consisting of students from your own country of origin?"				
Yes	79%	11	10	(542)
No, it does not exist where I live	78%	12	10	(466)
No, it exists here but I have not joined	67%	16	17	(338)
Who respondent associates with:*				
Mostly compatriots	81%	10	9	(355)
Both compatriots and Americans	77%	11	12	(628)
Mostly Americans	67%	15	18	(370)
Spouse's nationality:				
Same as respondent's	82%	10	8	(485)
Respondent is single	76%	13	11	(707)
American or other non-compatriot	53%	19	28	(149)

* Respondents were asked about the frequency of contacts with Americans and compatriots. The first category indicates that the respondent saw compatriots more frequently than Americans, while the last one indicates the converse.

percentages among those who associate mostly with their own and those who associate equally with their own or Americans; or between those married to compatriots, and single students.

To derive a summary measure of the relationship between each indicator of reference group choice and non-return, the categories for each variable were treated as "-1", "0", and "1" respectively. The Pearson correlation coefficients were .13, .14, and .18, respectively. An index of reference group selection was constructed with the three variables, its correlation with non-return intention being .23. This indicates that each of the variables constitutes a separate dimension of reference group choice among foreign students. The index of reference group selection is used as one of the factors in the path analysis section of this chapter.

One additional reference group factor considered was the number of friends the student has in the school. The mean number of friends for all nationalities is 15, although the less common nationalities of study in the U.S. tend to have a smaller circle. There is no relationship between the size of the circle of friends and non-return.

In addition to the size of the circle of friends, information about the number of compatriots* in the school was added to the respondent's data file. The mean number of compatriots in the school was 40, indicating that students tend to have a smaller group of friends than the number of compatriots available. There is also no relationship between the number of compatriots in the school and non-return intention.

* The information was derived from the lists supplied by Foreign Student Advisors in the colleges in the sample.

The question arose in the analysis whether the size of the circle of friends and the number of compatriots in the school might be related to non-return as a determinant of the students' choice of reference groups. Both the size of the circle and the number of compatriots are negatively related to the selection of Americans as a reference group (-.29 and -.14, respectively). That is, the less the number of compatriots available, the more likely to associate with Americans. In the case of the size of the circle of friends, the direction of causation is more difficult to ascertain. The smaller the size, the less likely to associate with Americans. On the other hand, one could say that the more the student seeks his own compatriots, the more select his circle of friends.

The size of the circle of friends and the number of compatriots available in the school are positively correlated (r = .14). The fairly low correlation is due to the availability of compatriots outside the school -- given the many schools in the sample located in large cities, where even the most exotic of nationalities might find compatriots outside the school. While the size of the circle of friends and the number of compatriots in the school are related to the index of reference group selection, they do not explain this variable's correlation with non-return. The correlation of reference group selection with non-return remains the same when we control for these group indicators, singly or together.

The influence of significant others

The migration decision is not made in a social vacuum. Previous studies have shown that the choice of returning or staying is made with the consent -- or at least the advice -- of the spouse or fiancée, relatives and friends.[5] We saw in Chapter V that the sources of advice in the questionnaire may be divided into advice by individuals in the country of origin and those in the U.S. Table VI-2 shows the gamma measures of association between direction of advice given by each source and non-return intention. It may also be recalled from Chapter V that the sources of advice were combined into two indeces, one of advice by individuals at home and one in the U.S. Both indices have fairly high correlations with non-return intention (r's = .32 and .35, respectively).

Migration advice is as important as the student's choice of reference group and his predisposition to migrate in determining the decision about where to live and work. The two advice indeces are fairly highly correlated (r = .47). This may be assumed to be the effect of contacts between individuals in the home country and the U.S., although one could not rule out contamination of the responses by students' tending to answer all the same way. However, it is not unreasonable to assume that relatives and friends in the two countries (and the spouse) may be in touch through letters and travel, for example, and to arrive at some consensus over the advice to be given the student.

5. Ritterband found the spouse's advice to have the greatest impact of all advice sources on the student's migration decision, op. cit., p. 124.

The migration advice of all the individuals could just as well be considered a single index. That is, one may conceive that the student has the advice of all individuals shown on Table VI-2 in mind, and that he arrives at a decision about migration through some calculus: the more unanimous the advice, the more likely his intention one way or the other. In fact, an index of advice composed of all individuals yields a slightly higher correlation with non-return intention ($r = .37$). One advantage of breaking up advice into before and during study abroad is that it allows us to trace the effect of the advice of individuals in the home country on other factors in the model, for instance, the student's choice of reference groups in the U.S.

TABLE VI-2

SOURCES OF ADVICE ABOUT MIGRATION AND THEIR ASSOCIATION WITH THE STUDENT'S RETURN DECISION

Source of advice *	Gamma correlation with non-return intention	Source of advice	Gamma correlation with non-return intention
Professors and teachers in U.S.	.23	Fiancée (or fiancé)	.55
Professors and teachers in the country of origin	.39	Friends from the country of origin in the U.S.	.43
Relatives in the U.S.	.41	Friends in the country of origin	.38
Relatives in the country of origin	.38	Employers in the U.S.	.35
Husband or wife	.57	Employers in the country of origin	.41

* Advice to return was coded "-1", mixed advice, no advice, or inapplicables were coded "0".

In addition to advice of significant individuals, the questionnaire asked respondents about their friends' travel plans, specifically, the numbers of their friends going back to the home country and the number staying abroad in different developed countries. Thus, it was possible to compute for each student the ratio of friends returning over those staying abroad.* The correlation between this ratio and the student's non-return intention is -.24, i.e., the greater the ratio of friends returning over those staying abroad, the more likely the student himself will return.

Finally, the index of migration advice by individuals in the U.S. and the ratio of friends returning over those staying was combined into an "influence" index. The correlation between this index and non-return intention is .35 -- no higher than the correlation between advice of individuals in the U.S. and non-return. However, this index is used in the path analysis section in this chapter in order to reduce the number of variables in the regression.

Situational factors

Given the importance of situational factors in the reference group literature, various indicators were built into the questionnaire, or added subsequently into the respondents' data files. The problem was to foresee what kinds of situational conditions may govern the students' group membership in the U.S.

* A number of respondents used check marks in the answers, indicating an uncertain number of friends. The ratio of uncertain numbers returning to staying abroad was .66. In order not to delete some uncertain responses in otherwise accurate estimates, the former were set equal to two friends in responses about friends returning to the country of origin, and to three friends in responses about friends staying abroad. In addition, a large number of respondents indicated no friends in one direction but some in another. These responses were set equal to the limits -- one percent returning or five to one staying.

I conceived of two main types of situational factors: those having to do with the choices of contacts available to the student, and opportunities inducing students to seek or shun contacts with their compatriots.

Turning first to conditions limiting social contacts, we have seen that the existence of a compatriots' club in the area is not important, while wanting or not wanting to join one is. Those students who do not have a club in their area, but wish to join one have as low non-return intention as those who do have a club and belong to it. In essence, it is not a situational factor, but the student's volition that makes the difference.

Several characteristics of the schools were added to the respondents' data file: type of control, race (i.e., black college versus others), academic type (two year, four year, and university), geographical region, and number of foreign students from developing countries.* It was not expected that any of these characteristics would be related either to non-return or to the students' choice of reference groups, but if any of them had been, one would have been alerted to look for an underlying situational factor. In fact, none showed high correlations with non-return intention or reference group selection.

Finally, we have seen the effects of the number of compatriots in the school as a situational factor influencing the student's

* All characteristics but the last mentioned were taken from the American Council on Education's 1967 census of higher educational institutions. The number of foreign students from developing countries was taken from the Institute of International Education's 1970 census of foreign students in the U.S.

choice of reference groups, its effects -- both direct and indirect on non-return are minimal.

The second set of situational factors are socioeconomic opportunities in the country of origin and the U.S. Just as opportunities are conceived in the model as affecting the students' predisposition to migrate, they are also seen as affecting the choice of reference groups -- as well as the type of advice they receive. Table VI-3 shows the correlations between indicators of job opportunities in the home country and the U.S. and indicators of reference group choice.

TABLE VI-3

CORRELATIONS BETWEEN JOB OPPORTUNITIES AND CHOICE OF REFERENCE GROUP

	Indicators of opportunities:			
Indicators of reference group choice	Having an exchange type scholarship	No job before leaving to study	Attended university in home country	Received job offers only in U.S.*
Did not join a compatriots' club	.01	-.01	-.14	.06
Associates with Americans more frequently than compatriots	.01	.08	-.13	.06
Spouse is American or nationality other than respondent's	-.11	.17	-.21	.11

* Code of "-1" is received job offers only in home country; "0" is received none or in both the home country and developed countries; "1" is received job offers only in developed countries.

Of all opportunities, it is university attendance which is most predictive of the students' choice of reference groups. That is, it is those students who did not pass through the network of social contacts and ensuing opportunities in the home university who are most likely to associate with Americans and shun compatriots in the U.S. Marriage to an American, especially, is related to all indicators of opportunities. Being offered a job in the U.S. or another developed country is also related to choice of spouse, but not to the students' choice of friends. In this case, however, one cannot establish a definite time sequence. The choice of spouse could follow or precede job offers; and logically, each one can cause the other.*

To simplify the analysis, opportunities in the home country are combined into an index, as in Chapter V. The correlations between this index of opportunities, the existence of job offers in the U.S., and the index of reference group selection are -.19 and .11, respectively.

REFERENCE GROUP BEHAVIOR AND NON-RETURN: A PATH ANALYSIS

In order to test the hypotheses about the effect of reference groups on non-return intention, path models of the various factors involved were considered. The final one is shown on Diagram VI-1.**

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* Students were asked about the types of jobs held while studying here. Their responses were recoded according to whether they were regular jobs or other types -- such as part-times or practical training. The type of job has little to do with the choice of reference groups or with return intention.

