

Skilled-Worker Mobility and Development in Latin American: Between Brain Drain and Brain Waste¹

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I. INTRODUCTION

The social and economic impact of the emigration of skilled-workers from the countries of Latin America and the Caribbean (LAC) has been assessed under different modalities, according to the different historical contexts of the region. During the 1960s and 1970s, the notion that prevailed was that as a result of the emigration of qualified workers, Latin American and Caribbean countries were losing their most valuable resources for development and, hence, the term brain drain was adopted. If national scientists and scholars were a key aspect in the formation of future generations and in technological innovation, it was absolutely necessary to keep this critical mass from leaving the countries in order to guarantee the economic and social development of our nations in the region. During the 1980s, despite the increase evidenced in the immigration of qualified human resources –as a consequence of the political and economic instability that prevailed in many LAC countries– the concern for the brain drain was pushed into the background and lost significance for some time (*Pellegrino, 2001*). Nevertheless, ever since the mid-1970s, as a result of the vigorous growth in the demand for highly specialized workers in economically developed countries, of the sub-utilization of these human resources in Latin America and the Caribbean and, particularly, the transformations in the operation of the global market for skilled workers, the perception of the brain drain started to yield ground to other notions and ideas that have even pointed at the convenience of stimulating the exchange and circulation of qualified and skilled resources (brain exchange and brain circulation) as a means for making the best use of their participation in global scientific and technological development networks. This new perspective even led nations to ponder the possibility that the outflow of highly qualified staff from LAC countries might mean a “brain gain” in view of the possibility that migrants could return to their nations with new knowledge and skills obtained during their stay abroad.

Nevertheless, it is absolutely necessary to bear in mind that despite the fact that the emigration of highly qualified human resources is not a new phenomenon, it is indeed new when seen as a massive phenomenon. Hence, the acceptance of the “new perspective” that has been pointed out is challenged by important elements. In all truth, one of the most important current characteristics of international migration is the divergence between the qualified and the non-qualified migration, and these displacements are ruled by a different rationale and different dynamics. While migrants with low qualifications face growing difficulties in order to go from their countries of origin to the countries of destination – a strategy that some authors refer to as

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the “closed doors” policy – the legal restrictions for highly qualified migrants during the last two decades have been rendered greatly flexible, giving way to a “open doors” policy (Cornelius, Espenshade and Salehyan, 2001); or, as pointed out by Thomas Faist, the current policy ruling highly qualified migrants has changed “... from a red card strategy to a red carpet strategy” Faist (2005:21). This split evidenced in the international population movement according to the level of qualification of migrants has transformed the debate on migration and specially the global agenda on migration and development.

One of the key aspects of the development theories indicates that economic growth depends considerably on the strengthening of knowledge and human capital as a basic input for development. Currently, there is broad consensus in the sense that wealth and the possibilities for development of a country are highly associated to the consolidation of the science and technology sectors, a critical mass of scientists and professionals related to the production service, research and services. This has brought about very strong competition –particularly in the countries of the North– for recruiting highly qualified resources, basically physicians, engineers specialized in information technology and scientists in general, in order to cover the demand of the production sector and the service sector as the qualified members of society are aging.

The growing demand for qualified labor force in industrialized countries has two dramatic counterparts: in the first place, mention can be made of the sub-utilization of qualified human resources in the countries of origin. In the case of Latin America and the Caribbean, the lack of labor opportunities that offer adequate salaries for the countless professionals and technicians who have recently graduated from public and private universities is favouring emigration. In a recent study, ECLAC suggests a series of processes associated to this sub-utilization, among them: “... the limited labor absorption, which is not in tune with the trend that points at a rapid generation of supply of individuals with a professional and technical training (...) the low salaries, the non-voluntary inactivity, open unemployment, underemployment, salaries lower than those that are deserved and outsourcing” (ECLAC, 2006: 39). All this requires continuity in the process of qualified immigration. The second counterpart is the sub-utilization of the skills and knowledge of migrants in the country of destination, because they were in positions that were not adequate for their levels or qualifications, or simply because they are subject to non-voluntary inactivity.

The outflow of highly qualified human resources from one country to another – a phenomenon which has been known for many years as *brain drain* – has been assessed from the perspective of the country of origin as a loss of qualified human resources not only on account of the money invested in the professional and/or university training of the migrant, but also because some areas of the country of origin can end up being unattended. Castles and Miller point out that ... *there are reports of hospitals in the Philippines that have to close their operating rooms because all of its trained staff has left for the United Kingdom* (Castles and Miller, 2004:209). On the other hand, the country of destination, the one that receives the qualified labor force has a definite brain gain, not only because this new staff joins the local production sector or the scientific research centres, but because the recipient country did not necessarily invest in training those qualified resources.

The prevailing rationale during the 1970s and the 1980s (in the countries of origin) perceived qualified migration as brain drain or the outflow of talents, and stressed that the fact that they left the country damaged the development possibilities of the countries of origin. This discourse was mainly tainted by a pessimist perspective and its main axis in terms of migration policies revolved around the retention and return of qualified migrants. Nevertheless, in recent years, starting in the 1990s up to the present date, a less pessimistic perspective has started to prevail with respect to the emigration of qualified staff. This perspective acknowledges the existence of a global mobility of talents, which is not necessarily unidirectional. Hence, the fact that qualified labor force leaves a country may be considered as an opportunity and as a possibility for promoting development under certain conditions.

In parallel to the change in perspective regarding the impact of qualified migration, new notions have emerged that characterize other processes of the contemporary mobility of talent that go beyond the traditional vision of brain drain or brain gain. For instance, the notion of *brain exchange* implies a bidirectional movement; in other words, an exchange of qualified migrants between two or more countries – an exchange which does not necessarily imply losses for any of the nations involved. The notion of *brain gain* is not only used when an industrialized country receives a net positive migration of qualified labor force – as stated before – but also when the migrant of an issuing country goes back to his or her country of origin and is reinserted in a production activity, thus applying the knowledge and skills that were acquired during the migration experience. On the other hand, the notion of *brain circulation* mainly refers to the mobility of students who go from one place to another in order to make their university careers abroad, or to hold a position for some time and then go back to their countries of origin. Another analytical concept that points at the sub-utilization of qualified labor force, both in the country of destination and in the country of origin, is that of “brain waste”. This term describes the incorporation of qualified labor force in occupations that still do not correspond to the level of qualifications, skills and experience of the professional. Even though this paper analyzes the process of brain waste in detail, for the meantime we will only mention that out of the total number of qualified emigrants born in LAC countries who are living in the United States (a population that accounted for 1.2 million professionals in 2007), only 43% of them were working in a position that was in tune with their training level, while the remaining 57% had to work in jobs that required very low or no qualifications at all. Latin American and Caribbean professionals in the United States are those that account for the highest rate of brain waste, followed by those born in Africa. In the case of the latter group, 48% of their professionals work in jobs that require no qualifications or very limited ones. In the case of European and Asian immigrants, the brain waste is similar to that of the U.S. nationals; in other words, 40% of the professionals work in activities that are not in tune with their qualification levels. A last notion that could imply both a gain and a drain is that of *brain strain*. “An example worth pointing at in this respect is that of physicians who go from Canada to the United States and, in turn, they are replaced by South Africans in Canada. In the other end of the chain, we have the Cuban physicians who go to South Africa and cover for the jobs left vacant by the South African physicians” (Faist, 2005: 2).

The general objective of this paper is to analyze the current emigration trends of qualified human resources from Latin American and Caribbean countries. Our special interest is identifying the countries and subregions in Latin America and the Caribbean that have been most hardly hit by

qualified migration in the past few years. Similarly, we will analyze the issue of “brain drain” in light of the changes in the global market for qualified labor force, and the economic and social impacts of brain waste, both in the case of the countries of origin and the countries of destination. We also utilize cross-national regression analysis to examine the effect of social and economic variables on the highly skill migration rates from 33 LAC countries. The information sources that have been used are basically two, namely: 1) The database prepared by Docquier, Lowell and Marfouk (2008) on the *stock* of international migrants who are 25 years and older and who are living in OECD countries, according to their academic level, for the years 1990 and 2000, which is the most complete statistical information available to date. 2) The “American Community Survey (ACS) 3-year estimates”, 2005-2007 of the United States. This Survey provided the basis for the estimates contained in this analysis with the purpose of bringing up to date, whenever possible, the trends in the emigration of qualified human resources from Latin America and the Caribbean.

II. MAJOR GLOBAL TRENDS

Three major trends have prevailed over the past few decades on the worldwide migration of skilled labor: i) Unprecedented growth of qualified migration; ii) Growth pace of high skilled migration faster than medium-skilled and low-skilled migration, and iii) Increasing involvement of female migrants in the flow of skilled labor.

These trends will be analyzed by using the data base prepared by Docquier, Lowell and Marfouk (2008) on the stock of international migrants of 25 years of age and older, residing in OECD countries, by academic level (low, medium and high) for the years 1990 and 2000. Also, based on the growth rates noted between 1990 and 2000, estimates were made by regions and countries, taking 2007 as the baseline. The basic assumption of these estimates is that the growth pace of qualified migration remained steady between 2000 and 2007.

