

Trends in International migration: is there a feminization of migration flows?

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1. INTRODUCTION

Despite the increasing interest and importance of international migration, data and research is surprisingly gender-blind. Recent literature reviews in sociology and economics show how research in migration usually ignores gender in their analysis, even though evidence suggests that the migration processes differs for men and women (Curran, Shafer *et al.* 2006; Pfeiffer, Richter *et al.* 2006). Likewise, efforts to collect and report data on migration by countries and international institutions usually do so without sex desegregation (IOM 2003; UNDP 2004). Yet the proportion of migrants who are women is not insignificant. The *UN Trends in Total Migrant Stock 2005 Revision* estimates that in 2005, about 3% of the world's population was an international migrant, of which almost half were women.

The purpose of this paper is to address the gender gap in research on migration by examining how international migration flows have changed over time for males and females, and how the major factors to migrate differ for men and women at the macro level. This will be done by examining census data and immigration records to see whether there is a trend towards a more female-dominated international migration flow and how male and female migration responds to economic incentives and network size, Data will be drawn from Australia, Canada, Germany, Denmark, Italy, Netherlands, Norway, Spain, Sweden, United Kingdom, and United States. Given the data of the United Nations, it can be concluded that there has not been much of a global feminization of migration flows; however, certain countries and regions have experienced different trends in this respect at different points in time. In general, flows from Africa, South Asia and the Middle East tend to be more male-dominated, while flows from East Asia and

Pacific, Europe and Central Asia, and Latin America and Caribbean tend to be more female-dominated. However, the intensity and stability of those flows depends on the destination country and the period being examined. The paper also looks at how economic and network factors influence the propensity to migrate for males and females using a model that allows examination of the long-term equilibrium as well as short-term effects on this propensity. The results vary for men and women, and for the United States and Australia, in which economic incentives and network and size of the migrant stock living in the destination country has different effects by sex on the propensity to migrate.

The paper is divided into six sections. The second section builds a theoretical framework to understand gender differences in migration at the macro level. The third section discusses the data used in this paper; the fourth section describes the findings for each country; a fifth estimates an econometric model of the sex-disaggregated determinants of migration, and the sixth section concludes.

2. THEORETICAL APPROACH TO GENDER DIFFERENCES IN MIGRATION

Although theories on migration are multiplying in sociology and economics, there has been almost no attempt to explain or model gender differences in migration in either field. Literature reviews in economics, sociology and demographics shows that there are important variations in the motivations and mechanism used by men and women to migrate. Curran et al. (2006), and Pfeiffer et al.(2006) show compelling arguments as well as evidence for creating separate models for male and female migration. Yet, the current literature generally uses models intended for generic individuals or male migrants to understand the behavior of all migrants.

Although specifying a migration model that takes into account gender is beyond the scope of this paper, I will highlight some implications that are important to understand female migration from a macro perspective from a highly selective set of models.¹ In particular, I will discuss the neoclassical model, the Harris-Todaro model, and endogenous migration models.

The neoclassical model of migration was probably the first used to understand labor migration. These models coined the pull and push factors as the forces that drive migration. In the two-sector model, labor migration operates to equate real wages in the two sectors. Pull factors increase the value of the marginal revenue product of labor of the host country, and push factors decrease the value of the marginal revenue product of labor in the origin country. A classic example of this model was used to explain migration in India where distance was a greater deterrent for rural-urban migration than for urban-urban migration (Greenwood 1971). These models explain the migration decision as a simple comparison of wages and migration costs. However, they cannot explain persistent migration in the face of unemployment.

The seminal model developed by Todaro (1969) and Harris and Todaro (1970), initially developed to explain urban migration in developing countries, has been the starting point for understanding international migration.² The basic idea is that migration responds to positive gains in expected income and not in wage differentials as in the neoclassical models. Hence, migration is a function of relative wages and the probability of obtaining a job. This implies that migration flows will stop once the expected wage in

¹ For excellent literature reviews on migration and gender from different fields please see (Barkan 2006; Calavita 2006; Curran, Shafer et al. 2006; Donato, Gabaccia et al. 2006; Mahler and Pessar 2006; Manalansan 2006; Piper 2006; Sanchez 2006; Silvey 2006; Sinke 2006; Suarez-Orozco and Qin 2006) (Curran, Shafer et al. 2006; Pfeiffer, Richter et al. 2006)

² For a comprehensive review on urbanization please see (Becker and Morrison 1999).

the destination country is less than the wage in the country of origin, not before incurring in an increase of unemployment in the host country.