** Appendix C shows the correlation matrix for all variables used in path analyses in all chapters.

The location of the variables in the diagram indicates the hypothesized order of causation. As in the previous chapter, the hypothesis was that country of origin characteristics would affect non-return only through their effect on intermediate variables, such as opportunities and influences of significant others. Opportuni ies at home were also seen as having only indirect effects, and were treated as an exogenous variable in order to reduce the number of regressions. In general, most factors were conceived to be working in a step-by-step fashion, i.e., advice in the home country was conceived to affect migration predisposition, which in turn was supposed to affect influences in the U.S. and the students' selection of reference groups. However, the location of job offers was considered to have a separate place in the model. It was conceived to be related to opportunities in the home country and [redacted]on-return through its effect on the selection of Americans as a referenc: group and on social influences. It was also expected that there would be a strong connection between advice at home and social influences in the U.S. Finally, the model hypothesizes that the influence of significant others in the U.S. is affected by p ior factors and by the student's selection of reference groups in the U.S.*

* Comparison of the path models in Chapters V and VI will show that some factors considered in Chapter V are missing from this model. Among statuses, age could have been included in the model, since it is associated somewhat with opportunities and reference group selection, but the path coefficient is small. Marital status and ethnicity had very small coefficients in the regression on non-return, when reference group variables were added to the model. Another variable dropped was migration

(continued on next page)

Table VI-4 shows the actual and estimated correlations of each variable in the model with non-return intention, as well as the portions of the estimated correlations which can be ascribed to direct, indirect effects, and spurious correlation.

Before discussing the effects of each variable in the model, some of its general characteristics should be noted.

It may be remarked, first of all, that no one factor predicts non-return by itself. The diagram shows five strong and independent (i.e., direct) effects on non-return -- the reference group factors, the students' migration predisposition, and the location of job offers. (The multiple regression coefficient of all factors combined is .56). Differences in the strength of correlations or direct effects among these variables should not be taken too literally, given the extensive data manipulations involved in creating each of these indicators.

The model allows us to see another characteristic of the process of student non-return: switches in migration disposition from the time before arrival to the period during study abroad. The lack of association between migration predisposition and reference group selection indicates that a student may come to study with the intention of migraring and become disposed to return through his social contacts here (or the reverse). The

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orientation among study reasons at the time of arrival in the U.S. As an indicator of predisposition to migrate, this factor was found to be independent of the student's time estimate of years abroad. Its effect on the reference group factors entered here is essentially the same as the student's original estimate of time abroad. In order to simplify the path analysis, it was not included in the model.

TABLE VI-4

SOCIAL INFLUENCES ON NON-RETURN: DIRECT AND INDIRECT EFFECTS AND EFFECTS DUE TO SPURIOUS CORRELATION OR JOINT DEPENDENCE

Variables:	Direct	Indirect	Joint or spurious	Total correlation with non-return: Estimated	Total correlation with non-return: Actual
(Pol) Political instability	.07*	.06	-.03	.10	.09
(El) Political elitism in home country	-.05*	-.01	-.03	-.09	-.09
(Opt) Opportunities in the home country	-.05*	-.12	-.00	-.16	-.15
(Est) Estimate at time of arrival in the U.S. of years to be spent abroad	.23	.06	.04	.33	.33
(Adv) Advice by individuals in the home country	.19	.14	-.02	.32	.32
(Jobs) Location of job offers in West only	.20	.05	.09	.34	.35
(Ref) Selection of Americans as reference group	.17	.01	.04	.22	.23
(Inf) Influence of significant others in U.S.	.21	--	.13	.34	.35

* No direct effects posited in the model.

path coefficient from original estimate of time to be spent abroad to social influences in the U.S. indicates that there is less possibility of switching dispositions through this connection.

Another interesting finding is the independence of the two reference group factors in the U.S. That is, the students' choice of reference groups and the effect of social influences on their return decisions are two separate factors. Thus, unlike the original hypothesis, some students may be disposed to stay abroad because of social contacts, and yet, be influenced to return by the advice and examples of significant others in the U.S. and the country of origin.

Turning now to the effect of political characteristics of countries, it may be seen that these contribute little, directly or indirectly, to non-return. Moreover, the original hypothesis of these factors operating only indirectly is not supported -- although the direct effects are minimal (see Table VI-4).

While the indirect effect of political system characteristics are also minimal, they suggest some lines of investigation to be pursued in future research. Political instability seems to influence the migration advice received by students here and in the home country. Political system elitism produces contradictory tendencies on non-return. On the one hand, politically elitist countries offer greater job opportunities and this leads to a decision to return. On the other hand, students from these countries are more likely to associate with Americans, which produces the opposite migration tendency. One reason for this

is the fact that elitist countries send less students to the U.S. and this makes them tend to seek Americans.*

In Chapter V, we say that opportunities in the home country had both direct and indirect effects on non-return. When we add reference group factors to the model, we see that the correlation between opportunities and non-return is due to the effect of opportunities on the students' predisposition and reference group behavior, as well as opportunities open to them in the U.S. While the indirect effect is high (-.12 out of a correlation with non-return of -.16), it is equally dispersed through the intervening variables.

Similar to the effect of opportunities, almost one half of the correlation of advice at home and non-return intention is due to its effect on migration predisposition, job offers in the U.S., and advice and influence by individuals in the U.S. The effect of this advice at home (and of the students' predisposition to migrate) on the location of job offers indicates that the latter is not completely a situational factor. Obviously, some students reported job offers in the U.S. because they sought jobs here; hence the effect of their original predisposition and the advice they received. The high path coefficient between advice at home and influences in

* The correlation between political elitism and the number of compatriots in the student's school is -.48. When the number of compatriots is introduced into the regression model, there is a much reduced path coefficient from elitism to the index of reference group selection. Political instability is positively correlated with the number of compatriots in the school (r = .40), but it has little effect on reference group selection, either by itself or through its effect on the number of compatriots. Its effect is through the advice students receive to migrate.

the U. S. indicates, as mentioned earlier, that there is some agreement between individuals at home and the U.S. about where the student should work and live. However, as was also indicated, some of this effect could be ascribed to contamination of items in the question about sources of advice.

Two major hypotheses considered in this chapter are the effects of situational opportunities and similarity of values on reference group selection. From Diagram VI-1, it may be seen that little of the effect of reference group selection on non-return is explained by either of the two factors, but situational factors have stronger and more direct effects than migration predisposition (the indicator of similarity). Opportunities at home and the location of job offers, for example, have direct effects on the students' contacts with Americans, while advice at home and migration predisposition do not. Thus, insofar as migration predisposition may be taken as an indicator of value similarity, the findings show a minimal connection between the latter and reference group selection.

The two original hypotheses work better when social influence is the key variable. That is, the effect of social influences on non-return is due in part to both the disposition of the student and situational opportunities, such as the location of jobs offered the student.

To summarize: the reference groups selected here and the advice they give are important factors in the student's decision whether to stay abroad or return to his country. However, factors

originating in the country of origin, the advice of significant individuals and the students' own dispositions about migration are as important. While all these factors are interconnected, the low path coefficients and the absence of some important ones (for example, from migration predisposition to reference group selection) indicate that the process of non-return is not predetermined from the beginning. Contingencies may arise in the U.S. which reverse the effect of prior factors. Finally, while the effect of social influences in the U.S. may be traced to the students' predisposition and advice at home, their choice of reference groups is due more to situational factors, i.e., opportunities at home and in the U.S.

The importance of situational opportunities in producing non-return ties in with the topic of the next chapter. There we will see the relationship between such objective opportunities and the students' perception of them.

CHAPTER VII

OPPORTUNITIES AND THEIR PERCEPTION

The question of opportunities and their perception by migrants is one of the most pursued lines of migration and brain drain research. In Chapter II, it was noted that many studies of brain drain, following the economic tradition in migration research, have investigated the effect of opportunities and of economic motivations in professional migration. Push-pull theory, although recognizing that persons may migrate in response to non-economic reasons, finds that only the latter can in fact be easily measured, therefore, subject to mathematical manipulation. Similarly, Stouffer's theory of intervening opportunities in migration deals with objective economic factors, for example, differentials in unemployment rates between cities.[1] What is common to all of these studies is the assumptions of (a) objective economic opportunities making people do things -- in this case migrate; and (b) a rational orientation on the part of people toward the conditions affecting them. If salaries are higher in City A than City B, for example, a certain number of people will migrate in search of higher income. When a certain number have migrated, salaries between the two cities will be equalized, and people (rationally) will stop migrating to City A.

While rationality is assumed in some studies, others (especially in brain drain research) have tried to directly

1. Stouffer, op. cit.

measure this rationality. For example, some surveys have investigated the motivation of expected income differentials or employment opportunities between the home country and the developed countries.[2] Hence the distinction between opportunities and their perceptions in this chapter. That is, one aim of the model of non-return being developed here is to see to what extent opportunities determine people's perceptions of them, and to what extent they are determined by subjective dispositions and social influences. It is known, for example, that the greater the expectation of income differentials between the developed and the home country, the more likely a professional will migrate. Also, it is not too difficult to imagine how objective opportunities influence this. Students who have jobs waiting for them might not be as swayed by higher incomes in developed countries, or they might be persuaded to stay only if the expected income abroad is very high. However, other, more subjective factors might enter the picture. Money might make a difference only to money-oriented students. Others might be more interested in prestige or professional values. A money orientation might be the result of contacts with Americans or of migration advice by significant persons in the student's life. In other words, it becomes necessary to see the place of perceptions of opportunities among the factors previously discussed in the model of non-return.