Taking into account only the flow of migrants of at least 25 years of age, according to their education level (university, high-school and elementary), with destination to the OECD member countries, between 1990 and 2007, the stock of migrants with university education grew 111% from 12.5 million to 25.9 million people, whereas the increase of migrants with elementary education neared 39%, and totalled 76% for migrants with high-school education (See Table 1)².

A comparison of the percentage structure of the stock of migrants according to their education level and bearing in mind the OECD member countries as the destination of this migration flow between 1990 and 2007, found a hike of university education migrants over high-school education and elementary education migrants. In 1990, migrants with the highest level education accounted for 30% out of the total number; such a percentage rose to 37% in 2007. In contrast, the percentage sharing of elementary education migrants, despite an absolute growth of 7.9 million people, declined from 49.3 to 40.6% between 1990 and 2007.

² According to several authors, 90% of the world flow of skilled migrants heads for the OECD member countries (Docquier and Marfouk, 2006).

Table 1
Stock of migrants 25 years or older, residing in OECD countries,
by academic level, 1990, 2000 and 2007 ^e

Academic level	1990	%	2000	%	2007e	%	% Change 1990-2007
Total	41,441,127	100.0	58,054,799	100.0	69,684,369	100.0	68.2
Low (0-8 years)	20,413,656	49.3	25,067,550	43.2	28,325,275	40.6	38.8
Medium (9-12 years)	8,791,199	21.2	12,737,204	21.9	15,499,406	22.2	76.3
High (13 or more years)	12,236,271	29.5	20,250,045	34.9	25,859,687	37.1	111.3
Men	20,474,689	100.0	28,520,551	100.0	34,152,655	100.0	66.8
Low (0-8 years)	9,891,058	48.3	12,247,980	42.9	13,897,825	40.7	40.5
Medium (9-12 years)	4,056,521	19.8	6,003,468	21.0	7,366,331	21.6	81.6
High (13 or more years)	6,527,110	31.9	10,269,104	36.0	12,888,499	37.7	97.5
Women	20,966,438	100.0	29,534,247	100.0	35,531,714	100.0	69.5
Low (0-8 years)	10,522,598	50.2	12,819,570	43.4	14,427,450	40.6	37.1
Medium (9-12 years)	4,734,679	22.6	6,733,736	22.8	8,133,075	22.9	71.8
High (13 or more years)	5,709,161	27.2	9,980,942	33.8	12,971,188	36.5	127.2

Source: Data for 1990 and 2000 were taken from the database of Docquier, Lowell and Marfouk 2008.

Data for 2007 are estimates based on the growth rates recorded during the period 1990 - 2000.

Data for 1990 and 2000 can be seen in:

http://perso.uclouvain.be/frederic.docquier/filePDF/DataSetByGender_Aggregates.xls

A comparison of the migration flows by gender and according to their academic level accounts for a significant growth of women in the stock of skilled migrants. While male migrants with a university degree rose by 97.5% between 1990 and 2007, that is, from 6.5 million to 12.9 million, there was a surge of female migrants with university education by 127%, that is, from 5.7 million to 13.0 million.

The change in the high skilled migration flow from less developed countries to more developed countries (as far as the OECD is concerned) is the result of three fundamental facts: a) Higher education level of people in developing countries; b) Increasing selection of individuals with a high level education in the context of international migration; this situation shows a faster growth of skilled migrants versus unskilled migrants, and c) Growing demand of skilled labor in developed countries. Such a new profile of international migration has shifted, not only the debate in the global agenda on the linkage between migration and development, but also migration policies marked by stiffer restrictions on low skilled migration. This gradually favours, both in the countries of origin and the countries of destination, the free movement of highly skilled labor.

III. EMIGRATION OF SKILLED HUMAN RESOURCES FROM LATIN AMERICA AND THE CARIBBEAN

1. Qualified migration to OECD countries. Changes from 1990 to 2000 by subregions and countries

Latin America and the Caribbean is the region of the world with the highest relative growth of skilled migrants from 1990 to 2007: the stock soared by 155% (versus a total average increase of 111%), closely followed by Africa and Asia, which showed a hike of 152.4 and 144.8 %, respectively.

respectively (See Table 2). Latin America and the Caribbean has also gained ground with respect to other regions in the world as an exporter of skilled labor, from 16% to 19% out of the total number of skilled migrants in OECD countries between 1990 and 2007. In absolute terms, this stood for 1.9 million in 1990 and 4.9 million people in 2007. Among Latin American and Caribbean countries, the case of Mexico is noteworthy. It showed the highest increase of the stock from 1990 to 2007 (270%). In 2007, it stood at 1,357,120 migrants. Secondly, the number of skilled migrants from the Andean countries climbed 162% between 1990 and 2007, particularly Peru (177 %) and Venezuela (216 %). In the case of Mexico and the five countries of the Andean region, the input of skilled migrants compared with the total migration flow surged. In the case of Mexico, it went from 3% of the world stock of skilled migrants in 1990 to 5.2% in 2007. As for the Andean countries, the percentage went from 2.6 to 3.2 %.

With regard to Central American countries, Table 2 shows that the number of skilled migrants jumped by 137% in the referred period. Note in this region a growing number of skilled migrants from Honduras, Salvador and Guatemala, with increases of 229%, 214% and 196%, respectively. The number of migrants from South American countries (Argentina, Brazil, Chile, Paraguay and Uruguay) moved up 127% from 1990 to 2007. Brazil is the second LAC country, after Mexico, with the highest growth of skilled migrants, that is, 247%. Finally, the number of skilled migrants from the Caribbean heightened, in the aggregate, by 112% during the analyzed period, thus providing one third of the skilled migrants from LAC, namely: Cuba, 395,458 skilled migrants in 2007; Jamaica, 374,692; Haiti, 215,173, and the Dominican Republic, 204,100 skilled migrants. The two latter figures are close to the number of Brazilian skilled migrants, which in 2007 was as high as 218,454 people.

As previously stated, the growth of qualified migration has been more noticeable among women. A comparison of the percentage change from 1990 to 2007 in the stock of skilled migrants in OECD countries, by region and country of origin, found that in all the ALC countries, skilled migration of women runs faster than that of men, except only for Honduras. In 2007, the number of female skilled migrants was 1.7-fold the number recorded in 1990. The trend of female skilled migration is outstanding in some countries, where the increase between 1990 and 2007 was much higher than that of their male counterparts. This is the case of some Caribbean countries. In Dominica, for instance, female skilled migrants were 4.7-fold their male counterparts; in Saint Vincent and the Grenadines, 2.1-fold; in Barbados, 189% higher than men; 124% in Saint Kitts and Nevis, and almost two-fold in the Dominican Republic.

The significance of skilled migration by region and country could be also assessed by estimating the migration rates. Such rates indicate the percentage of skilled people from a specific country who are residing in a foreign country. Table 3 displays, in a disaggregated manner, for all the regions in the world and all the countries in the Latin American and Caribbean region, the rates of skilled migration, of the residents in some OECD countries in 1990 and 2000, and an estimate for 2007. While in 1990, Africa had the highest rate of skilled migration, in 2007 Latin America and the Caribbean took up this position: 11.3% of skilled people born in the region live overseas.

Table 2
Stock of highly skilled migrants 25 years or older, residing in OECD countries
by region and country of origin, 1990, 2000 and 2007e