Although researchers have hypothesized that wages, migration costs, and returns to education—the key elements of neoclassical and Harris-Todaro models—are almost certainly different for men than for women, they can only explain a migration that it is economically driven. This can be an advantage when the interest is in determining if female migration flows have become more economically motivated over time (i.e., if changes in migration stock respond positively to the level and changes in income differentials). However, these models are limiting in that they do not provide insights as to why people tend to migrate in increasing numbers to certain countries, despite there being better opportunities in others, for they ignore non-economic motivations to migrate (e.g., reuniting with family or friends).

The endogenous models of migration can incorporate the effect of networks within the optimization process. In these models, previous migration flows increase the probabilities of finding a job and reduce migration costs to present and future migration flows. For example, Carrington et al. (1996) analyze the increase of south-north migration, despite a decreasing income differential within the United States during the Great Migration. They use a dynamic endogenous model in which the stock of migrants is one of the factors reducing the costs of migration. Besides its effect in reducing the cost of migration, an increasing stock of migrants also presents a disutility to the person who stays behind by reducing the size of her network. A person can choose to stay in their current job and be lonely, or to migrate and risk unemployment but reunite with their family and friends (Spilimbergo and Ubeda 2004). Therefore, in this model

migration can also be a consequence of trying to keep the same level of utility by following family and friends. Evidence from the migration from Mexico to the United States has shown that men and women use networks differently and that networks may be sex-specific. Male migrant networks are more important determinants of international migration for men than for women as the presence of male migrants abroad does not affect women’s migration. However, female networks increase the odds of female migration, but diminish the probability of a male migration (Curran and Rivero-Fuentes 2003).

3. DATA

This paper uses multiple data sources: settler’s records from Australia, census public user microdata files from Canada and United States, Eurostat— a European statistical database—and the latest revision of the Trends in International Migration by the UN. Each of these sources gives information about the trends in international migration, despite limitations in how each measures migration flows and variations in the definition of who is a migrant among the data sets. Table 1 shows the countries, sources and years for the data that were available and used for this paper.

Table 1. Countries and sources of data use in this paper.

Country	Source	Years, periodicity
Australia	Settlers arrivals from the Department of Immigration and Multicultural Affairs (DIMA)	1995–2004, yearly
Canada	Census Public Use Microdata from Statistics Canada	1971, 1981-2001, every 5 years
United States	Integrated Public User Microdata from Ruggles, Sobekc, et al 2004	1970-2000, decennial

Germany, Italy, Netherlands, Norway, Spain, Sweden, and United Kingdom	Eurostat	1985-1999, yearly
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The data from Australia³ correspond to settlers that arrived between 1995 and 2004 from the Department of Immigration and Multicultural Affairs (DIMA). Settlers are defined as individuals that arrive in Australia with permanent visas, regardless of the period of stay. Employing this definition will lead to an undercount in the number of immigrants that come to Australia, because it does not include irregular migrants. The data has been grouped into four periods: 1985-1989; 1990-1994; 1995-1999; and 2000-2004.

The data from Canada were obtained by using the Individual Public Use Microdata (IPUM) Census for 1971, 1981, 1986, 1991, 1996, and 2001.⁴ Census information is collected every five years in Canada. Canada collects information using two forms: the short and long questionnaires. The information of immigration that it is useful for this paper is only asked in the long questionnaire that is given to a sample of the population, usually one-fifth. The IPUM used in this paper draws observations from that subset of the population that received the long form. The percentage of individual data released in each IPUM varies each round.⁵

The data available in each IPUM has been created so that no individual can be identified. The small size of the migrant population and this need for confidentiality means that place of birth is usually reported as a region rather than as an individual

³ I thank Graeme Hugo from Adelaide University for making these data available to me.

⁴ Statistics Canada produces three files for each census: individual, households and families.

⁵ The 1976 census did not ask the questions needed for this analysis. The samples for each IPUMs analyzed here were: 1% in 1971; 2% in 1981 and 1986; 3% for 1991, 2.8% for 1996, 2.7% for 2001.

country. Three questions were used to create the data used in this paper: year of immigration, place of birth, and sex. I select individuals that arrived in the five years prior to the census, and whose place of birth was outside Canada. Individuals that came to Canada during the inter-census period and left before the next census were not counted; therefore, this will undercount the number of people coming to Canada. However, selecting individuals this way means that irregular migrants are more likely to be included in the analysis.