Following the procedure in the other analysis chapters, the factors to be analyzed and not previously encountered in the model

2. Myers, op. cit., Chapter 8; Niland, op. cit., pp. 50-51; Ritterband, op. cit., pp. 89, 91-92.

will be briefly discussed. Following that, the hypotheses guiding the analysis of this chapter will be given and a path analysis of all factors will be shown and discussed.

The perception of opportunity

Respondents were asked to estimate their monthly income if they returned to the country of origin and if they stayed abroad, during the first year of full time employment, and five years thereafter. In addition, they were asked to estimate their income if they stayed abroad for five years and then returned to the home country, as well as their income five years from the present had they never gone abroad to study. (These last two estimates are used in Chapter VIII to gauge the efficiency of income policies in promoting return). In estimating their incomes, respondents were asked to include benefits such as free medical care, housing, and other benefits which increment actual salary.

Respondents were asked to give their home country income in local currency. Conversion rates for each country were coded into the respondent's data file, and were used to express the local income in U.S. dollars. As expected, students estimated higher incomes in the U.S. than at home. The median monthly income expected in the home country was $398, and in the U.S. $1,217. Dividing the income expected in the U.S. by that expected at home, we derive a ratio of perceived income differentials. The higher the expected differential, the more likely the student will stay abroad, but the relationship is not too strong (r = .13).

One reason for the weak relationship between the two is possible hidden differences in the standard of living in developed and developing countries. While salaries may be higher in developed countries, professionals there may not expect compensating benefits such as cheap domestic service, easier comuting, etc. In addition, some professionals may be swayed by the psychological benefits of their countries' ambiences (slower pace of life, more intimate relationships).[3] In the UNITAR questionnaire respondents were asked their expectations about fifteen goods and services, if they returned to their home countries and if they stayed abroad. Among the items listed are domestic service, housing, commuting, savings (also debts), cars, and a few appliances. Expectations about any particular good or service does not predict migration too highly, but cumulatively (in the case of expectations about goods and services in the U.S.) there is a better correlation with non-return intention (r = .20). Cumulatively, expectations about standard of living differentials also predict non-return.* That is, the fifteen items cumulatively constitute a rough standard of

3. In his survey of Peruvian students, Myers asked respondents to keep differences in the standards of living of the U.S. and Peru in mind when estimating their monthly incomes. This tended to increase the values of Peruvian salaries by .75. This adjustment reduces the importance of higher incomes in the U.S. and their effect on non-return; Myers, op. cit., pp. 288-290, and 305-307. Standard of living adjustments to currency exchange rates are available only for Latin American countries; c.f., Stanley Braithwaite, "Real Income Levels in Latin America," The Review of Income and Wealth, Vol. XIV, No. 2, June, 1968, pp. 113-182.

* This index is the difference between the respondent's score on the index of goods and services expected in the U.S. and his score on the index of goods and services expected in the home country.

living index, and differentials between the U.S. and the home country in these items are taken into account by respondents when deciding where to live and work. Standard of living expectations also tend to reduce the importance of income differentials, although in a slight fashion. That is, the correlation between differential U.S. - home country income expectations and non-return is reduced from .13 to .09 when one controls for standard of living perceptions.

One final indicator of opportunity perception is job expectations. Respondents were asked to estimate their difficulty in obtaining a job in the home country that would utilize their talents. Table VII-1 shows the relationship of job expectations to non-return. It may be seen that the more this is seen as a problem, the more likely the student will stay abroad (the correlation between perceived difficulty in finding a job, treated as a Likert scale, and non-return intention is .23). It may also be noted that the question has some built-in assumptions, viz., that a student might find a job, but not necessarily one suited to his professional ability. Presumably, this would mean lower salaries. One might add that most respondents would be less satisfied with jobs that do not utilize their talents fully, but this may be a riskier assumption to make.

Perceptions of opportunities and objective factors

To what extent are the students' perceptions of job opportunities and standard of living differentials due to situational

TABLE VII-1

PERCEIVED DIFFICULTY IN FINDING
A JOB AND NON-RETURN INTENTION

"Will you be able to find employment that utilizes your training and talents effectively if you return to your country of origin soon after finishing your studies in the U.S.?"	Intention: Definitely or probably return	Uncertain	Definitely or probably stay abroad	N
No	53%	23	24	(115)
Extremely serious problem to find such employment	61%	19	20	(131)
Moderately serious problem	75%	13	12	(316)
Slight problem	80%	11	9	(379)
No problem at all	85%	7	8	(115)
Total				(1328)

opportunities and economic and political characteristics of their countries? Diagram VII-1 shows the relationship between political elitism, political instability, demand for professional manpower, opportunities at home and abroad, and their effects on non-return through the students' perceptions of opportunities. It may be seen that political characteristics are especially important to the students' perceptions of their chances at home and abroad. Students from elitist countries expect less job problems and higher incomes than those from non-elitist countries, which is in line with the hypothesis about the greater employment opportunities open to professionals in these countries. However, the effect of these perceptions is due more to a direct relationship from this political factor than from the students' educational and job experiences. Elitist countries do offer more opportunities and these tend to produce more optimistic perceptions, but these indirect effects are weaker than the direct ones.

Political instability leads to pessimism about jobs and expectations of a better standard of living in developed countries. While this is due in part to the high negative relationship between instability and elitism, the direct effect remains when we control for the latter. As in Chapter V, we also have the unexplained finding that students from unstable countries have had more jobs and educational experiences at home, and this tends to produce a contradictory return tendency among them. As one would expect, there are indirect paths from political instability to perceptions of opportunity through the actual opportunities the students had.

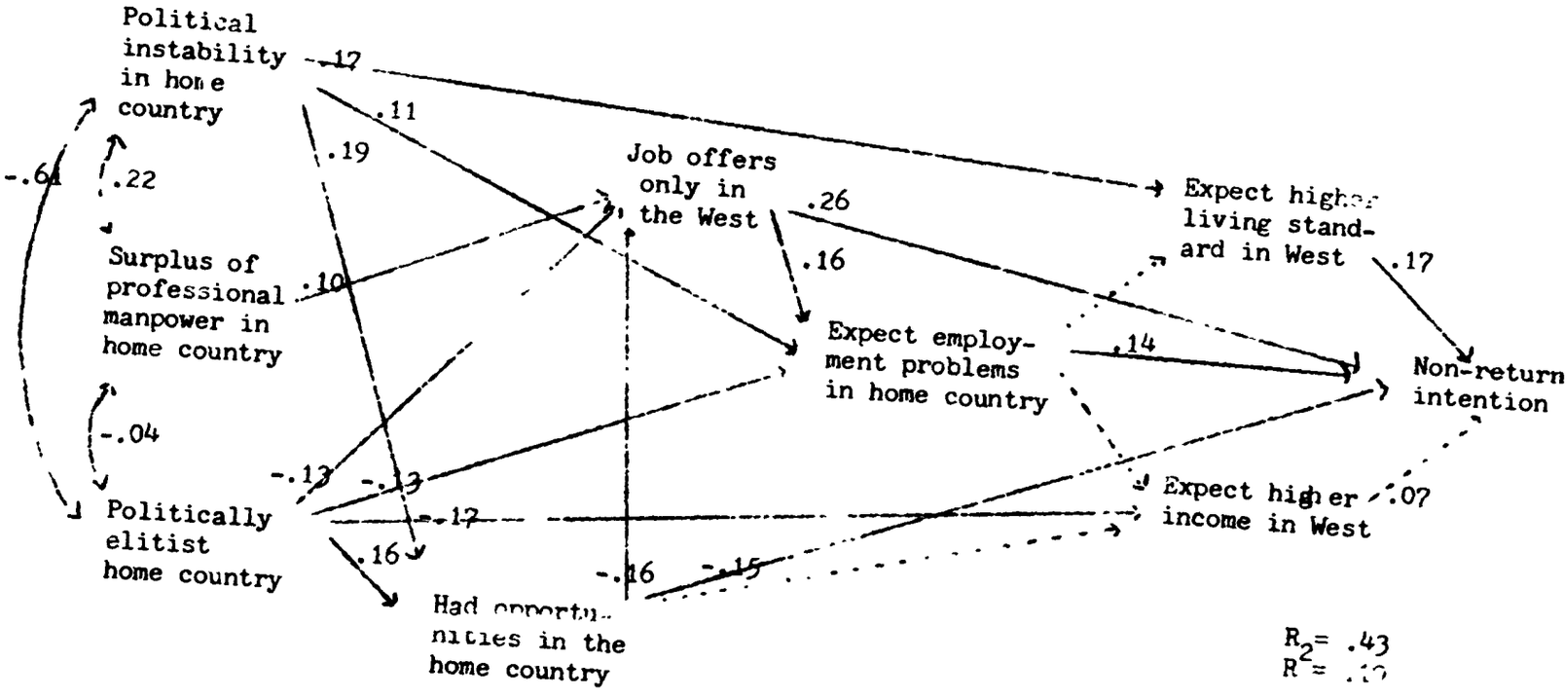

DIAGRAM VII-1

PATH MODEL OF EFFECTS OF CHARACTERISTICS OF COUNTRIES, OPPORTUNITIES AND THEIR PERCEPTION, ON NON-RETURN

Path model is recursive. Dotted lines indicate path coefficients less than .10 (but close to this) in factors affecting perceptions of opportunities. For other factors, missing paths represent coefficients less than .10.

In effect, the model suggests that the relationship between opportunities and their perceptions by student is reduced when we control for some of the characteristics of countries that produce these opportunities.

An exception to this is demand for professional manpower, which has no direct relationship to the students' perceptions. However, as we saw in Chapter V, the effects of this factor is not as strong as that of other country characteristics.