Region of origin	1990	%	2000	%	2007 Estimates	%	% Change 1990-2007
Total	12.236.271	100,0	20.250.045	100,0	25.859.687	100,0	111,3
United States and Canada	716.742	5,9	949.566	4,7	1.112.543	4,3	55,2
Europe	4.869.045	39,8	6.864.409	33,9	8.261.164	31,9	69,7
Africa	723.907	5,9	1.372.712	6,8	1.826.875	7,1	152,4
Asia	3.781.331	30,9	7.002.491	34,6	9.257.303	35,8	144,8
Oceania	220.624	1,8	379.067	1,9	489.977	1,9	122,1
Latin America and the Caribbean	1.924.622	15,7	3.681.800	18,2	4.911.825	19,0	155,2
Mexico	366.783	3,0	949.334	4,7	1.357.120	5,2	270,0
Central America	236.891	1,9	427.677	2,1	561.227	2,2	136,9
Belize	8.770	0,1	16.121	0,1	21.267	0,1	142,5
Costa Rica	17.400	0,1	27.403	0,1	34.405	0,1	97,7
El Salvador	59.329	0,5	134.072	0,7	186.392	0,7	214,2
Guatemala	33.165	0,3	71.480	0,4	98.301	0,4	196,4
Honduras	21.967	0,2	51.581	0,3	72.311	0,3	229,2
Nicaragua	40.315	0,3	68.958	0,3	89.008	0,3	120,8
Panama	55.945	0,5	58.062	0,3	59.544	0,2	6,4
Caribbean	783.176	6,4	1.300.333	6,4	1.662.343	6,4	112,3
Antigua and Barbuda	4.318	0,0	9.198	0,0	12.614	0,0	192,1
Bahamas	5.324	0,0	10.973	0,1	14.927	0,1	180,4
Barbados	24.787	0,2	33.736	0,2	40.000	0,2	61,4
Cuba	241.122	2,0	331.908	1,6	395.458	1,5	64,0
Dominica	5.382	0,0	8.270	0,0	10.292	0,0	91,2
Dominican Republic	81.367	0,7	153.563	0,8	204.100	0,8	150,8
Grenada	9.695	0,1	15.696	0,1	19.897	0,1	105,2
Guyana	62.419	0,5	116.013	0,6	153.529	0,6	146,0
Haiti	64.873	0,5	153.285	0,8	215.173	0,8	231,7
Jamaica	161.563	1,3	286.933	1,4	374.692	1,4	131,9
St. Kitts and Nevis	4.337	0,0	8.040	0,0	10.632	0,0	145,1
St. Lucia	3.446	0,0	7.480	0,0	10.304	0,0	199,0
St. Vincent	6.415	0,1	13.046	0,1	17.688	0,1	175,7
Suriname	28.176	0,2	34.093	0,2	38.235	0,1	35,7
Trinidad and Tobago	79.952	0,7	118.099	0,6	144.802	0,6	81,1
Andean countries	317.243	2,6	618.864	3,1	829.999	3,2	161,6
Bolivia	18.807	0,2	30.338	0,1	38.410	0,1	104,2
Colombia	123.855	1,0	233.073	1,2	309.526	1,2	149,9
Ecuador	58.500	0,5	110.477	0,5	146.861	0,6	151,0
Peru	80.397	0,7	163.932	0,8	222.407	0,9	176,6
Venezuela	35.684	0,3	81.044	0,4	112.796	0,4	216,1
South America	220.529	1,8	385.592	1,9	501.136	1,9	127,2
Argentina	73.614	0,6	112.429	0,6	139.600	0,5	89,6
Brazil	63.018	0,5	154.451	0,8	218.454	0,8	246,7
Chile	61.141	0,5	86.827	0,4	104.807	0,4	71,4
Paraguay	4.906	0,0	7.224	0,0	8.847	0,0	80,3
Uruguay	17.850	0,1	24.661	0,1	29.429	0,1	64,9

Source: Data for 1990 and 2000 were taken from the database of Docquier, Lowell and Marfouk 2008.

Data for 2007 are estimates based on the growth rates recorded during the period 1990 - 2000.

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How large is the number of outgoing skilled people compared with the size of the people with the same education level who remain in their country of origin? In global terms, the above remarks are corroborated. The skilled migration rate has heightened, still more in the case of women. While the rate of skilled migration in Latin America and the Caribbean in 2007 averaged 11.3%, there are countries with high and very high migration rates. The Caribbean region prevails over the rest. There, except for three countries (Bahamas, Cuba and the Dominican

Republic), all the other 12 countries are above 60%, and five of them stand at 80%-90% (Guyana, Jamaica, Saint Vincent, Grenada and Haiti). That is, in the latter five cases, a little more than half of the skilled people remain in their countries of origin. The other half works in a foreign country. In Central America, most of the countries have between one-third and one-fourth of their skilled people living abroad, reaching, in the case of Belize, 65% in 2007. This phenomenon has a lesser impact on the Andean and South American countries. Nevertheless, some countries, such as Colombia, Ecuador and Uruguay, are around 10% (See Table 3).

The foregoing numbers substantiate one of the central statements by Clemens (2009), who says that one of the patterns characteristic in modern skilled migration is the departure of these workers from small countries, with skilled migration rates much higher than those of more populated countries, and the predominance of departures from low-income countries and/or countries with a low degree of production diversification. Chart 1 depicts the percentage of skilled people born in Latin America and the Caribbean and residing in some OECD country in 2000 on the X-axis, and the population of each country expressed on logarithmical scale, on the Y-axis. Clearly, small countries, particularly in the Caribbean region, provide the higher percentage of skilled labor living abroad, as noted on the top left side of the Chart. On the contrary, the countries with the lowest rate of skilled migration tend to be more populated, such as Brazil, Argentina, Venezuela, Peru and Chile. Mexico is the only exception to the rule. While it is the second most populated country in the region, 16% of its skilled labor resides abroad, mainly in the United States.

The study by Clemens (2009) shows that this pattern of concentration of high rates of skilled migration in less populated countries, with a less diversified economy is not exclusive to international migration. Such a behaviour is similar inside the countries. The author noted that internal migration of skilled labor follows the same standards of the international migration, that is, higher rates of skilled migration from less populated and poorer states or provinces, at least with regard to four countries considered in his work, namely: Brazil, the United States, the Philippines and Kenya.

In short, worldwide migration of skilled labor has steadily and quickly risen over the last decades, which is a significant component of international movements. Two features are characteristic in such migration: it is much more frequent and dynamic than the medium-skilled and low-skilled migration and, in relative terms, has increased the most over the past few decades.

Table 3
Native population and stock of highly skilled migrants 25 years or older, residing in OECD countries
and emigration rate by region and country of origin, 1990, 2000 y 2007^a

Region of origin	1990			2000			Estimates for 2007		
	Skilled Native Population	Skilled Migrants	Emigration Rate	Skilled Native Population	Skilled Migrants	Emigration Rate	Skilled Native Population	Skilled Migrants	Emigration Rate
Total	244.528.358	12.236.271	5,0	374.532.287	20.250.045	5,4	465.535.038	25.859.687	5,6
United States and Canada	72.324.049	716.742	1,0	105.865.218	949.566	0,9	129.344.036	1.112.543	0,9
Europe	69.666.115	4.869.045	7,0	95.039.290	6.864.409	7,2	112.800.513	8.261.164	7,3
Africa	6.444.092	723.907	11,2	13.185.995	1.372.712	10,4	17.905.326	1.826.875	10,2
Asia	73.120.257	3.781.331	5,2	121.805.021	7.002.491	5,7	155.884.355	9.257.303	5,9
Oceania	3.977.690	220.624	5,5	5.301.966	379.067	7,1	6.228.959	489.977	7,9
Latin America & the Caribbean	18.996.155	1.924.622	10,1	33.334.798	3.681.800	11,0	43.371.848	4.911.825	11,3
Mexico	3.356.876	366.783	10,9	6.138.349	949.334	15,5	8.085.380	1.357.120	16,8
Central America	1.053.216	236.891	22,5	1.917.709	427.677	22,3	2.522.854	561.227	22,2
Belize	13.128	8.770	66,8	24.605	16.121	65,5	32.639	21.267	65,2
Costa Rica	209.784	17.400	8,3	386.705	27.403	7,1	510.550	34.405	6,7
El Salvador	183.576	59.329	32,3	422.476	134.072	31,7	589.706	186.392	31,6
Guatemala	170.361	33.165	19,5	299.075	71.480	23,9	389.175	98.301	25,3
Honduras	98.254	21.967	22,4	208.025	51.581	24,8	284.865	72.311	25,4
Nicaragua	144.808	40.315	27,8	228.702	68.958	30,2	287.428	89.008	31,0
Panama	233.305	55.945	24,0	348.121	58.062	16,7	428.492	59.544	13,9
Caribbean	1.684.954	783.176	46,5	2.858.690	1.300.333	45,5	3.680.305	1.662.343	45,2
Antigua and Barbuda	6.421	4.318	67,2	13.430	9.198	68,5	18.336	12.614	68,8
Bahamas	14.630	5.324	36,4	29.724	10.973	36,9	40.290	14.927	37,0
Barbados	36.183	24.787	68,5	53.858	33.736	62,6	66.231	40.000	60,4
Cuba	774.885	241.122	31,1	1.153.812	331.908	28,8	1.419.061	395.458	27,9
Dominica	7.510	5.382	71,7	12.934	8.270	63,9	16.731	10.292	61,5
Dominican Republic	331.971	81.367	24,5	685.602	153.563	22,4	933.144	204.100	21,9
Grenada	11.545	9.695	84,0	18.629	15.696	84,3	23.588	19.897	84,4
Guyana	68.636	62.419	90,9	130.004	116.013	89,2	172.962	153.529	88,8
Haiti	84.705	64.873	76,6	183.888	153.285	83,4	253.316	215.173	84,9
Jamaica	188.891	161.563	85,5	338.799	286.933	84,7	443.735	374.692	84,4
St. Kitts and Nevis	5.507	4.337	78,8	10.243	8.040	78,5	13.558	10.632	78,4
St Lucia	5.467	3.446	63,0	10.903	7.480	68,6	14.708	10.304	70,1
St. Vincent	7.931	6.415	80,9	15.426	13.046	84,6	20.673	17.688	85,6
Suriname	40.716	28.176	69,2	51.847	34.093	65,8	59.639	38.235	64,1
Trinidad and Tobago	99.956	79.952	80,0	149.591	118.099	78,9	184.336	144.802	78,6
Andean Countries	4.605.417	317.243	6,9	8.888.988	618.864	7,0	11.887.488	829.999	7,0
Bolivia	279.342	18.807	6,7	525.863	30.338	5,8	698.428	38.410	5,5
Colombia	1.164.999	123.855	10,6	2.247.258	233.073	10,4	3.004.839	309.526	10,3
Ecuador	787.603	58.500	7,4	1.159.011	110.477	9,5	1.418.997	146.861	10,3
Peru	1.349.453	80.397	6,0	2.816.913	163.932	5,8	3.844.135	222.407	5,8
Venezuela	1.024.020	35.684	3,5	2.139.943	81.044	3,8	2.921.089	112.796	3,9
South America	8.295.692	220.529	2,7	13.531.062	385.592	2,8	17.195.821	501.136	2,9
Argentina	2.147.719	73.614	3,4	4.051.555	112.429	2,8	5.384.240	139.600	2,6
Brazil	4.900.238	63.018	1,3	7.562.900	154.451	2,0	9.426.763	218.454	2,3
Chile	894.490	61.141	6,8	1.451.487	86.827	6,0	1.841.385	104.807	5,7
Paraguay	127.226	4.906	3,9	191.844	7.224	3,8	237.077	8.847	3,7
Uruguay	226.019	17.850	7,9	273.276	24.661	9,0	306.356	29.429	9,6