The data from the United States comes from the Public User Microdata Files of 1970, 1980, 1990, and 2000 censuses. The data are based on the year of arrival, place of birth and sex. In contrast to the Canadian data, the place of birth is available for single countries, as the migration flows are much larger.⁶ Individuals born outside the United States who arrived in the five years prior to the census year were analyzed in this paper. Because the U.S. Census is collected every 10 years, selecting individuals this way means that the first 5 years of each decade that will not be included. In principle, I could use the data from the census and select all the individuals that arrived since the last census, but the further back in time I go, the more severe the undercounting will be due to return migration and mortality. These issues are not eliminated by choosing a 5-year window, but they are lessened.

Data for European countries come from EuroStats. Data on flows have been collected since 1985. At first, identifying the country of origin was limited to major senders, but in later years the data collection expanded to all possible origins. I also analyze these data looking at 5 year spans. The problems with these data are that the number of migrants might be underestimated, because this data corresponds to port

⁶ For more information, see www.ipums.org.

entries to any of the European countries analyzed, excluding people who declared they have come for tourism or a short stay. Therefore irregular migration, such as tourists who overstay their entry, is not necessarily in this data. Because Germany is a special case in that it is one of the major receiving countries in Europe and the world, I examine the German data separately. I grouped data from seven other European countries for which the series are available since 1985: Denmark, Italy, Netherlands, Norway, Spain, Sweden, and United Kingdom. Although the migration determinants to any of these countries are very specific, the numbers of migrants are not large. By grouping these countries together, I get better estimates of origin countries.

It is worth mentioning that the United Nations produces data on migrant stock by quinquennium and destination country. This data has become the standard reference in migration statistics, although it can only provide an insight on how the migrant population (stock) of receiving countries has changed.⁷ The data do not provide in-flows to countries. Therefore, it is not possible to determine the size of the in-flows or out-flows or the origin of the flows. Looking at changes in the stock of migrants can be the result of inflows, outflows and mortality. Therefore, increases in the stock of migrant population merely show that the inflows were higher than the outflows and deaths of migrants. By the same token, decreases in the stock of migrant population imply that the in-flows were smaller than outflows or deaths of migrants. In addition, by looking only to the stocks of migrants, it is not possible to know the countries of origin of the migrants, similarly, changes in the stock of migrants in the destination country does not give information on citizens leaving the country.

⁷ For more information see the <http://www.un.org/esa/population/unpop.htm>

In an effort to be concise, the next section presents summary tables from the different data sets described above aggregated by the World Bank regions.⁸ The first analysis presented uses the UN data to give a general picture, and then I continue with a more in-depth analysis on data for the United States, Germany, European Countries, Canada and Australia. The order in which the data is presented follows the size of migrant population living in each country.

4. TRENDS IN INTERNATIONAL MIGRATION

The gender composition of the migrant stock.

According to the UN, the number of migrants living in countries other than their country of birth increased from 75.9 million in 1960 to 190.6 million people between 1960 and 2005. The percentage of all international migrants who are women increased almost 3 percentage points, from 46.7% in 1960 to 49.6% in 2005. However, this increase varies across regions.

The proportion of women migrants living in developed countries is 51 percent in 2005, while in other regions this proportion ranges between 39 percent in the North Africa and Middle East Region (MENA), and 57 percent in Europe and Central Asia region (ECA) (Table 2). Large increases in the proportion of women in the migrant stock between 1960 and 2005 were observed in the Africa Region (from 41 to 48 percent); in ECA (from 51 to 57 percent); and in Latin American and Caribbean (from 45 to 50 percent). The largest decrease in the percentage of female migrants (from 47 to 39 percent) is observed in MENA. Note, however, that the absolute number of female

⁸ Country data and maps showing total number of migrants and percentage of females among migrants is available upon request.

migrants actually rose. The percentage of female migrants living in the South Asia Region (SAR) slightly decreases, mirroring the steady decrease in the number of migrants in that region since 1970.

Table 2. Total number of migrant stock and percentage of female migrants by World Bank region: 1960–2005

Region	1960		1970		1980		1990		2000		2005	
	(000)	%	(000)	%	(000)	%	(000)	%	(000)	%	(000)	%
World	75,463	46.8	81,336	47.2	99,276	47.2	154,945	49.0	176,736	49.7	190,634	49.6
Africa	7,659	40.8	8,990	42.1	12,583	43.9	14,046	46.0	14,507	47.6	15,231	47.9
East Asia and Pacific	5,185	46.5	5,252	47.8	5,499	46.0	5,649	47.3	7,367	50.0	8,152	50.8
Europe and Central Asia	6,500	51.2	6,201	51.0	5,803	51.5	33,099	56.2	31,179	57.2	29,976	57.3
Latin America and the Caribbean	6,018	44.7	5,679	46.8	6,079	48.2	6,978	49.7	6,281	50.2	6,631	50.3
North Africa and Middle East	5,846	47.2	6,198	45.4	11,326	41.8	21,037	40.2	23,311	40.2	26,539	38.9
South Asia	17,810	46.5	16,165	47.0	15,557	46.0	15,845	45.1	12,666	45.3	11,229	45.3
Developed Countries	26,324	48.2	32,673	48.5	42,168	49.6	57,966	50.1	81,035	50.5	92,440	50.8

Source: United Nations (2006). Trends in Total Migrant Stock: The 2005 Revision. Population Division: New York, NY.