In the final model incorporating other factors considered in the analysis, the effects of objective factors are further discussed.

Attitudes, reference group influences, and perceptions of opportunity

An alternative source of respondents' perceptions of opportunity considered was the respondent's motivational states and reference group experiences. One motivational factor considered was work attitudes. Since the quality of their work is considered to be important to professionals, previous brain drain studies have tried to find if returnees and non-returnees diverge in their attitudes toward jobs. Reference has been made to Ritterband's finding that returning Israeli students were more motivated by intrinsic work rewards than non-returnees, while the latter were more influenced by utilitarian and instrumental considerations (i.e., work for money or work as a means to other -- non-work ends).[4] Myers found that Peruvian students were more influenced

4. Ritterband, op. cit., pp. 92-94.

by altruistic considerations (for example, wanting to help their country) than non-returnees,[5] while Niland found that professional values were an important component of non-return among the five Asian nationalities in his study of engineers in the U.S.[6]

In the UNITAR questionnaire, respondents were given a list of twenty-six characteristics of jobs and asked to indicate which characteristics were important to them. The answers were subjected to factor analysis through computer programming, and the following five factors were derived* (each factor's correlation with non-return intention is given in parentheses):**

(1) Utilitarian job values. Salary and labor market considerations, career and job security (r = .10).

(2) Colegiality. Pleasant and helpful workmates (r = .07).

(3) Creativity and altruism. Opportunities for leadership, self-development, and being useful to others (r = .00).

(4) Non-work values. Jobs that have low pressures from superiors, have little routine, free time (r = .00).

(5) Particularistic values. Jobs where personal connections are important. Very few respondents indicated these (r = -.04).

It may be seen that the only relevant type of motivation is the absence or presence of utilitarian attitudes on the part of the student; and even here, the correlation with non-return intention

5. Myers, op. cit., p. 267.
6. Niland, op. cit., p. 60.
* Cluster analysis was also used, using McQuitty's technique, discussed in Chapter V. The two procedures yielded essentially the same factors, but the McQuitty technique broke one of the factors into two closely related clusters.
** Only the first two factors' correlations were significant at the .001 level.

is not very high. Furthermore, there is no relationship between this attitude and the indicators of perception of opportunities, nor any other factors considered in this analysis. In fact, when utilitarianism is included among factors in a multiple regression of all important variables considered in this work, its regression coefficient is essentially the same as its correlation with non-return. Thus, insofar as there is some kind of utilitarian orientation producing non-return, its effect is not high, and it is not explained by any other factor included in the model.

While work attitudes proved not to be of importance in the student's perception of opportunities, it was hypothesized that other social psychological factors might have an effect. As an example of a possible hypothesis along this line of thought: it may be that foreign students come to have high income expectations through associating with Americans. Table VII-2 shows that this is not the case. The student's choice of reference groups does not predict his perceptions of opportunities, nor does his predisposition to migrate at the time of arrival in the U.S. The advice about migration given the student does have a higher correlation with his perceptions of opportunities. That is, the more likely a student receives advice to migrate (here and at home) the more likely he expects to have serious problems finding a job if he returns, and the more likely his expectation of a higher standard of living in the U.S. compared to his own country. This does not contradict the assumption of rationality inherent in indicators

of perception of opportunities, however. We may assume that the advice is consonant with the student's and significant others' evaluations of his opportunities and the situation in the country of origin. This is one of the hypotheses to be tested in the next section.

TABLE VII-2

CORRELATIONS BETWEEN SOCIAL-PSYCHOLOGICAL FACTORS AND PERCEPTIONS OF OPPORTUNITIES

	Perceptions of opportunities:		
Social-psychological factors	Problem in finding a job in case of returning home	Expected differential in U.S.-home standard of living	Expected differential in U.S.-home country income
Estimate at time of arrival of years to be spent abroad	.06	.09	.04
Utilitarian attitudes toward work	.06	.03	-.02
Index of migration advice by individuals in the home country	.14	.13	.07
Index of social influences toward migration by persons in the U.S.	.18	.15	.06
Selection of Americans as a reference group	.02	-.01	-.01

A FINAL PATH MODEL OF FACTORS IMPORTANT IN NON-RETURN

In Chapters V and VI, and in this one, I have discussed different types of factors and their effects on non-return. In this section, I develop a final path model incorporating the findings of previous chapters and fitting in the effects of perceptions of opportunities.

Before discussing the model, it would be profitable to see how most of the variables that have been considered stand in a multiple regression on non-return intention. Table VII-3 shows the standardized regression coefficients of each variable and its zero-order correlation with non-return intention. It may be seen that in terms of the regression coefficients, the most important factors in the model are the respondent's migration predisposition and social influences on their decisions. But the smaller coefficients of these factors compared with their zero-order correlations indicate the interrelations with other factors which we found in the previous two chapters. As I indicated earlier, the similarity of the coefficient of job utilitarianism with its zero-order correlation with non-return shows that this is an unimportant and unrelated factor. When utilitarianism was included in the path model, it proved to have no indirect effects on non-return through other factors.

Some characteristics of countries of origin and statuses show the interrelationships with other factors previously discussed. That is, they show to have little direct effects, but greater indirect effects through their interconnections with other factors in the model. We saw in Chapter V that ethnicity and demand for professional

TABLE VII-3

A MULTIPLE REGRESSION OF ALL FACTORS CONSIDERED ON NON-RETURN

Variable*	Standardized regression coefficient	Zero-order correlation with non-return intention
Characteristics of countries of origin		
Political instability	.01	.09
Political elitism	.01	-.08
Surplus of professional manpower	.05	.11
Statuses		
Age	.10	.06
Ethnicity	.05	.09
Opportunities		
Index of opportunities in the home country	-.07	-.15
Job offers only in the West	.14	.33
Perceptions of opportunities		
Higher income expected in the West than in home country	.04	.13
Higher standard of living expected in the West than in home country	.11	.23
Expected difficulty in finding a good job in home country	.08	.21

(continued next page)

Table VII-3 -- continued

Variable	Standardized regression coefficient	Zero-order correlation with non-return intention
Attitudes		
Migration orientation among study reasons	.17	.28
Estimate at time of arrival of number of years to be spent abroad	.21	.33
Social influences		
Index of migration advice by individuals in the country of origin	.15	.32
Index of influences on migration by individuals in the U.S.	.15	.35
Index of selection of Americans as reference group	.18	.23

$R = .62$

$R^2 = .39$

* Indicators of country characteristics, statuses, opportunities at home, and migration predisposition are discussed in Chapter V. Indicators of reference group behavior and the location of job offers are discussed in Chapter VI.

manpower had little direct effects, but also had little connection with other factors in the model. Age, on the other hand, still shows the same relationship to non-return discovered in Chapter V, i.e., its effect is masked by negative indirect effects through other factors in the model.

Diagram VII-2 shows the final path model of non-return and Table VII-4 shows the direct and indirect effects, and effects due to spurious correlation or joint dependence, of all factors in the model. The demand for professional manpower of the country, ethnicity, and migration orientation among study reasons were not included in the model; the first and second ones because of insufficient effects and the latter because it duplicates the effects of original time estimates at the time of arrival in the U.S. Among perceptions of opportunity, only expectations of differentials in U.S. - home country standards of living are included. Income differentials have been shown to depend on other opportunity perceptions and to be less important. Perceived difficulties in finding jobs was included in prior versions of the final model, but its direct effects are less than .10, while its effect on standard of living expectations is minimal. Moreover, the same factors that affect standard of living expectations affect job perceptions, so that the latter's inclusion would not have yielded additional information about the process of non-return.

The assumptions of the model, as may be seen from the diagram, were that the relationship between factors other than perceptions of opportunities were the same as given in Chapters V and VI. That