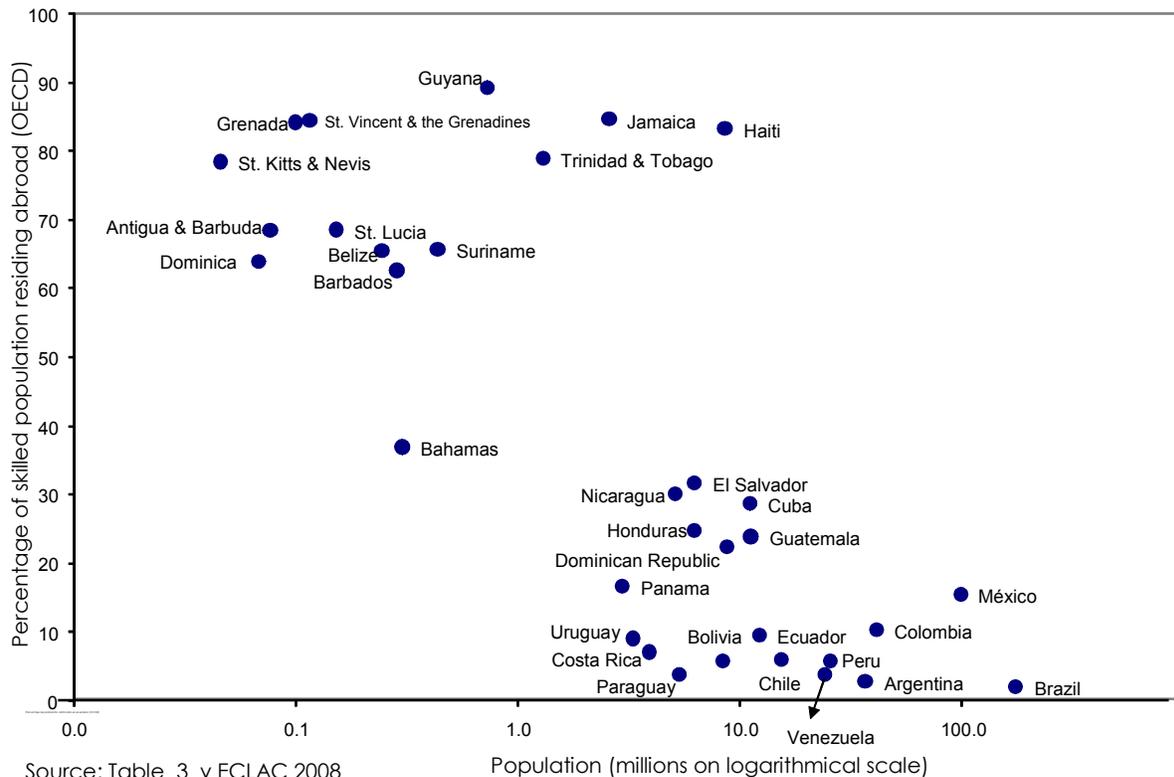
Source: Data for 1990 and 2000 were taken from the database of Docquier, Lowell and Marfouk 2008.

Data for 2007 are estimates based on the growth rates recorded during the period 1990 - 2000.

Data for 1990 and 2000 can be seen in:

http://perso.uclouvain.be/frederic.docquier/filePDF/DataSetByGender_Aggregates.xls

Chart 1
 Percentage of skilled population 25 years or older, born in LAC and residing
 in any OECD country, according to total population of country of origin, 2000



The evidence shows that this social process, while worldwide in nature, is a matter of concern for Latin American and Caribbean countries, where the migration of this kind of labor, particularly to the United States, is significant. In 2007, it hit 11% of skilled labor. It is even more significant for more than a half of LAC countries, which recorded migration rates of skilled labor over 20%, and for more than one-third of these countries, with migration rates higher than 50 %³. The analysis, both in statistic (absolute) and relative terms provides an outlook of the phenomenon from several angles. By means of the analysis in absolute terms, Mexico is clearly the country which sends the largest number of skilled migrants to developed countries, particularly the United States. In the Latin American and Caribbean region, Mexico provides the biggest stock of skilled migrants to OECD countries (the sixth in the world). From a different angle, in relative terms, smaller countries are the most stricken with the outflow of skilled migration, with rates far beyond 80% (Jamaica, Guyana, Grenada, Haiti and Saint Vincent and the Grenadines). This adversely and severely affects the countries of origin, because of the dramatic decline of skilled labor. The inverse migration rate/population ratio has been shown in several studies (Docquier and Marfouk, 2006; Docquier; Lohest and Marfouk, 2007; Docquier and Rapoport, 2007). The loss of these human resources prompts a renewed discussion about the brain drain and related effects.

³ A recent study by Beine, Docquier and Rapoport (2008) found that most countries which experience positive net effects related to the departure of skilled migrants show low levels of human capital and low migration rates of skilled labor. On the contrary, those countries with an outflow of skilled labor over 20% and/or a proportion of people with higher education under 5%, experience negative effects.

2. United States: Main destination of skilled migrants from the world and Latin America and the Caribbean

As previously mentioned, the Latin American and Caribbean migration is strongly focused on one single destination: the United States. This pattern is not exclusive to LAC, but it is a global behaviour. On the one hand, more and more regions and countries are considerably involved in people's movements (Castles and Miller, 2004) and, on the other hand, there is higher concentration of migrants in some destinations – developed nations – as attraction hubs. While the immigration rate has dropped in less developed countries, it keeps on growing in developed countries. According to the United Nations Population Fund, UNFP (2006), 75% of international immigrants live in 28 countries only. Between 1990 and 2000, the proportion of the migration that headed for developed countries moved rose 53% up to 60% (United Nations, 2006). This trend towards concentration is even more accentuated with migration of skilled labor. About 90% of skilled migrants live in one of the 30 OECD members countries (Docquier and Marfouk, 2006), and, as in the case of total migration, the flow from the South prevails.⁴

In 2000, 65% of skilled migrants in the world were residents of North America (United States, Canada and Mexico), with some fluctuations per region. The concentration of skilled migrants from ALC is more significant, because 88.3% of them hold North America as their destination (Lowell, 2008). For the survey of the migration of skilled labor to the United States, this work used the American Community Survey, ACS, particularly the module referred to 2005-2007.⁵ Working with this module has the enormous advantage of helping to analyze groups of migrants from small countries, such as some Caribbean and Central American nations.

Based on the results of this survey, in the three-year 2005-2007 period, the stock of highly skilled migrants of 25 years of age and older, born in Latin America and the Caribbean and residents of the United States, went up to 4,143,063 people, including 52% of women. This universe of skilled labor is composed of migrants with 13 or more years of education, which is the standard used by Docquier, Lowell and Marfouk (2008) to identify highly skilled migrants. However, in this section of the paper, the general characteristics of skilled migrants with a university diploma will be pondered. This population accounts for 43.1% of the group of migrants with 13 or more years of education, more specifically, with some gainful employment. According to the ACS, this population increased to 1,192,746 people (See Table 4). The purpose of focusing on people with a gainful employment (or wage earners) is to compare the proficiency level of immigrants with the kind of work exercised by them. This issue will be thoroughly analyzed in the following sections.

⁴ During the 1990s, the stock of skilled migrants, residing in OECD countries climbed 64%; however, the increasing number of migrants from less developed countries was significantly higher than the average, 93% (Docquier, Lohest and Marfouk, 2007).