Increases in the percentage of women in the migrant population that accompany increases in the number of men and women migrants indicate that women's flows are positive and larger than that of men. However, there are some cases where it is unclear what is causing the changes in the percentage of women. For example, in South America, the percentage of women migrants increases from 44 to 51 percent between 1960 and 2005 (data not shown). However, the number of female migrants decreases from 2.3 million to 2.1 million; the number of male migrants fell more sharply, from 2.8 million to 2.0 million in the same period. There is no way of determining from these data if the changes in the stock number of female male migrants were due to negative net flows of migrants or if what we observe is the effect of mortality as women tend to outlive men. In general, a decrease in the numbers of migrants might be the result of negative net flows or mortality. Other regions in which the number of female migrants decreased were South-Central and South-Eastern Asia and Eastern Europe (data not shown).

The gender composition of the countries of origin

As mentioned above, the migrant stock only gives half of the picture in terms of migration movements. The most impressive change in the migrant stock occurred in developed countries, where they grew from 35 percent of all migrants in 1960 to almost half in 2005. United States, Russia, Germany, France and Saudi Arabia were the top five countries with the greatest number of migrants in 2005, Canada and Australia ranked sixth and ninth. Since data from Russia, France and Saudi Arabia were not available, I will limit the discussion on the gender composition by country of origin to the remaining destination countries plus Denmark, Italy, Netherlands, Norway, Spain, Sweden and United Kingdom as a group.

United States

In 2000, United States had more migrants than any country in the world with almost 35 million migrants or 20 percent of all migrants in the world. The annual growth rate for the period 1960-2000 is 3.2 percent a year. This means that the population of migrants would double every 22 years if this rate remains constant. This section uses information on migrants that arrived during the 5 years previous to the U.S. Census of 1970, 1980, 1990 and 2000. This allows the construction of the 5-year-net-flow of migrants to the United States by using the year of arrival, the country of birth and sex.⁹

The main sources of migrants to the United States have changed over the last 40 years (Table 3). Forty percent of five-year arrivals to the United States were coming from developed countries in 1970. By 2000, more than 50 percent of recent arrivals were coming from LAC and 16 percent were coming from EAP, while only 10 percent were

⁹ The origin country is not necessarily the birth country; this is due to step migration where people migrate first to a country to later migrate to another one.

coming from developed countries. The size of the flows across all the regions is increasing steadily during the period, except for the flows from developed countries and the category of “other countries”.

Table 3. Total number of migrants and percentage of women among migrants that arrived to the United States during the last 5 years previous to the census by World Bank region: 1970–2000

Region	Census Year							
	1970		1980		1990		2000	
	(000)	%	(000)	%	(000)	%	(000)	%
Total	3,463	54.3	5,583	50.2	9,332	48.1	12,028	48.8
Africa	17	44.6	86	39.5	177	42.1	325	48.9
East Asia and the Pacific	315	54.8	1,222	54.4	2,102	52.4	1,894	54.8
Eastern Europe and Central Asia	205	52.0	260	50.6	482	49.9	1,009	52.1
Latin America and the Caribbean	964	53.4	2,367	49.0	4,554	46.6	6,316	46.7
Middle East and North Africa	87	44.2	289	38.6	334	42.3	317	46.2
South Asia	51	35.8	204	45.8	372	43.7	713	46.2
Developed countries	1,448	56.7	989	52.4	1,118	50.1	1,243	50.2
Other countries ¹	377	53.2	166	53.5	192	44.7	212	45.7

1. Includes Cuba, Korea, Dem. Rep, and Western Sahara

Source: Author's Calculations based on Ruggles, S., Sobek, M., et al. (2004). Integrated Public Use Microdata Series: Version 3.0. Minneapolis, MN: Minnesota Population Center.