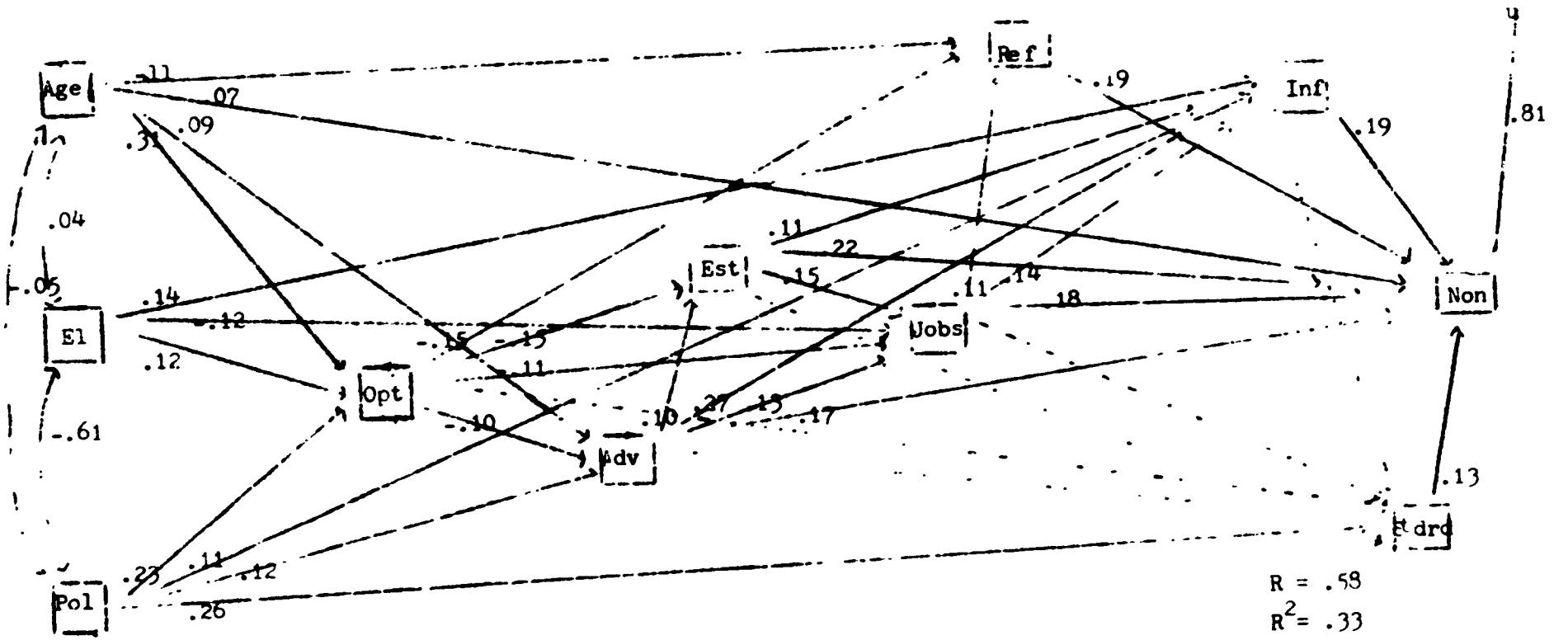

DIAGRAM VII-2

FINAL PATH MODEL OF ALL FACTORS IN THE NON-RETURN DECISION

Key: Age: age; El: political elitism in country of origin; Pol: political instability in country of origin; Opt: index of opportunities in the country of origin; Adv: migration advice by individuals in the country of origin; Est: estimate at time of arrival in U.S. of number of years to be spent abroad; Jobs: jobs offered in the U.S. or developed country only; Ref: index of American reference group selection; Inf: index of social influences on migration in the U.S.; Stdrd: perception of higher standard of living in U.S. in comparison to home country; Non: non-return intention. Correlations between residuals are shown in Table VII-4. Dotted lines are coefficients less than .10.

is, statuses and characteristics of countries of origin have their effect on non-return through their effect on opportunities, migration predisposition, and social influences. We have seen that perceptions of opportunities are related to characteristics of countries, to opportunities, and to the advice about migration received, but not to the students' choice of reference groups, nor to his migration predisposition. Therefore, these perceptions are placed in an intermediary position between the rest of the factors and non-return intention.

In discussing the final path model of non-return, it may first be remarked that the estimates of correlations derived from the model are not as close to the actual correlations as in the less complete models of previous chapters. The estimates in general are less than the actual correlations. In the case of living standards expectations, the estimated correlation is two thirds of the actual, while in the case of opportunities in the country of origin, the prediction of no direct effects is not supported. (It will be recalled that in the model of reference group effects in Chapter VI, opportunities in the country of origin had greater indirect than direct effects).

These divergences of estimated from actual correlations are due in fact to effects of all intermediate factors in the model, with the exception of reference group selection. These effects, shown in the diagram as dotted lines, have regression coefficients of less than .10 each when the path regressions are run recursively. That is, if the model were run accepting all paths regardless of the

TABLE VII-4

FINAL PATH MODEL OF NON-RETURN INTENTION:
DIRECT AND INDIRECT EFFECTS AND EFFECTS DUE TO SPURIOUS CORRELATION
OR JOINT DEPENDENCE OF EACH FACTOR IN THE MODEL WITH NON-RETURN

Variables	Direct	Indirect	Spurious or joint dependence	Correlation with non-return intention: Estimated	Correlation with non-return intention: Actual
(Age) Age	.07	.01	-.04	.04	.06
(El) Political elitism in country of origin	-.06*	-.02	-.02	-.10	-.09
(Pol) Political instability in country of origin	.00*	.06	.03	.09	.09
(Opt) Index of opportunities in country of origin	-.12*	-.12	.07	-.17	-.15
(Adv) Migration advice by significant others in country of origin	.17	.10	.01	.28	.32
(Est) Estimate at time of arrival in U.S. of years to be spent abroad	.22	.06	.03	.33	.33
(Jobs) Location of job offers in the West only	.18	.05	.07	.30	.33
(Ref) Index of selection of Americans as reference group	.19	--**	.02	.21	.22

(continued next page)

Table VII-4 -- continued

Variables	Direct	Indirect	Spurious or joint dependence	Correlation with non-return intention: Estimated	Correlation with non-return intention: Actual
(Inf) Index of social influences on migration in U.S.	.19	--**	.12	.31	.35
(Stdrd) Expectation of higher standard of living in West than in the home country	.13	--**	.02	.15	.23

* No direct effects posited in the model; i.e., these are correlations between residuals.

** No indirect effects posited in the model.

size of the coefficient, the portion of the correlation between standard of living expectations and non-return due to joint determinants of the two would be closer to .08 than the .02 shown in Table VII-4. Standard of living expectations are less related to non-return than is apparent, because in fact, these expectations are due to advice received, opportunities experienced, and political instability in the country of origin. However, it is only the latter factor that has a strong direct path to standard of living expectations, and this runs counter to the original hypothesis of effects of country characteristics being stronger through factors closer to them than to social psychological factors closer to the non-return decision.

Political characteristics reveal the same indirect effects that were found in Chapter V, i.e., producing contradictory return tendencies. Thus, politically elitist countries create opportunities for students and this produces return, but their students are more likely to associate with Americans here, and this produces the opposite tendency. Similarly with politically unstable countries. Their students tend to receive advice to migrate and also to expect higher living standards in the West, but they also (unaccountably, in our model) offer opportunities to their students, and this produces the opposite return tendency. The small indirect effects for these political characteristics in Table VII-4 is the product of these contradictory tendencies.

Age has the same contradictory tendencies we saw in Chapter V. When we control for the fact that older students are more likely to

be educated and employed at home, thus producing return, age actually has a positive direct effect on non-return. In the final model, we see that the direct effect remains almost the same*, but additional interconnections with factors are seen. Older students are less likely to associate with Americans and this produces return. But older students are also more likely to be advised to migrate, and this produces the opposite tendency -- the product of these two indirect paths cancel each other out.

Turning now to opportunities and reference group factors, we may review the findings of previous chapters. We see that the effect of opportunities on non-return takes place through effects on migration advice (here and in the home country), on migration predisposition, and on the student's selection of Americans as a reference group. Half of the correlation of home country opportunities with non-return is due to these indirect effects. Advice at home has equal indirect effects on non-return through migration predisposition, the location of job offers, and the migration advice of individuals in the U.S.

Also indicated in Chapter VI was the fact that the location of job offers is not completely a situational factor. One sixth of its correlation with non-return is due to spurious effects through migration predisposition and advice at home. That is, students who were advised to stay abroad before coming here and who were already disposed to migrate are more likely to be offered jobs

*In the model, the positive direct effect of age is .07, but when the regression is run recursively, the direct effect of age is .10 -- the same as in previous models and higher than its correlation with non-return intention.

only in the U.S. -- even when controlling (among other things) for the fact that they had less opportunities in the home country. So we may assume some active seeking of jobs on their part.

Finally, the relative independence of migration predisposition and reference group selection remains. The first factor is important in its indirect effects on advice by individuals in the U.S. and on job offers here. In addition, we see that it has some effect on the students' expectations about having a higher living standard here. The selection of Americans as a reference group also has a strong effect but no indirect effects on advice here or on standard of living expectations. Contrary to the original hypothesis, neither of these two factors have strong connections with prior factors in the model.

The central question in this chapter was the interconnections between perceptions of opportunity -- as indicated by standard of living expectations -- and prior factors in the process of study abroad which leads to non-return. In line with prior research, the students' perceptions are due to rational assessment of objective situations, such as where opportunities are or have been open. While the advice received and migration predisposition also affect perceptions of opportunities, they are in turn connected to the students' opportunities. More important, more subjective factors, such as the students' selection of Americans as reference groups, have no effects on perceptions, although they may override these perceptions in some cases.

While the hypothesis is thus generally correct, the actual way

in which these objective factors lead to perceptions of opportunities runs counter to the original assumptions. The strongest path to standard of living expectations comes from political instability in the home country, while paths from opportunities and advice are all less than .10. As indicated, combined effects of these paths in a completely recursive model would be more than the effect of political instability.

Finally, we may evaluate the importance of factors in the country of origin compared to factors in the U.S. While we have seen interconnections between the former and the latter, one strong independent factor, migration predisposition, originates in the country of origin, while another equally strong and independent factor, reference group selection, originates in the U.S. The addition of perceptions of opportunities to the model does not contradict the findings of previous chapters, namely, that contingencies may arise in the U.S. while studying abroad which reverse the effect of prior factors on non-return.

CHAPTER VIII

CONCLUSIONS FOR POLICY

The brain drain debate has generated as many suggestions for solving the problem as it has explanations More recommendations have been based on impressions than on hard data; and a major aim of the UNITAR project was to provide interested countries with a solid body of findings by which to evaluate their professionals' migration tendencies and possible policies to deal with them. In this chapter, I wish to review the findings about foreign students in the U.S. with a view to evaluate some of the policies that have been suggested to deal with brain drain. Additional data from the survey on some policy-bearing questions is introduced and discussed. References will often be made as well to policy conclusions from the study of all completed surveys in the UNITAR project.[1]

Policy recommendations may be divided into two broad categories: structural reform, which suggests changes in the societal environment in which professionals work in the home country (for example, a step-up in rural development), and more specific policies designed to deal with the conditions directly affecting the life and work of professionals (for example, the establishment of government contacts with its students abroad). The latter may apply both to the home and developed countries.