⁵ The 2005-2007 ACS three-year estimates are based on data collected between January 2005 and December 2007: i) Published for selected geographic areas with populations of 20,000 or greater, ii) Represent the average characteristics over the 3-year period of time, iii) Have larger sample size than the one-year estimates, and iv) Are less current than the one-year estimates. http://factfinder.census.gov/jsp/saff/SAFFInfo.jsp?_content=acs_guidance.html

Table 4
Stock of highly skilled migrants 25 years or older, born in Latin America and the Caribbean,
residing in the United States, by academic level and job category, according to gender, 2005 – 2007

Category	Total	%	Men	%	Women	%
Migrants 15 years of age and older, 13 or more years of education	4.143.063	100,0	2.003.704	100,0	2.139.359	100,0
Technicians: 1 to 3 years of education	2.359.232	56,9	1.135.434	56,7	1.223.798	57,2
With university studies	1.783.831	43,1	868.270	43,3	915.561	42,8
Inactive	370.990	20,8	113.668	13,1	257.322	28,1
Unemployed	55.437	3,1	25.513	2,9	29.924	3,3
Employed	1.357.404	76,1	729.089	84,0	628.315	68,6
Armed Forces	3.228	0,2	2.729	0,4	499	0,1
Self-employed	161.430	11,9	101.039	13,9	60.391	9,6
Wage-earning	1.192.746	87,9	625.321	85,8	567.425	90,3

Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

Three criteria have been taken into account in the analysis of the group of skilled migrants with gainful employment (bachelor's degree, master's degree or Ph D); ii) country where they attended and completed university studies, either the United States or outside the United States, presumably their country of origin, and iii) qualification level of the position held, that is, high qualification, technical qualification or unskilled. Table 5 breaks down these three categories for the group of migrants with a gainful employment, a university diploma, 25 years of age or older, born in LAC and residents of the United States.

Table 5
Stock of wage-earning migrants with university degree, 25 years or older, born
in Latin America and the Caribbean, residing in the United States, according to academic level,
country of studies and level of labor qualification, according to gender, 2005 – 2007

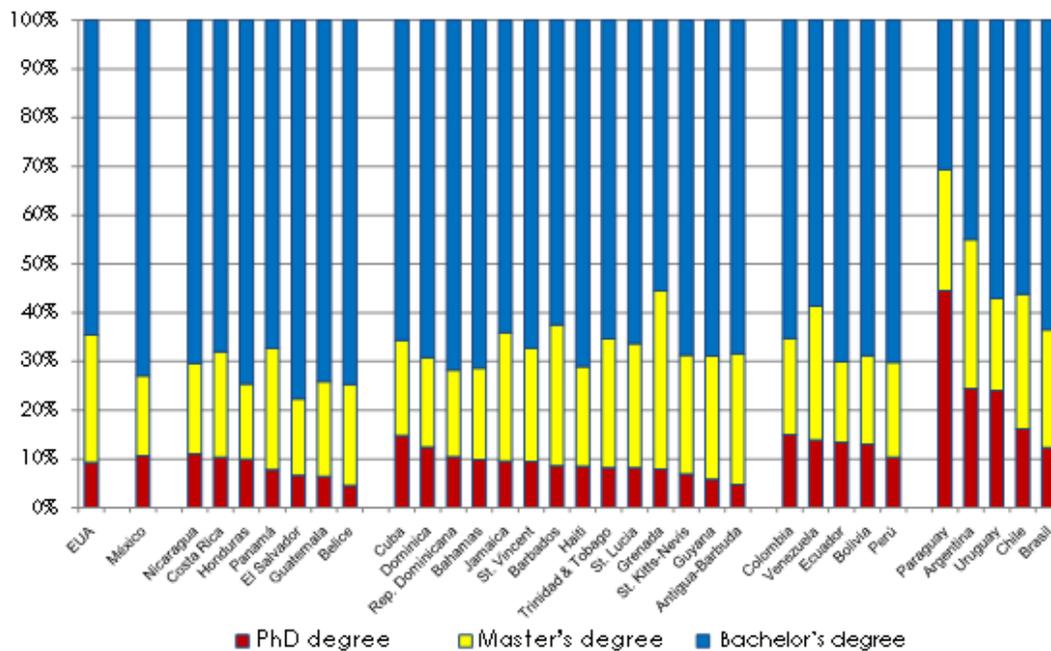
Category	Total	%	Men	%	Women	%
Population of wage-earning migrants	1,192,746	100.0	625,321	100.0	567,425	100.0
Level of studies						
Bachelor's degree	812,965	68.2	423,674	67.8	389,291	68.6
Master's degree	243,375	20.4	123,636	19.8	119,739	21.1
PhD and professional studies	136,406	11.4	78,011	12.5	58,395	10.3
Country of studies						
Studies in the United States	647,199	54.3	322,938	51.6	324,261	57.1
Studies in country of origin, with more than ten years in the United States	234,707	19.7	124,063	19.8	110,644	19.5
Studies in country of origin, with less than ten years in the United States	310,840	26.1	178,320	28.5	132,520	23.4
Level of qualification of the job						
High-level qualification	508,658	42.6	258,795	41.4	249,863	44.0
Technical qualification	317,988	26.7	176,718	28.3	141,270	24.9
No qualification	366,100	30.7	189,808	30.4	176,292	31.1

Source: Prepared by the authors based on the American Community Survey 3-year estimates, 2005-2007.

a) Academic level of migrants with a university degree

Table 5 shows that out of the total number of skilled migrants from LAC with a gainful employment, 68.2% have a Bachelor's degree; 20.4% have a Master's degree and 11.4% have a PhD. A comparison of this structure per study level of migrants from Latin America and the Caribbean with the structure of the people born in the United States, and also with the structure of migrants from other regions in the world, found some interesting trends: i) More skilled migrants born outside the United States have a PhD compared with U.S. citizens. That is, while 9.3% of the skilled people born in the United States have a PhD, such a percentage reaches 18.6% among Europeans; 16.3% for Africans; 15.5% for Asians, and 11.4% for those born in LAC. Such numbers display a highly selective U.S. labor market, as it attracts such skilled labor. ii) Lower percentage of migrants with a bachelor's degree compared with their U.S. counterparts, with the only exception of the migrants born in LAC. About 64.6% of the skilled labor born in the United States holds a bachelor's degree, versus 50.7% of Europeans, 58.6% of Africans, 55.9% of Asians and 68.2% of the people born in ALC. Table C also shows the structure of the study level in each ALC country. Interestingly, the percentage rate of migrants with a PhD, who come from a large number of Latin American and Caribbean countries, namely: Nicaragua, Costa Rica, Honduras, Cuba, the Dominican Republic, Jamaica, Bahamas, Dominica and St. Vincent, is higher than the percentage rate of people with a PhD born in the United States. As for the Andean region and South America, all the countries with no exception exceed 10% of skilled migrants with a PhD. Note the cases of Colombia with 15%, Chile with 16.2 %, Uruguay 24.1%, Argentina 24.5%, and Paraguay with 44.6% (See Chart 2).

Chart 2
Wage-earning migrants residing in the United States, 25 years or older,
by country of origin in LAC, according to academic level, 2005-2007
(Percentage distribution)



Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

b) The country of training of qualified human resources: Origin or destination?

The notion of the loss of qualified human resources is specifically based on two currents: on the one hand, the net loss of personnel with high academic levels and the consequences of the non-availability of a scientific and professional elite that would foster national productive development, and on the other hand, economic losses since the country of origin has invested in the training of said human resources.

This implies that in the case of training abroad, the costs could possibly be lower for the country of origin since they are assumed privately (Martínez Pizarro, 2006), whether individually or through agencies offering scholarships or funding. Is it feasible to suppose that a good part of the education of those who are trained in their country of origin is financed through public resources and those who receive education abroad do so backed by private funding? It is more probable that there is greater public commitment and involvement in the first case. This being the case, qualified migration, understood as brain drain, is an investment with no returns for the society which invested in its training, which, in turn, could impose considerable economic burdens on it (Özden, 2005).

Nevertheless, apart from the financial responsibility, there are other aspects which may be of importance in the consideration of the costs made by the country in which the professional training and/or studies was conducted. It is probable that in many cases, training abroad is motivated through the existence of restrictions in the education systems of the country of origin, making it impossible for migrants to obtain that specific education if they remained there (Özden, 2005).

The definition of the place of training and its implications for the country of origin is not a matter that can be solved easily. However, and as a first general conclusion, it is understandable that, at least in principle, and not only due to the fact of having trained in the country, the latter has invested resources (particularly in the case of public education systems) that are not being taken advantage of by the country that invested in them. To what extent have qualified LAC immigrants in the United States been trained in their countries of origin? According to the data, 46% of those born in LAC, residing in the United States (2005-2007) acquired their professional education in their countries of origin. In other words, a little more than half were trained in the place they came from. So that, following the argument surrounding the investment made by the countries of origin, the critical problem of “brain drains” would revolve around those who trained in their countries of origin.

In the case of the population of qualified immigrants studying in or outside the United States, there are significant differences among subregions and countries in Latin America and the Caribbean that must be pointed out. The two regions with the highest levels of education in their qualified immigrants in the United States are the Caribbean, at 62%, and Central America at 61%. In the case of eight out of every 15 countries in the Caribbean, more than two thirds of their migrants received professional training in the United States. In the case of the Central American region, the case of Belize stands out since 78% of its qualified migrants were trained in the United States.