Data from individual countries show that there have been changes in the composition of the countries of origin of migrants to the United States.¹⁰ During the 60s, Mexico, Cuba, Germany, Canada, and Puerto Rico were the main sources of migrants, the rest of the world contributed but not at the same high level as these countries. During the 70s, the situation started to change. Migrants from Canada, Cuba and Germany declined from the previous decade, while migrants from Philippines and China increased significantly. During the 80s, there was a greater diversity of migrants coming from different countries to the United States. East Asian countries such as China, Cambodia, Philippines and South Korea became a big source of migrants, while Mexico, Puerto Rico and El Salvador were the major senders from Latin America. Migrants from Germany and India have had lower, but still important levels of migration. However, only in the 1990s did

¹⁰ Analysis based on the underlying data from table 3. Data not shown but available upon request.

India become a major source of migrants, along with China, Cambodia and the Philippines. From Latin America only Mexico and Puerto Rico remain as high sources of migrants. Colombia, Canada and Russia also had lower, but still important flows.

Overall, the proportion of women migrants to the United States dropped between 1970 and 2000 from 54 to 49 percent, although this does not hold for some of the source regions (table 3). The larger decreases in the percentage of women among net flows were in Other Countries, LAC, and Developed Countries with an 8, 7, and 7 percentage point decline, respectively. On the other hand, the SAR and Africa experience important increases in the percentage of women migrants. SAR's percentage grew from 36 to 46 percent. It should be noted that most of this increase occurred in 1980, and since then there has been little change.

The proportion of female migrants has changed in the countries sending large flows of migrants to United States. In 1970, more women than men migrated from Cuba and Mexico. The migration from Germany was highly female, while the migrations from Canada and Puerto Rico had similar proportions of men and women. In 1980, the Mexican migration shifted and became more male dominated, while the migration from Canada leaned temporarily to a more female-dominated migration. The newcomers—China and Philippines—were a sex-balanced and moderately female-dominated migration, respectively. In 1990, the trends of the previous decade continue for China, Germany, Mexico, Philippines and Puerto Rico. The migrations from India and Cambodia were slightly male-dominated, while migrants from South Korea were slightly female-dominated. By 2000, only migrants from China were slightly more female-dominated.

Looking at continents since the 1960's, migration from South America has tended to vary between female-dominated and sex-balanced flows. Since the 1960's Central America has shifted from a female-dominated migration to a male-dominated migration. This transformation started in Mexico, and moved south to Guatemala, El Salvador, Nicaragua, and Costa Rica.

Some countries in the Caribbean switched their migration composition as well. Cuba changed from female- to male-dominated, and the Bahamas from male to female-dominated. Migration from other countries in the Caribbean remained fairly balanced or slightly more female-dominated.

Migration flows from Africa became more male-dominated. In the 1960s, there were some countries with female-dominated migration flows, but by the 1990s most of the migration flows were male-dominated.

South Asia, Arab countries, and Southern European Countries were male-dominated throughout the whole period.

The Pacific, however, has shown a switch in the 1990s, going from male dominated flows to female dominated flows.

Germany

In 2005, according to the UN Trends in International Migrant Stock, Germany held five percent of the world's migrants. It is the country with the third largest amount of female migrants after the United States and the Russia Federation; and it is the country with the second largest amount of male migrants after the United States. The size of the quinquennium inflows to Germany has increased from 2.8 to 4.2 million people since 1985. The majority of these migrants have come from ECA, followed by other

developed countries (table 4). In comparison, migration inflows from other regions of the world are still relatively small. Hence, it is evident that German migration is still a regional phenomenon.

Table 4. Total number of migrants and percentage of women among migrants that arrived every 5 years to Germany by World Bank region: 1985–1999

Region	Period					
	1985-1989		1990-1994		1995-1999	
	(000)	%	(000)	%	(000)	%
Total	2,846	46.0	3,867	39.6	4,291	41.2
Africa	18	38.7	114	23.7	92	36.2
East Asia and the Pacific	12	42.9	112	47.1	120	51.8
Europe and Central Asia	1,627	48.3	2,443	39.4	2,553	42.1
Latin America and the Caribbean	32	52.4	49	55.2	63	57.0
Middle East and North Africa	149	38.9	169	33.5	184	32.8
South Asia	30	17.7	98	28.5	107	30.7
Developed countries	974	44.1	879	42.8	1,167	39.9
Other countries ¹	5	47.8	2	37.3	5	64.4

1. Includes Cuba, Korea, Dem. Rep, and Western Sahara

Source: Eurostat. Retrieved January, 2006

During 1985 and 1989, most of inflows to Germany were coming from Italy, Poland or Turkey, although Romania and Greece also had smaller, but important flows.