While the UNITAR project was not designed to shed light on most structural solutions, these merit some comment. Structural reforms

1. William A. Glaser, op. cit.

are desirable not because they might encourage professionals to return to their home countries, but because they will benefit the general population; in most cases, people with less privileges and opportunities than professionals. Moreover, insofar as structural reforms will bring political and class struggles in these countries (and this is not hard to imagine), they may very well increase professional migration.

Turning to more specific technical solutions, the reasoning here is that small scale changes may result in considerable improvements in a country's stock of professional manpower, hence bring large gains to the country's future development. Many questions in the UNITAR survey were designed to deal with these kinds of arrangements, and the findings bearing on them are discussed below.

The brain drain solutions that have been proposed also make certain assumptions about the respondents' attitudes towards work and other aspects of life in their countries. For example, income policies ignore non-utilitarian motivations which might attract or repel professionals to their countries. The findings on the respondents' work and income attitudes will thus allow us to gauge the effectiveness of income policies and suggest other alternatives.

Magnitude of losses and their assessment

In Chapter IV we saw that the rate among students in the U.S. was lower than many observers' impressions (ten percent of respondents), although many nationalities had fairly high non-return rates. With some exceptions, the magnitude of non-return rates for parti-

cular nationalities are the same in all countries of study surveyed, i.e., the same nationalities are likely to have low or high non-return rates in all countries where they study. These rates may be taken by interested policy makers as rough indicators of the numbers of students they can expect to lose through study abroad. How the magnitude may be evaluated is a different matter, of course. Countries will have to decide what their manpower goals are and what their student losses signify for these goals.

Another factor to be taken into account in evaluating non-return is the ratio of students lost to students at home. To take two examples, European and Canadian students in the U.S. have higher non-return rates than students from developing countries, but the rates are not important, given the large student populations in these countries. Turkish students, on the other hand, have a fairly high non-return rate -- very high specially outside the U.S. -- and this high non-return rate becomes more serious when we take into account the size of the student population in Turkey.[2]

POLICIES IN DEVELOPING COUNTRIES

Various developing countries concerned with student migration have established mechanisms to regulate their nationals' study abroad. An example is ICETEX, Colombia's agency for foreign study and training, which gives official permission for foreign study, arranges exchanges, and regulates finances for foreign study. Table VIII-1 shows the effects of some of these types of mechanisms. Some

2. R. G. Myers, op.cit., pp. 150-159, has a discussion of manpower loss.

TABLE VIII-1

EFFECT OF COUNTRY'S TRAVEL AND STUDY POLICIES ON RETURN INTENTION

Policies	Definitely or probably return	Uncertain	Definitely or probably stay abroad	N
Legal obligation to return:				
None	69%	15	16	(976)
To the country of origin	87%	10	3	(207)
To a certain employer	98%	2	0	(164)
Nature of legal obligation to return, if applicable:				
Posting a bond	97%	3	0	(109)
Pledge only	91%	6	3	(191)
Contacts by government agencies about job opportunities and career plans while studying abroad:				
Frequently or occasionally	85%	11	4	(149)
Rarely or never	74%	13	13	(1167)
Contacts by private agencies about job opportunities and career plans while studying abroad:				
Frequently or occasionally	81%	13	6	(90)
Rarely or never	75%	12	13	(1230)
Did respondent visit the home country while studying abroad?:				
Yes	73%	14	13	(444)
No	77%	12	11	(908)

countries put their students under legal obligation to return. It may be seen from the table that this policy is fairly effective. The percentage of respondents electing to stay abroad despite being legally bound is quite minimal. While in some countries, the student's family is required to post bond, in others, the student only pledges to return, whether to the government or employer (in many cases the government is the employer). Pledges seem to be as effective as bonds in guaranteeing return. Even among those who resigned or had no jobs before they left to study here, pledges and bonds are effective in guaranteeing return.

Some government and private agencies try to establish contacts with students abroad through embassies and other means, in order to acquaint them with job developments as well as to maintain cultural ties. Some agencies maintain contact through newsletters, while others do it through special officers. It may be seen that few students in the U.S. receive any sort of communication whether from government or private agencies. Countries concerned with brain drain might well consider establishing such contact mechanisms. The few respondents who did report such contacts are less likely to stay abroad than the isolated majority. Moreover, contacts by agencies promote return even among those who had no job or resigned before leaving.

Some countries try to promote return by encouraging visits by their students abroad, for example, by instituting reduced air fares for students during vacations. The assumption of this policy is that visits will strengthen student ties with the home

country and allow him to establish job contacts for the future. Visits have no effect on return intention, according to the table. A plausible reason for this is that even those who expect to work abroad may plan to visit their countries to see relatives and friends.

We have seen in Chapter IV that students on exchange-type scholarships are much more likely than other students to return to their countries. Since these types of scholarships are often tied to jobs held or future employment, the high return rate among these students is understandable. Moreover, they are linked to exchange visas, which require return after studying abroad.

While many of these scholarships are given by American or international agencies, others are given by private and public agencies in the home country. Countries interested in increasing their students' return could increase the number of exchange scholarships. (I will argue below that developed countries and international agencies could do likewise).

Governments have to consider the conditions allowing and the consequences from policies they promote. Many of the technical arrangements we have considered are attractive because they do not depend on special conditions nor do they have any foreseeable detrimental consequences. For instance, instituting return pledges may very well result in an increase in student return without diverting resources from other programs. On the other hand, creating exchange scholarships is a more complicated arrangement in that these scholarships will be tied to jobs. Government and private agencies should

thus be committed to creating jobs (presumably tied to the country's development) either before or after the student receives his foreign education.

We saw also in Chapter V that students have various reasons for studying abroad, and that their future migration plans depend partly on these. As one would expect, students whose reasons for going abroad are related to work in the developed country are more likely to stay abroad. Similarly, students who are seeking personal or political freedom are also likely to migrate. However, unlike in other studies, academic study motivations are not related to return.[3] Thus, the U.S. seems to be gaining some academically motivated students. Assuming that these represent a high development potential, concerned countries might want to look into ways of reclaiming them.

Some studies have found that some students go abroad seeking a "second chance" in academic work, presumably because their countries' educational systems have relatively few vacancies in relation to higher educational demand.[4] Very few students go abroad because of this type of motive; and among foreign students in the U.S., it is not related to migration.[5] In his recommendations to countries, Glaser points out that students seeking a second chance abroad may benefit their countries by improving their human resources through

3. This is typical only of the sample of students in the U.S. In Canada and France, academic orientation predicts return; see Glaser, op. cit., p. V-43.
4. For example, Ritterband, "Social Determinants ...," op. cit.
5. In the study of all samples in the UNITAR project, "second chance" was also found to be rare as a motive, but such students were likely to return; see Glaser, op. cit., p. V-43.

foreign study, unless the country is already overproducing B.A.'s.[6] In my study, I tried to relate this type of motive to the educational system's "degree of openness". The results, however, were inconclusive: not all countries with few vacancies in relation to demand had a preponderance of this type of motive among their students.

Another policy that some developing countries should consider is changes in their policy toward ethnic minorities. We saw in Chapter V that minorities are more likely to stay abroad than majority members. The results of the path analysis in the same chapter do not permit us to relate minority status to job and educational opportunities in the home country.* Therefore, we may assume that this tendency of minority groups to migrate is due more to the socio-cultural environment than to job opportunities. No country should formally or informally discriminate against any of its minorities. If ending such policies will encourage more minority students to return, this is good, but it should be viewed as one among many other positive consequences of integration. Moreover, one must recognize that changing ingrained attitudes toward ethnic minorities will not be as easy as instituting financial bonds or other low social cost arrangements.

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6. Ibid., pp. V-65-66.

* From unpublished crosstabulations, it is clear that other developed countries attract and retain more ethnic minority students than the U.S. For example, in the U.S., minority students are as likely to have resigned or had no jobs as majority students. In general, France -- and specially Canada -- show a stronger relationship between minority ethnicity and non-return intention.

Income policies

We saw in Chapter I that many speculative and theoretical discussions of the brain drain focus on salary differentials as the central cause. Previous studies and this one have found that salary considerations are not as important to students as other aspects of jobs in their own and developed countries. While most students are aware that they can earn higher salaries if they stay abroad, this does not seem to produce non-return to any great extent. We also saw that standard of living considerations tend to reduce the gap between salaries expected at home and abroad.

The low correlation between expected income differentials and migration plans precludes any solution to professional migration based solely on salary increases, since they would have to be astronomical. Based on a regression of income differentials on migration plans, Glaser estimated that students in the U.S. would have to be offered forty times the expected salary to convert their plans from "probably stay abroad" to "definitely return".[7] Moreover, income policies, unlike simpler policies, can be expected to have far-reaching societal consequences. Some observers have pointed out that the professional - non-professional income gap is already wide enough in developing countries.[8] In addition, salary increases may be counterproductive in that they may spur demand for foreign consumer goods, thus diverting funds from national development.[9]

7. Ibid., p. X-27.
8. Alberto Sanchez Crespo, "La Emigracion de Profesionales Universitarios desde America Latina," Washington, Organization of American States, 1964, p. 31.
9. Dudley Seers, op. cit.

One reason why salary differentials are not so important in producing non-return is that study abroad increases income expectations at home. Respondents were asked to estimate their monthly incomes five years after returning to the home country, and five years from present, had they never gone abroad to study. The median income estimates -- converted to U.S. dollars -- are $398 and $210 respectively. Thus, on the average, going abroad to study is estimated by students to almost double their income. In varying ratios, this seems to be the case for all nationalities for which we have sufficient numbers in the sample. This higher earning power produced by foreign study is something which may be utilized by concerned governments. In effect, they may tell their students abroad that while their countries cannot match developed country salaries, their foreign education makes them more useful to the country, and the higher expected income following study abroad reflects this.