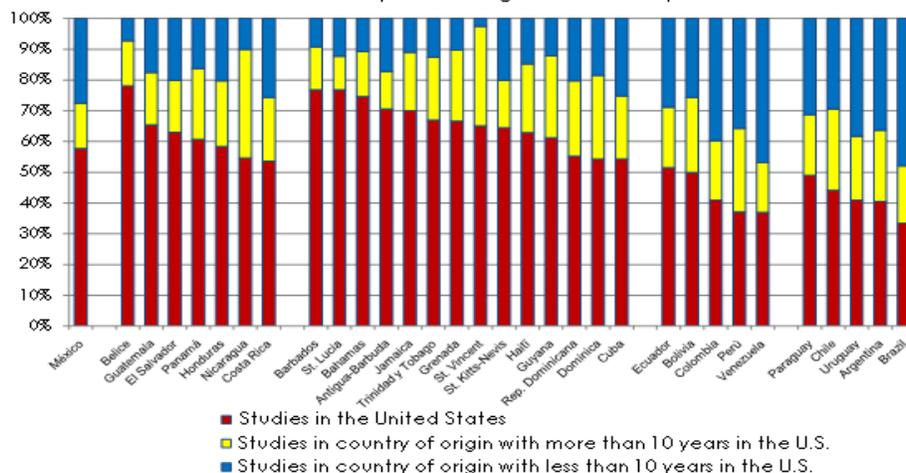
In contrast with what takes place in the described regions, in the case of the Andean region and South American countries, a significantly lower percentage acquires their professional training in the United States. The case of Brazil, the country with the lowest percentage of qualified immigrants trained in the United States, stands out; and therefore, the majority of professionals (66%) studied their university careers presumably in Brazil, and later migrated to the United States (See Chart 3).

c) Brain waste in Latin America and the Caribbean

One manner in which to delve deeper in the analysis of qualified migration and its manifestations is based on the performance of the migrants in the receiving labor market, particularly in the assessment of the type of jobs they work in. In this manner, it is feasible to evaluate the use the migrants make of their skills and educations levels in the country of destination vis-à-vis the manner in which these were not taken advantage of in their country of origin.

The waste of talents or “brain waste” is a concept which refers to not taking advantage of the skills or education levels. It occurs when individuals work in occupations whose qualification requirements are below their education levels (Mattoo, Neagu & Özden, 2005; Özden, 2005). This lack of correspondence is a form of sub-employment, defined by situations the “persons whose job levels in terms of schedules or productivity at work is well below their capabilities and preferences” are found in (ILO, 1998).⁶

Chart 3
Wage-earning migrants residing in the United States, 25 years or older, by country of origin in LAC, according to country of university studies, 2005-2007 (Percentage distribution)



Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

⁶ Unemployment exists when the persons employed have not attained full employment. Not achieving it is related to the reduction in available labor and/or the insufficient creation of jobs in relation to specific occupations so, in order not to find oneself in a situation of unemployment, the persons are forced to accept jobs with reduced time schedules, lower qualification levels or in economic units with lower levels of productivity, conditions which foster the payment of salaries well below those which they could obtain under other circumstances (ILO, 1998).

However, one initial manifestation of brain waste is expressed in the manner in which qualified immigrants participate in the labor market in the country of destination. Table 6 presents the activity status (employed, unemployed and inactive) of qualified migrants living in the United States, based on the region or country of birth. At the aggregate level (regions), all qualified immigrants present unemployment rates that are higher than the natives of the United States (2 %), at 4 % for people originally from Africa and 3.1 % for Latin American and Caribbean people.

Table 6
Stock of migrants 25 years or older, residing in the United States, with university degree,
by status of activity, according to region and country of origin, 2005 - 2007

Region and country of origin	Total	EAP		EIP	Total	EAP		EIP
		Employed	Unemployed			Employed	Unemployed	
Total	52.884.883	39.462.141	1.114.764	12.307.978	100,0	74,6	2,1	23,3
Natives	44.719.483	33.510.601	892.463	10.316.419	100,0	74,9	2,0	23,1
Europe	1.902.252	1.324.208	43.401	534.643	100,0	69,6	2,3	28,1
Africa	434.680	343.575	17.191	73.914	100,0	79,0	4,0	17,0
Asia	4.022.539	2.908.985	105.953	1.007.601	100,0	72,3	2,6	25,0
Latin America and the Caribbean	1.772.509	1.348.704	55.089	368.716	100,0	76,1	3,1	20,8
Mexico	441.054	328.261	15.420	97.373	100,0	74,4	3,5	22,1
Central America	214.811	167.700	6.439	40.672	100,0	78,1	3,0	18,9
Belize	6.405	5.298	176	931	100,0	82,7	2,7	14,5
Costa Rica	15.317	11.748	357	3.212	100,0	76,7	2,3	21,0
El Salvador	61.005	50.129	1.644	9.232	100,0	82,2	2,7	15,1
Guatemala	40.106	30.959	1.387	7.760	100,0	77,2	3,5	19,3
Honduras	32.155	24.017	1.436	6.702	100,0	74,7	4,5	20,8
Nicaragua	34.470	26.304	799	7.367	100,0	76,3	2,3	21,4
Panama	25.353	19.245	640	5.468	100,0	75,9	2,5	21,6
Caribbean	572.247	438.247	16.895	117.105	100,0	76,6	3,0	20,5
Antigua and Barbuda	3.465	3.058	-	407	100,0	88,3	0,0	11,7
Bahamas	6.711	5.770	241	700	100,0	86,0	3,6	10,4
Barbados	9.998	7.502	283	2.213	100,0	75,0	2,8	22,1
Cuba	186.347	130.070	3.761	52.516	100,0	69,8	2,0	28,2
Dominica	5.092	3.762	228	1.102	100,0	73,9	4,5	21,6
Dominican Republic	79.539	62.241	3.023	14.275	100,0	78,3	3,8	17,9
Grenada	5.156	3.746	277	1.133	100,0	72,7	5,4	22,0
Guyana	42.878	33.943	1.043	7.892	100,0	79,2	2,4	18,4
Haiti	72.824	58.673	2.674	11.477	100,0	80,6	3,7	15,8
Jamaica	108.409	88.860	3.386	16.163	100,0	82,0	3,1	14,9
St. Kitts and Nevis	2.784	2.374	132	278	100,0	85,3	4,7	10,0
St Lucia	2.620	2.295	77	248	100,0	87,6	2,9	9,5
St. Vincent & the Grenadines	3.718	2.623	223	872	100,0	70,5	6,0	23,5
Trinidad and Tobago	42.706	33.330	1.547	7.829	100,0	78,0	3,6	18,3
Andean countries	372.933	285.592	12.707	74.634	100,0	76,6	3,4	20,0
Bolivia	18.794	14.951	635	3.208	100,0	79,6	3,4	17,1
Colombia	151.171	115.045	4.743	31.383	100,0	76,1	3,1	20,8
Ecuador	50.811	39.506	1.869	9.436	100,0	77,8	3,7	18,6
Peru	94.208	73.696	3.103	17.409	100,0	78,2	3,3	18,5
Venezuela	57.949	42.394	2.357	13.198	100,0	73,2	4,1	22,8
South America	171.464	128.904	3.628	38.932	100,0	75,2	2,1	22,7
Argentina	53.621	40.002	1.133	12.486	100,0	74,6	2,1	23,3
Brazil	81.202	62.286	1.509	17.407	100,0	76,7	1,9	21,4
Chile	25.705	18.773	742	6.190	100,0	73,0	2,9	24,1
Paraguay	2.563	1.732	123	708	100,0	67,6	4,8	27,6
Uruguay	8.373	6.111	121	2.141	100,0	73,0	1,4	25,6

Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

In Latin America and the Caribbean unemployment rates are higher than average in more than half the qualified immigrants originally from Caribbean countries (St. Vincent and the Grenadines 6%; Grenada 5.4%; St. Kitts and Nevis 4.7%; Dominica 4.5%; the Dominican Republic 3.8%; Barbados, 3.6%; and Haiti 3.7%). Qualified immigrants from the Andean countries, except for Colombia whose migrants have an unemployment rate equal to the mean in LAC, show higher levels (between 3 and 4%). In the rest of the sub-regions, those coming from Mexico also show higher than average rates (3.5%), those coming from Central America and South America show lower levels (in the first case those from Guatemala and Honduras stand out at 3.5 and 4.5% and, in the second case, those from Paraguay at 4.8%). To sum up, the unemployment rate is greater for an ample portion of Latin American and Caribbean immigrants, in some cases reaching double and triple the indicator corresponding to the original population (the natives).

Inactivity levels can also be an expression of talent waste since it could be an involuntary or surreptitious mode of unemployment. In this situation, even those individuals that are not included in the labor market (the economically inactive population), this could be a manifestation of brain waste. Although migrants from the LAC region as a whole show lower inactive levels than the natives – albeit generally similar – some persons coming from specific countries (Cuba and the majority of South Americans) show higher inactivity rates. Without delving deeper for the time being in this aspect, it is worthwhile to bear in the mind the paradox that the migrant population exhibits inactivity levels that are similar to those of the native population.