Countries from Eastern Europe become important sources of immigration flows to Germany in the next two quinquennia. In the second quinquennium, Romania surpassed the 200,000 threshold, while migrant flows from Bosnia and Herzegovina, Serbia and Montenegro, Russia, and Kazakhstan were smaller, but also important. The last three countries became main sources of migrants in the late 1990s. Throughout the whole period examined, migrants from United States have had a consistent flow of anywhere between 100,000 and 200,000 people per quinquennium.

Inflows to Germany are male-dominated overall, except in the case of those from Latin America and Other Countries (table 4). The percentage of women coming to Germany has hovered around the 40 percent. The inflows from LAC have been always

female-dominated with an increasing trend, while the inflows from Other Countries have become female-dominated only between 1995 and 1999. In the last two quinquennia the percentage of female migrants has slightly increased in most of the regions, with exception of MENA. Gender-balanced inflows have been achieved only in EAP in the last quinquennium, however the proportion of women coming from Africa, MENA, and SAP never surpasses 40 percent.

Data from individual countries shows that the inflows of migrants to Germany from Italy and Poland have been male-dominated, while the inflows from Turkey have been more balanced. The inflows from the United States were balanced at the beginning of the period and became more male-dominated in the following two quinquennia. Inflows from Bosnia and Herzegovina, and Serbia and Montenegro have also been male-dominated, while inflows from Russia and Kazakhstan were balanced in the second quinquennium and female-dominated in the third one. Other countries with smaller inflows present stable proportions. Inflows from Africa, Asia, Canada, Pacific, and United States are male-dominated, while inflows from Latin America are balanced or female-dominated.

Denmark, Italy, Netherlands, Norway, Spain, Sweden and United Kingdom.

The reason to examine all these seven countries together is that their inflows are small compared with those in the United States or Germany. Thus, during the 15 years examined, 16.7 million people enter Germany; while 6.4 million people enter Denmark, Italy, Netherlands, Norway, Spain, Sweden and the United Kingdom combined. The migration to Germany was 2.6 times larger than the migration to all the seven countries together.

The inflows to these seven countries have increased steadily in the 15 years being analyzed. By 1995-99, there were 3.2 million people arriving to these seven countries, most of them from other developed nations, followed by MENA and ECA (Table 5). Inflows from EAP have been the more dynamic of the regions growing from 80,000 to 237,000 between 1985/89 and 1995/99. As was the case in Germany, the migration to these 7 countries is still largely coming from nearby regions.

Table 5. Total number of migrants and percentage of women among migrants that arrived every 5 years to Denmark, Italy, Netherlands, Norway, Spain, Sweden, and United Kingdom by World Bank region: 1985–1999

Region	Period					
	1985-1989		1990-1994		1995-1999	
	(000)	%	(000)	%	(000)	%
Total	1,886	50.6	2,388	49.7	3,292	48.6
Africa	107	50.2	135	50.0	220	56.5
East Asia and the Pacific	123	45.0	183	43.9	262	48.0
Europe and Central Asia	160	40.5	190	43.3	299	40.5
Latin America and the Caribbean	100	46.3	235	52.2	334	52.2
Middle East and North Africa	162	50.7	138	53.6	185	44.9
South Asia	80	52.4	142	55.2	237	48.4
Developed countries	1,154	52.9	1,363	49.9	1,737	48.8
Other countries ¹	1	49.1	2	49.9	17	51.6

1. Includes Cuba, Korea, Dem. Rep, and Western Sahara

Source: Eurostat. Retrieved January, 2006

Initially, the major immigration flows to all these countries came from the United States, Germany, Australia, and France. During the 1990s, the inflows start to diversify: Morocco becomes the fourth major source of migration in the first part of the 1990s, and the fifth largest in the second part of the 1990s. However, once again, the migration to these countries remains extremely regional.

The overall percentage of women declines slightly (from 50.6 to 48.6 percent) over the period. There are a few male-dominated source regions such as ECA, and MENA. Africa and LAC are female-dominated. The inflows from Developed Countries are gender-balanced.

Canada

Canada is the country with the fifth largest amount of migrant stock in 2005, according to the UN data. However, the migrant stock is only 6.1 million in 2005, which is too small for the Canadian statistical agency to disaggregate by place of birth and by individual countries of origin; instead, Statistics Canada has grouped countries into regions for each census. However, the regions in each release are not consistently made of the same countries. For this reason, it is impossible to provide a table that groups the data into the regions of the World Bank. Therefore, the analysis for Canada is based on the categories provided by Statistics Canada, and a table containing these data is available in the appendix table 1 due to its size.