Professionals are as much attracted by the self-development potential of jobs as by their salaries. Many observers of brain drain have pointed out that it is this aspect of jobs in the home country that may push professionals to seek jobs abroad. Among suggestions to make jobs in developing countries more attractive are increasing the research component of technical and scientific jobs, increasing promotion based on merit and colegiality, and revision of policy planning so that younger professionals may participate in decisions.[10] In Chapter VII, the students' responses to characteristics of jobs important to them were divided by factor

10. PAHO, op. cit., pp. 47-48; Adams, op. cit., pp. 252-253, among others.

analysis into motivational types. We saw that only one cluster -- related to utilitarian job attitudes -- predicted non-return. Professional and altruistic motivations, on the other hand, do not predict migration plans. In effect, many students who are motivated by these aspects of professional jobs elect to stay in the U.S. Part of the low predictability of this cluster is the fact that two of its components work in opposite directions. Being "useful to society" is slightly associated with return (the gamma measure of association is -.14), while considering ability important in being promoted is associated with non-return (gamma = .19). Thus, while patriotism pulls some students back to the home country, others elect to stay here because of aspects of professional jobs they see missing from the home country. Countries might consider appealing to patriotism among their students (two-thirds of respondents rated usefulness to society "important"). Similarly, many students who value creativity, working with people, and helping to develop their field elect to stay abroad. These values may be appealed to by developing countries.

The finding that considering ability important in promotions predicts non-return supports the recommendations of many observers that merit policies in professional jobs be promoted. Responses to other questions in the survey support this recommendation. Respondents were given a series of problems that students may encounter upon return, and asked to indicate for each one whether it would be a "serious problem", a "problem", or "no problem at all". Table VIII-2 shows the gamma correlations between the expected difficulty

of each problem and non-return intention. (Other problems not relating to careers are not shown in the table). The percentage of respondents indicating "serious problem" or "a problem" is also shown in the table.

One half of students consider finding an interesting job a problem in case of returning. However, it is difficult to assess what aspect of a job makes it "interesting" to the student. More relevant to policy is the fact that half of respondents feel that they will be dealing with less than competent superiors. The more this is seen as a problem, the greater the likelihood of staying

TABLE VIII-2

CAREER PROBLEMS EXPECTED UPON RETURN AND NON-RETURN INTENTION

Return problem	Gamma correlation with non-return intention	Percentage of respondents answering "serious problem" or " a problem"
Finding interesting work.	.39	54
Positions are occupied by persons who are not acquainted with the latest developments in field.	.22	48
Too much supervision.	.15	21
People I work with will not appreciate what I have learned abroad.	.20	36
My career will depend on politicians.	.20	23
Rivalry by persons trained in other developed countries.	.01	19
Jealousy by the people I will work with, due to my study abroad.	.11	27

abroad. Less than half (but still a substantial number) of students are preoccupied by other problems such as lack of autonomy and political interference in career advancement. This supports the recommendations that job structures in developing countries be restructured to allow autonomy, merit in promotions, and a more collegial atmosphere in policy planning.

The most important return problem envisioned by respondents (not shown in Table VIII-2) is sheer lack of job openings. Two-thirds of respondents indicated this as a "serious problem" or a "problem". We have seen that the location of job offers and the student's perception of difficulties in finding jobs correlated with migration intention. This supports the common sense notions of many observers that countries with brain drain should increase the number of jobs for professionals. As with other policies, such a step would be linked to prior conditions facilitating it -- development in general. It is easy to recommend, hard to institute.

POLICIES IN THE U.S.

Much of the brain drain debate centers on what parties to blame. To put it simply, is it that conditions in developing countries push professionals out or is it that conditions in developed countries pull them in? As often happens, both answers are true. In the previous section, I have listed some of the conditions in developing countries that may be linked to students' decisions to migrate. These partly explain the students' states of mind before arriving here, i.e., some students are already pre-disposed to migrate at the time of arrival in the developed country. However, the results of the path analyses

show that factors in the U.S. also have their effect on non-return. Specifically, job offers and the students' social experiences here can produce non-return. While these may be linked to factors in the country of origin (for example, the more pre-disposed to migrate fore arriving here, the more likely a job offer in the West may be received) they also operate independently. In effect, we see a stochastic process at work: some students pre-disposed to migrate may in fact return because of their experiences in the U.S. while others pre-disposed to return may stay abroad because of different experiences here. The problem, then, is to see if some of the factors in the U.S. producing non-return (by fiat, other developed countries) are or should be subject to control.

In this light we may evaluate the effect on non-return of problems the students experience in the U.S. Students were given a list of twenty-eight problems and asked to rate the importance of each. Most of the items are related to factors in the country of origin (separation from family, friends, from the culture, loneliness, adjustment problems of the spouse). All of these predict return. Some items had to do with problems originating in the U.S. For example, some students reported discrimination and unpleasant treatment by faculty. However, there was only a slight negative gamma correlation between the felt importance of these and non-return. In comparison, difficulties in adapting to an educational program or with English were more likely to produce return (gamma = -.20 for each). Moreover, some problems students experience here are obviously the result of having made up one's mind whether to return or stay here. Thus, concern about children's

education or marriage, which one would expect predicts return, is actually associated with non-return (gamma's = .17 and .20, respectively).

We have seen that the advice of relatives, friends, teachers and employers has an effect on the student's final decision. Can these persons be persuaded to advice return? One problem is that the most important persons in most students' lives are those less organizationally linked to policy makers. Therefore, reaching them would be difficult. One exception is employers and teachers. Teachers in the U.S. may have excellent reasons for advising some of their foreign students to stay here, but many may not be aware of the context in which these decisions are made, nor of the consequences that these decisions may have for some countries. Knowing these consequences, many teachers may still advice staying abroad, but it would be a more informed choice. In this matter, the Foreign Student Offices in the colleges would be an excellent vehicle for transmitting such information to teachers.

This brings up a related effect of American universities on students -- the higher propensity among students holding college and university scholarships to stay abroad. While such an avenue of study should not be closed to students, colleges could review their scholarship policies for possible adverse consequences.

As a policy for developing countries, it was recommended that they increase the number of return-linked scholarships. The U.S. government, American foundations, and international organizations should also open up exchange scholarships to greater numbers of foreign students from developing countries. In particular, they should ensure that ethnic

minorities in these countries are not denied access to these scholarships.

Finally, a word may be said about other policies that developed countries may institute to promote return. While our data has little bearing on these, they should be mentioned. One important problem for our government and universities to consider is the fit between the courses we offer foreign students and their countries' development needs. Most universities offer training geared specifically to the technical and scientific problems of a developed country.* Since only a few universities have large numbers of foreign students, and since many may not have the funds to establish special courses, one alternative suggested is regionalization of foreign training. Regionalization may have other advantages as well. Countries that send students abroad because specialized training is too expensive could pool their resources in such regional centers.** In addition, regionalization may insulate students from social experiences and opportunities in developed countries which induce non-return.

One final thought may be added. The policies recommended here aim at persuading students to return or at creating conditions here and in the developing countries which dispose them to return. One of the premises guiding the United Nations' consideration of the problem has been the individual's basic freedom of movement. Policies restricting migration -- in developed or developing countries -- should be resisted for this reason. If countries must balance individuals' rights with considerations of national welfare, it is to be hoped that they err on the side of the individual.

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* One exception is the Land Tenure Center at the University of Wisconsin. See Thiesenheusen, op. cit.

** One problem with regionalization is that few students have considered studying in other than developed countries; se Glaser, op. cit., p. 27. For a discussion of regionalization, see Adams, op. cit., p. 76.

APPENDIX A

CLUSTERS OF REASONS FOR COMING TO STUDY TO THE U.S.

Cluster	Reasons in cluster	Percentage of respondents indicating "very important" or "important"
"Academic-professional"	There were no courses or facilities for studying my special field in this country.	36
	I wanted to study in a particular school abroad.	33
	In my special field and at my level, I felt that training abroad was superior to that offered in my home country.	68
	In my special field and at my level, I felt that facilities abroad were superior to those offered in my home country.	70
	I could get a wider choice of fields abroad than here.	55
	I could get more contacts with members of my profession abroad.	
"Value of American degree"	Prestige attached to foreign training after my return to this country.	53
	In my special field, a degree from abroad is worth more in my home country than a degree from my home country.	44
"Second academic chance"	I did not receive a scholarship to study in this country.	6
	I was not accepted by a university or equivalent training school in this country.	6
	I feared I would not be able to get into a university or training school in this country because of the limited openings.	12

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Cluster	Reasons in cluster	Percentage indicating "very important" or "important"
	I obtained a scholarship to study abroad from an overseas source (or sources).*	28
	I was not sure what subjects I wanted to study.	8
	My relatives here promised me financial aid if I studied abroad.	24
	My relatives abroad promised me financial aid if I studied there.	11
"Personal influence"	My spouse decided to study abroad.	6
	Members of my family usually have studied abroad.	14
	Friends in my home country advised me to study abroad.	23
	Relatives in my home country advised me to study abroad.	28
	Teachers in my home country advised me to study abroad.	28
	Friends or relatives abroad advised me to study there.	25
	I obtained a scholarship from a source (or sources) in my home country.*	15
	In my special field and at my level, it would take less time to earn a degree abroad than here.	24
	It seemed easier to support myself while studying by means of a job abroad than in my home country.	29
"Non-academic work orientation"	I hoped to obtain remunerative employment abroad and save money after my study there.	26
	I needed the qualifications to have a good career abroad, in case I stayed there.	34

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Cluster	Reasons in cluster	Percentage indicating "very important" or "important"
	Practical experience of working abroad in my specialty is important, and the only way I could get it was by a visa as a student there.	32
	I wanted a chance to see the world.	60
	I originally went abroad as a tourist, and I decided to stay and study there after I arrived.	4
"Personal freedom"	I wanted to get away from family pressures here.	8
	I thought there would be more freedom abroad in personal life.	23
	I thought there would be more political freedom abroad.	11
	My military service was postponed when I went abroad for study.	3
"Migration orientation"	I wanted to prepare the way for other members of my family to go abroad.	12
	I was seriously considering migrating and I thought it was best to try it out first as a student.	8
	I wanted to establish rights of citizenship or of permanent residence abroad.	8
	I went to that country with the intention of going later to some other developed country.	10

* Two items were negatively correlated within the cluster, indicating opposite importance to the other items in the cluster.