The impossibility to access a job is an expression of wasting the training received, but the deficit insertion in the labor market is a much more serious manifestation of this phenomenon. Table 7 considers the birthplace of immigrants (by subregion) as well as the time of arrival to the United States as a proxy variable of the site in which the immigrant acquired their university education⁷ so as to analyze the degree of correspondence between the qualified occupation and the academic levels acquired by the natives as well as the immigrants, taking into account a classification of occupations in three categories: not qualified, technical and highly qualified.⁸ Based on the construction of these categories, a proper concordance for the population analyzed (persons with university degrees or higher) occurs when they are inserted in highly qualified occupations, whereas labor insertions in occupations of another nature (technical or non-qualified) signify a clear waste of their training.

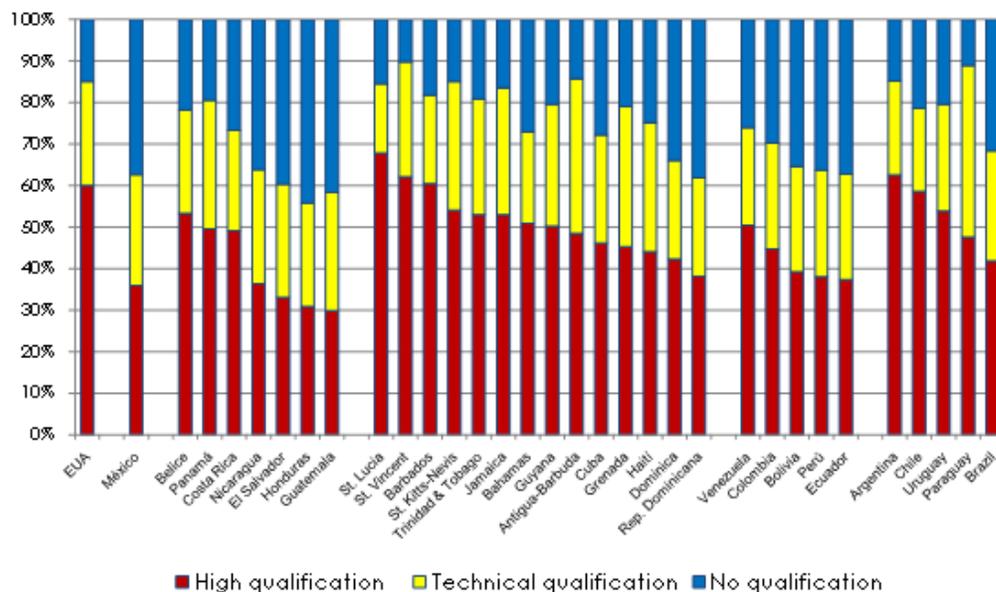
Table 7 supplies a vast quantity of information of interest. The analytic strategy employed examines labor insertion of immigrants in relation to that of natives. The critical problem, according to the argument exposed, is expressed in those who were trained in their countries of origin. Attention is focused on them and especially on the expressions of education being wasted.

⁷ This section follows the methodology by Batalova & Fix (2008) and replicates the procedure proposed by the authors for the analysis of training waste.

⁸ The three occupation categories used are defined as follows: 1. Non-qualified occupations: require a modest training in the job post; 2. Technical occupations: workers with long-term training in the job post, vocational training or associate degree; 3. Highly qualified occupations: require at least a B.A. or B.Sc. degree.

Qualified immigrants in the United States from all the LAC subregions tend to be in higher proportions in unqualified labor compared to the native population. At the aggregate level not differentiating per level of education, 6 out of every 10 natives are in an occupation in accordance with their training.

Chart 4
Wage-earning migrants residing in the United States, 25 years or older, by country of origin in LAC, according to job classification, 2005-2007 (Percentage distribution)



Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

In the analysis of the data shown in Table 7, it should be noted that in the group of most recent of immigrants (with less than 10 years in the United States), only 3 of every 10 professionals are working in occupations that are in accordance with their training. For the group of those with more than 10 years in the United States, the conditions are better although the differences are not significant. With the exception of the South Americans, who are considerably better off than the rest of the immigrants of the region, those with the best conditions associated to the time of residency are qualified immigrants from the Andean countries. Therefore, the time of arrival constitutes an influencing factor in better possibilities of an adequate insertion in the labor market, a process associated to opportunities for improvement in the occupation stratification, the generation of networks, the better handling of the language, the acquisition of work skills and experience, among other factors. However, the conditions are not the same for every education level.

Immigrants with a bachelor degree are at a greater disadvantage. Whereas half of the native population with this level of education manages to be inserted in accordance with their training, only 17% of Central American persons with less than 10 years in the destination country achieve said insertion, a proportion which is about a quarter for the immigrants from the remaining regions. In other words, the majority of these immigrants show a level of education waste of around 70% to 84 %.

Table 7

Wage-earning workers 25 years or older with university degree, by academic level and type of qualification of job, according to subregion of origin in LAC and country of studies, 2005 – 2007

Academic level by type of occupational qualification	Natives	Total born in LAC	Studies outside the U.S.														
			Immigrants with less than 10 years in the U.S.					Immigrants with less than 10 years in the U.S.									
			Mexico	Central America	Carib. countries	Andean countries	Rest of South America	Mexico	Central America	Carib. countries	Andean countries	Rest of South America					
University level (total)	29,078,505	1,192,746	80,287	26,140	67,249	92,161	45,003	43,531	31,235	84,007	52,195	23,739	168,807	90,207	244,046	101,716	42,423
Number of employed																	
Occupational distribution																	
% in High Qualification	60.0	42.6	29.6	23.8	29.9	33.9	44.4	29.5	31.4	39.5	40.3	60.8	40.6	41.6	55.5	51.3	52.7
% in Technical Qualification	25.1	26.7	25.3	25.5	29.0	22.7	25.2	27.4	25.8	31.5	26.3	18.5	27.2	28.4	26.2	27.2	27.6
% in No Qualification	14.9	30.7	45.1	50.7	41.1	43.4	30.4	43.1	42.8	29.1	33.4	20.7	32.2	30.0	18.3	21.5	19.8
Bachelor's degree level																	
Number of employed	18,774,011	812,965	54,422	18,349	47,653	56,757	25,701	28,796	22,684	53,091	33,070	10,924	130,183	67,531	164,071	73,615	26,118
Occupational distribution																	
% in High Qualification	50.3	34.4	23.7	16.5	24.0	25.7	29.9	22.0	24.0	29.9	28.7	42.2	34.6	35.2	46.2	43.3	43.9
% in Technical Qualification	30.3	29.5	26.4	25.1	31.0	25.2	27.9	30.0	26.0	35.4	28.1	22.3	29.2	31.6	30.3	30.6	31.2
% in No Qualification	19.4	36.1	49.9	58.4	44.9	49.2	42.2	47.9	50.0	34.7	43.2	35.5	36.2	33.2	23.5	26.1	25.0
Master's degree level																	
Number of employed	7,611,767	243,375	14,467	4,818	10,733	19,058	12,145	7,066	4,799	19,376	10,791	6,418	26,436	17,549	58,864	20,083	10,772
Occupational distribution																	
% in High Qualification	75.3	62.1	47.9	43.5	49.0	51.3	62.9	47.1	48.3	55.5	61.6	72.7	65.0	63.0	72.2	72.1	61.1
% in Technical Qualification	17.1	21.4	23.6	25.2	20.7	21.9	22.9	26.9	31.9	25.6	21.5	18.6	20.3	18.9	19.2	18.4	23.8
% in No Qualification	7.6	16.5	28.4	31.3	30.3	26.7	14.2	26.0	19.8	18.9	16.9	8.7	14.6	18.1	8.6	9.4	15.1
PhD / Professional level																	
Number of employed	2,692,727	136,406	11,398	2,973	8,863	16,346	7,157	7,669	3,752	11,540	8,334	6,397	12,188	5,127	21,111	8,018	5,533
Occupational distribution																	
% in High Qualification	84.4	57.2	34.5	36.5	38.1	42.1	64.9	41.3	54.5	56.6	58.5	80.6	51.4	53.6	81.1	73.1	77.8
% in Technical Qualification	11.4	19.1	22.2	28.8	28.3	15.2	19.4	18.0	16.7	23.2	25.7	11.9	20.6	18.1	13.8	17.7	17.9
% in No Qualification	4.2	23.7	43.3	34.7	33.5	42.7	15.6	40.7	28.8	20.2	15.8	7.5	28.0	28.3	5.1	9.2	4.4

Source: Prepared by the author based on the American Community Survey 3-year estimates, 2005-2007.

At the master's degree level, the conditions improve considerably. Whereas one-fourth of them still remain at lower occupation levels, the waste levels in the insertion into the labor market of immigrants with less than 10 years in the United States are around 37% and 57%. At both training levels, the situation of those who have been residents for longer is better but the differences are not substantial. The cases of Mexico and Central America are the most serious.

Unlike the foregoing, those with PhDs achieve a comparatively better insertion and the time of residency has an effect on their probabilities of attaining labor positions in accordance with their education levels. So, as the education level is higher, the probabilities of insertion in qualified occupations are higher – although in any case the proportions are similar but are never the same as for the native population.