During the last part of the 1960s, the principle sources of migration were from the United Kingdom, followed by the United States and Latin America. By the late 1970s, migrants from United States and the United Kingdom start to decrease, while Latin America, Asia and Oceania increase in numbers as sources of migrants to Canada. By the late 1990s, Asia and Latin America supply the biggest numbers of migrants. Despite this, their levels are not as high the United States or Germany. The number of migrants from either Asia or Latin America is never larger than 150,000 migrants per quinquennium.

The migration to Canada began sex-balanced in the late 1960's, with migration flows from Australia, Latin America, North Europe, and USSR being moderately female-dominated. However, during the late 1970s and most of the 1980s, more migration flows were becoming more male-dominated. The Middle East, South Asia, and Africa were male dominated in this period. The USSR during the late 1970s was also male dominated. China and South East Asia were female dominated during the beginning of

the 1980s. Migration flows from Latin America and the United States were moderately female-dominated during the late 1970s and most of the 1980s. During the 1990s there is a movement toward sex-balanced migration flows from the Middle East and South Asia. However, the other regions remained much the same.

Australia

The flows of migrants or settlers to Australia are not very large, and they present a declining trend overall for the period of 1985-2004. Most of settlers come from developed countries and EAP; the only region that has increased in the number of settlers in this period is Africa (table 6). The settlers come mainly from China, India, and South Africa. There is not much migration from the rest of the world with the exception of the United States (data not shown).

Table 6. Total number of settlers and percentage of women among settlers that arrived every year to Australia by World Bank region: 1985–2004

Region	Period							
	1985-1989		1990-1994		1995-1999		2000-2004	
	(000)	%	(000)	%	(000)	%	(000)	%
Total	617	50.3	456	51.7	439	51.7	525	51.1
Africa	29	49.2	17	49.8	34	49.1	63	48.2
East Asia and the Pacific	196	53.0	175	55.2	131	57.8	143	57.7
Europe and Central Asia	43	50.5	43	51.6	47	46.0	31	45.4
Latin America and the Caribbean	21	51.2	11	51.4	4	54.7	6	56.5
Middle East and North Africa	32	46.8	27	45.3	25	51.3	29	49.8
South Asia	30	49.7	40	48.2	32	52.3	59	49.8
Developed countries	265	48.7	145	50.0	166	48.9	193	48.4
Other countries ¹	0	60.7	0	52.1	0	41.9	0	52.8

1. Includes Cuba, Korea, Dem. Rep, and Western Sahara

Source: Department of Immigration and Multicultural Affairs (DIMA)

Most of the settler flows are gender-balanced (table 6). In the last period (2000-2004) the flows from EAP and LAC were female-dominated, and the flows from ECA were slightly male-dominated (45 percent of flows are women). Analysis by countries shows that settlers from China became more female dominated toward the last two

periods, 1993-1999 and 200-2004. Settlers from Oceania have been female dominated since the late 1980s.

5. DETERMINANTS OF MIGRATION: THE POWER OF ECONOMICS AND NETWORKS

The models in this section test to what extent female and male migration are influenced by economic factors and network considerations. In particular:

- If migration depends on income differentials between origin and destination countries, one would expect a positive relationship between migration and income differentials.
- If migrant flows depend on the size of networks available to the migrant in the destination country, then migration will become higher as more people migrate.

Brücker and Schröder (2006) argue that an error correction model would be appropriate to capture the long-term cointegration vector relationships and the short-run dynamics of migration. Migration is shaped by income differentials and liquidity constraints in which income in the origin country is used as proxy. Hence, by controlling for the income differentials between the origin and destination countries, the income level in the origin country will have a positive impact on migration. They also consider employment level in their model.

Data on employment levels are not worldwide or before 1980. Therefore, the following equation can be estimated:

$$\Delta m_{ijt}^s = \beta_1 m_{ij,t-1}^m + \beta_2 m_{ij,t-1}^f + \beta_3 \ln\left(\frac{GDP_{j,t-1}}{GDP_{i,t-1}}\right) + \beta_4 \ln(GDP_{i,t-1}) + \beta_5 \Delta \ln\left(\frac{GDP_{jt}}{GDP_{it}}\right) + \beta_6 \Delta \ln(GDP_{i,t}) + \beta_7 \Delta m_{i,t-1}^m + \beta_8 \Delta m_{i,t-1}^f + \beta_9 d_{ij} + \varepsilon_{ijt}^s$$

where i represents origin country, j represents destination country, $t=1, \dots, T$ and $s=f, m$ are time indices and sex index, m_{ijt} is the migrant stock as a percentage of the home population in country i , GDP_{it} the GDP per capita in the origin country, GDP_{jt} the GDP per capita in destination country, Δ first difference operator, d_{ij} distance between the capital city of origin and destination country. The GDP series used in the model were obtained from the Penn World Tables (Heston, Summers et al. 2002).