APPENDIX B

MINORITY ETHNICITY CODES

Respondents were asked to indicate their race, religion, languages spoken at different times in their lives, and the particular subnationality to which they belonged in their home country. The problem was to decide whether the respondent belonged to a minority or majority ethnic group on the basis of these statuses. In the case of language, the one used was that spoken by the respondent at home before age ten.

Two difficulties in coding were non-response and other ethnicity indicators not tapped by the questionnaire. No answers sometimes could be coded substantively depending on the country and other answers supplied by the respondent. For example, a Filipino student who did not indicate his race could be classified "Oriental" if all the languages he spoke were Chinese. Some information was lost because of the particular ethnic situation in some countries. For example, some Indians gave their caste in answer to the question about sub-nationality; many did not. Similarly, regional identity could not be coded systematically.

Coding of minority and majority ethnicity was based on our classification of the major races, languages, and religions among the nationalities sampled. This classification is shown in Tables 1 to 3.

Table 4 shows the criteria for coding minority race according to the most common race in the respondent's home country. Table 5 shows the criteria for coding religion according to the chief religions in the respondent's home country. In these as well as in languages, non-response was given a separate code. In the religion question, some respondents answered "none". These were coded "minority" as well. The tables show all the logical possibilities of minority and majority status. All are not present in any particular country, of course.

Our classification of major languages, religions, and races tends to underestimate minority status. For example, many Latin American countries with mixed populations have subtle race distinctions which are not discerned by the present classification. Similarly, Muslims in mixed Catholic and Muslim countries are classified as "majority", although this is not quite the case in some of these countries.

The classification criteria for language are more complex, therefore they cannot be shown in a table. In the language questions respondents could list up to three languages. Many respondents speak a mixture of a minority language and the chief language of the country. These respondents were coded "mixed". Others spoke none of the chief languages. Given the large number of Asian and African languages, it became impossible to decide upon and code minority - majority language distinctions. Fortunately, many of these are accompanied by race and religious distinctions as well. Our classification was aimed at dis-

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tinguishing Western - vernacular language differences; for example, French-speaking Africans. Since Western languages are quite common in Africa and Asia, a problem arises over how to classify "mixed" speakers. However, since the basis for classifying the language is that one spoken at home before age ten, the problem is not so serious. It may be assumed that persons who spoke a minority language at home (whether or not it was mixed with the chief language) can be classified "minority" in language status.

TABLE 1

CLASSIFICATION OF NATIONALITIES IN THE SAMPLE ACCORDING TO THE MOST COMMON RACE IN THE COUNTRY OF ORIGIN

White

- Venezuela
- Argentina
- Chile
- Uruguay
- Cyprus
- North Africa and Mideast countries
- India
- Pakistan
- Ceylon
- Nepal

Black

- Haiti
- Jamaica
- Trinidad
- Netherland Antilles
- French and British West Indies countries
- Guyana
- Surinam
- African countries

Oriental

- Korea
- Burma
- Thailand
- Singapore

Malay

- Malysia
- Brunei
- Philippines
- Indonesia

Mixed races

- Dominican Republic
- Mexico
- British Honduras
- Central American countries
- Colombia
- Ecuador
- Peru
- Brazil
- Bolivia
- Paraguay

Polynesian

- Fiji Islands

TABLE 2

CLASSIFICATION OF NATIONALITIES IN THE SAMPLE ACCORDING TO THE CHIEF RELIGION IN THE COUNTRY OF ORIGIN

Mixed Christian

British West Indies countries
Guyana
Surinam

Catholic

Latin American countries
Philippines

Eastern Orthodox

Cyprus

Muslim

Libya
Sudan
Iran
Turkey
Iraq
Egypt
Syria
Saudi Arabia
Yemen
Kuwait
Bahrain
Muscat & Oman
Afghanistan
Pakistan
Malaysia
Brunei
Indonesia

Buddhist and related religions

Burma
Ceylon
Thailand

Hindu and related religions

India
Bhutan
Sikkim
Nepal

Catholic and Muslim

Morocco
Algeria
Tunisia
Lebanon
Jordan

Catholic and Animist

Haiti
Guadeloupe
Martinique
Brazil
Dahomey
Ivory Coast
Guinea
Togo
Cameroun
Gabon
Congo (Brazzavile)
Zaire
Burundi
Rwanda
Malagasy Republic

Catholic, Muslim, and Animist

Mali
Senegal
Mauritania
Niger
Upper Volta
Central African Republic
Chad

Christian and Asian

Mauritius
South Korea
Singapore
Fiji

-- continued --

Table 2 -- continued.

Christian and Animist

Trinidad	Kenya
Jamaica	Tanzania
Netherland Antilles	Somalia
Gambia	Ethiopia
Liberia	Zambia
Sierra Leone	Malawi
Ghana	Lesotho
Uganda	Botswana
	Swaziland

TABLE 3

CLASSIFICATION OF NATIONALITIES IN THE SAMPLE ACCORDING TO THE CHIEF LANGUAGE IN THE COUNTRY OF ORIGIN

English

- British West Indies countries
- British Honduras
- Guyana

French

- Haiti
- French West Indies islands
- French Guyana

Spanish

- Latin American countries

Portuguese

- Brazil

Dutch

- Netherland Antilles
- Surinam

Asian languages

- Asian, North African and Mid-east countries

African languages

Oceanian languages

TABLE 4

CRITERIA FOR CODING RACIAL MINORITY STATUS*

Respondent's race	Most common race in respondent's country of origin: White	Black	Oriental	Malay	Mixed	Other
White		XXX	XXX	XXX		XXX
Black	XXX		XXX	XXX		XXX
Oriental	XXX	XXX		XXX	XXX	XXX
Malay	XXX	XXX	XXX		XXX	XXX
Amerindian	XXX	XXX	XXX	XXX		XXX
Other mixed	XXX	XXX	XXX	XXX		

TABLE 5

CRITERIA FOR CODING RELIGIOUS MINORITY STATUS*

Respondent's religion	Chief religion in respondent's country of origin: Christian	Catholic	Orthodox	Muslim	Buddhist	Hindu	Catholic, Muslim	Catholic, Muslim, Animist	Christian, Asian	Christian, Animist
"Christian"		XXX	XXX	XXX	XXX	XXX				
Catholic			XXX	XXX	XXX	XXX				
Protestant		XXX	XXX	XXX	XXX	XXX	XXX	XXX		
East. Orthodox		XXX		XXX	XXX	XXX	XXX	XXX		
Maronite		XXX	XXX	XXX	XXX	XXX				
Coptic		XXX	XXX	XXX	XXX	XXX				
Buddhist	XXX	XXX	XXX	XXX		XXX	XXX	XXX		XXX
Hindu	XXX	XXX	XXX	XXX	XXX		XXX	XXX		XXX
Bahai	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Muslim	XXX	XXX	XXX		XXX	XXX			XXX	XXX
Druse	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Jewish	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Animist	XXX	XXX	XXX	XXX	XXX	XXX	XXX		XXX	
Other sects	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

* "XXX" indicates decision to code as minority.

APPENDIX C
CORRELATION MATRIX OF ALL VARIABLES USED IN PATH ANALYSIS

Variables:	(Age)	(Mar)	(Eth)	(Pol)	(El)	(Opt)	(Jobs)	(Mig)	(Est)	(Adv)	(Inf)	(Ref)	(Stdrd)
(Non) Non-return intention	.059	-.101	.086	.089	-.086	-.153	.330	.283	.332	.318	.345	.229	.228
Statuses													
(Age) Age	XXX	.405	.019	-.050	.038	.303	.014	-.087	-.042	.049	.044	-.145	.033
(Mar) Marital status		XXX	-.021	-.015	.050	.228	-.035	.032	-.055	-.019	.042	-.264	-.082
(Eth) Ethnic minority			XXX	-.208	.220	-.012	.047	-.002	.024	.092	-.016	.053	.007
Characteristics of home country													
(Pol) Political instability				XXX	-.615	.110	.079	.118	-.013	.107	.153	-.117	.264
(El) Political elitism					XXX	.041	-.136	-.098	-.045	-.037	-.122	.118	-.209
Opportunities													
(Opt) Index of opportunities in the country of origin						XXX	-.149	-.134	-.160	-.063	-.061	-.194	.055
(Jobs) Location of job offers in the West only							XXX	.140	.185	.162	.217	.107	.123
Motivations													
(Mig) Migration orientation among reasons for coming to U.S. to study								XXX	.107	.099	.173	.032	.096
(Est) Estimate at time of arrival in U.S. of years to be spent abroad									XXX	.108	.162	.077	.091
Reference group behavior													
(Adv) Advice to migrate by significant individuals in the country of origin										XXX	.320	.056	.129
(Inf) Index of advice to migrate by significant individuals in the U.S.											XXX	.035	.160
Perception of opportunities													
(Stdrd) Expectation of higher standard of living in the U.S. than in the country of origin													XXX