Finally, it is worthwhile mentioning the role of the place in which the studies were conducted. Whereas the training waste of the native population is around 40% for the total salaried workers with PhDs or higher degrees, among the immigrants with studies in the United States, the waste rate is around 59% and 47 % which, comparatively speaking, places them in a more advantageous situation with respect to those who trained in their countries of origin. In certain regions, the situation is more beneficial. Caribbean citizens with masters or PhDs from colleges in the United States get placed much better than their peers trained in their countries of origin, a situation which is also appreciated in the case of those immigrants coming from Andean countries.

One question which exceeds the scope of this paper is related to the manner in which the type of professional training acquired outside the United States influences their incorporation in the U.S. labor market. A great part of this could be explained by the characteristics of the countries of origin which have repercussions on the quality of the human capital, such as expenditures in tertiary education, the quality of the education system, the management of the English language and its use in the training systems, the similarities in the training systems of the countries of origin and destination, the openness of migration policies, among other possible variables that could explain this (Özden 2005; Batalowa & Fix, 2008).

Thus, taking up once again the discussion lines with respect to the place of training, apart from the damage that brain drain generates through the loss of qualified human resources trained in the country of origin, the waste level in the country of destination is higher. This could signify an even greater increase in the level of loss or, in other terms, the diminished chance of it being compensated by way of sundry mechanisms (remittances, the transmission of knowledge, investments, etc.).

In short, the patterns identified with respect to training waste in the destiny of the immigrants from the Latin American and Caribbean region are the following:

- Qualified immigrants from all the LAC countries tend to be at higher proportions in unqualified jobs compared to the native populations.
- The pattern of disadvantage of qualified LAC immigrants in the United States compared to the natives is appreciated at all training levels. Nevertheless, as the education level is higher, the possibility of insertion in qualified occupations also increases. The proportions are similar but never reach the former.

- The arrival time is a factor influencing the greater changes of work insertion in correspondence with the professional level, especially for those with equivalent PhD or professional levels.
- Important subregional differences are evident. Immigrants with a college education in Mexico and other countries in Central America have poorer performances, in comparison not only to the natives, but also immigrants originating from other sub-regions. To the contrary, those coming from South America find themselves in more beneficial labor conditions.
- Those training in their countries of destiny are at an advantage with respect to their conational peers attaining their professional training in the country of origin. Caribbean and Andean natives obtain the fullest advantage with the acquisition of knowledge abroad.

In considering the immigrants originally from LAC that are without a job and those inserted in the labor market but in occupations that do not correspond to their education level, the total waste level is 60.9%. Thus, almost two-thirds of qualified immigrants from LAC residing in the United States are in positions in the labor market that do not allow them to make full use of their skills. The training waste accentuates a paradoxical situation with respect to qualified migration: whereas the countries of origin lose these human resources, the economies receiving them do not manage to take proper advantage of them (Riaño, 2003). In turn, although the immigrants can derive higher economic benefits than those they could obtain in their country of origin (Solimano, 2008),⁹ they are hindered by adverse effects such as non-actualization and the gain of knowledge and skills, the absence of work experience in their fields, the generation of truncated or interrupted careers and the subsequent difficulty in returning to their specific scope of competence among many other aspects. In this regard, training waste brings about returns that are not taken advantage of, not only for the migrants and their families, but also for society as a whole (Batalova and Fix, 2008).

The new perspective on the brain gain requires delving deeper in the incorporation of the labor dimension into the analysis and particularly by examining the manner in which the immigrants manage to be inserted in the labor market of the country of destination. If this action is deficient (expressed in the varieties of waste in this labor force: unemployment levels, involuntary inactivity or sub-employment) feedback effects can hardly emanate that could bring about benefits for the societies of origin. Training waste then further deepens the losses associated to unqualified migration and undermines the possibilities of the beneficial effects associated to the returns and/or the link to the Diaspora (ECLAC, 2006).

This waste is not exclusive to the labor markets of the countries of destination. To the contrary, waste situations in the country of origin (oftentimes associated to the phenomenon of the devaluation of education credentials) are very frequent and on occasions are even proposed as causes for emigration of these human resources.

⁹ A different situation can be seen by comparing the salary income obtained by migrants with that of natives. An initial assessment indicates that salaries for Latin American migrants, even for those who have resided in the country for more than 10 years, are well below those of the native population with the same academic levels (ACS, 2005-2007).

A possible explanation in this regard refers to the hypothesis of over-offering and/or sub-utilization of qualified human resources. One argument which has been discussed is if one of the bases for regional qualified migration is the alleged “surplus offer” of professionals and academicians with respect to the absorption capacity of these resources by domestic markets, which would unleash salary drops and the subsequent increase in the propensity to migrate. This problem is also usually referred to as *sub-utilization*, underscoring the labor market’s incapacity to absorb qualified human resources. Both views coincide in that the subject arose from the expansion of the education systems in the region towards the middle of the twentieth century, coupled with important economic growth and the transformation of the production structure.

Although the inability of the Latin American and Caribbean labor markets to absorb the professionals graduating from superior education institutes has been recognized, it is also stated that there is a lag between the domestic supply and demand for professionals. Pellegrino (2000) has examined the opinions in pro of the surplus offer criterion and pointed out that the evidence found goes in opposing directions so he suggests that this hypothesis must be ruled out and rather the particular factors in each issuing country must be studied, as well as certain specific historic situations.

Other associated explanations reinforce the arguments on the lack of consonance among the academic offer and the evolution of the labor market. The most novel education offers are launched in the market based on the students’ demands and not on the requirements of the labor market. The region’s education systems result in graduates with a *profile that is uncannily similar and generalized*, therefore generating the surplus offer in low-investment careers, the traditional type of careers for which demand is already saturated (Rama, 2002).

Finally it would be worth the while to add that these training waste situations not only exist prior to emigration but can also take place at a later date. In the case of the scientists and academicians, the ill use or misuse of resources can take place when the immigrants return to their country after receiving education abroad and come back to be inserted in activities that are not related to their academic careers. (Tejada & Bolay, 2005).

V. CONCLUSIONS

Following the analysis of the major current trends in the migration of qualified human resources from Latin American and Caribbean countries, the conclusions are listed as follows:

1. Worldwide, in 1990-2007, the number of qualified migrants in the member countries of the Organization for Economic Cooperation and Development (OECD) soared 111 percent, from 12.5 million people to 25.9 million people. This means that the group of qualified migrants, both in absolute and relative terms, increased more than medium- skilled and low-skilled migration.
2. A gender comparison of the migration flow based on the education level shows a significant increase of the female migrants in the group of skilled migrants. While the highly skilled male migration climbed 98 percent in the same period, from 6.5 million people to 12.9 million people, the highly skilled female migration grew 127 percent, from 5.7 million people to 13 million people.

3. Latin America and the Caribbean was the region in the world that recorded the highest relative growth of skilled migration to OECD countries. During the period 1990-2007, the number increased by 155 percent, from 1.9 million people to 4.9 million people.

4. Out of the estimated 4.9 million skilled migrants in 2007 (from Latin America and the Caribbean and migrating to OECD countries), 4.1 million people migrated to the United States, which represents 84.3 percent of the total number of Latin American and Caribbean skilled migrants.

5. One of the characteristic features of the skilled migration in Latin America and the Caribbean is the outflow of skilled labor from small countries, where the migration rates among skilled labor is much higher than in more populated countries and where emigration from low-income countries and/or countries with a poorly diversified production apparatus. The Caribbean stands out considerably from the rest. Over 60 percent of the skilled labor from 12 Caribbean countries is living abroad, while some 80-90 percent of the skilled labor from other five Caribbean countries is abroad. In Central America, approximately one fourth to one third of the skilled labor is abroad, with the ratio being as high as 66 percent in Belize.

6. One of the most outstanding findings of this survey is the evidence of brain waste (or waste of education) among Latin American and Caribbean skilled labor living in the United States. Such waste of education arises when individuals take jobs below their education level. The study found that highly skilled migrants from LAC show a higher trend to take unskilled jobs than those born in the U.S.

7. Significant subregional differences were detected, however. Immigrants in the U.S. who have completed university studies in Mexico and in certain countries in Central America underperform not only relative to U.S. citizens but also compared to migrants from other subregions. On the contrary, migrants coming from South America are in more favorable labor conditions.

8. Migrants trained in their destinations have an advantage over their fellow citizens who completed professional studies in their countries of origin. Caribbean and Andean migrants are the ones who best cash in on an education in their countries of origin.

9. In the 1970s and 1980s, most people advocated the idea of retaining and even encouraging the return of skilled migrants. Now, however, some consensus has been reached as to the need to implement government programs and policies intended to lower migration costs and maximize migration benefits, while trying to place skilled migrants as a driving force for development. However, as the waste of talents prevails in destination societies, any feedback beneficial for the societies of origin will be hard to attain. In short, the waste of education worsens the losses related to skilled migration and undermines potential benefits associated with the return of migrants and/or linking with the Diaspora of qualified human resources.

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