The model is estimated with the countries of origin as the fixed effects. In addition, in order to obtain a robust covariance matrix, feasible least squares are used. This allows one to control for group-wise heteroscedasticity, since likelihood ratio tests can be used to confirm whether a heteroscedastic model is preferable to a homoscedastic model. Given that this model uses panel data for stocks, it can only be applied to the U.S. and Australian data.¹¹

The results for the United States are presented in table 7, and the results for Australia are available in table 8. The results for the United States present evidence of heteroscedastic errors and significant country-specific effects. The F-tests for the fixed effects models show that country-specific variation is important for both the male and female models. The FGLS chi-square demonstrates that there is evidence for the hypothesis that this model is preferable to a homoscedastic error model.

¹¹ The Canadian cannot be used because countries are not classified consistently in the different releases of the Census Public Use Microdata are not consistent. This will be evident in the next section. This exercise could be extended to Germany provided access to their data.

The presence of lagged variables allows the identification of the long-term relationships between those variables and migration flows. The variables in the differences model allow the identification of the short-term dynamics. The coefficients for the GDP confirm the expectations discussed above; income differentials increase the motivation to migrate in the long and short-term. Also, relaxation of liquidity constraints in the long- and short-term ease migration as shown by the positive sign for the variables of level and the first difference between the GDP in the origin country and that of the receiving country. The coefficients are similar for males and females. The coefficients for the first lagged difference designed to capture the short-term dynamics differ for men and women. Men's response to changes in relative GDP is statistically significant while women's is not significant and is nominally smaller. All these relationships are confirmed in the FGLS model with minor variations in the size of the coefficients.

Table 7. Regression results for the change in the proportion of stock migrants in the United States by sex.[†]

Variable	Fixed Effects		FGLS with Hetoskedasdicity	
	Males	Females	Males	Females
Proportion of male migrant stock [†] in t-1	0.53 (0.123)***	0.93 (0.144)***	0.18 (0.084)**	0.58 (0.081)***
Proportion of female migrant stock [†] in t-1	-0.53 (0.104)***	-0.88 (0.122)***	-0.07 (0.073)	-0.38 (0.074)***
Log of relative GDP in t-1	0.01 (0.002)***	0.01 (0.002)***	0.00 (0.000)***	0.00 (0.000)***
Log of GDP in origin country in t-1	0.01 (0.002)***	0.01 (0.002)***	0.00 (0.000)***	0.00 (0.000)***
Change in Log of relative GDP	0.02 (0.008)*	0.01 (0.010)	0.01 (0.002)***	0.00 (0.002)
Change in Log of GDP in origin country	0.01 (0.008)	0.00 (0.009)	0.01 (0.002)***	0.00 (0.002)
Change in proportion of male migrant stock [†] in t-1	-0.13 (0.159)	-0.33 (0.186)*	0.70 (0.134)***	0.03 (0.165)
Change in proportion of female migrant stock [†] in t-1	0.16 (0.125)	0.30 (0.146)**	-0.50 (0.124)***	0.09 (0.148)
Log of distance between capitals X 100	—	—	-0.05 (0.000)**	0.01 (0.000)
Constant	-0.06 (0.015)***	-0.06 (0.017)***	-0.02 (0.004)***	-0.03 (0.003)***
R ² within	0.14	0.18	—	—
Log Likelihood	—	—	2437	2379
F-Test (95,457)	2.97***	3.28***		
$\chi^2(9)$ heteroscedastic vs. homoscedastic model			322	1324

Standard Errors in parenthesis ()

[†]the proportion of (male/ female) stock migrants refers to the number of migrants (males or females) divided by the total population of the country of origin.

Note: t-1 refers to the previous census year.

The coefficients for the lagged and the difference in proportion of female and male migrant variables present interesting and dissimilar results for both sexes. First, the stock of male migrants has a positive effect on both male and female migration. However, it has different implications for males and females. For males, it could be picking up the falling cost of migration due to networks; for females, it could also be picking up the

family and friend reunification effect. Second, the stock of female migrants has a negative effect on both male and female migration. In the male migration model, it almost counteracts the effect of the male stock¹². The differences between men and women deepen when looking at the short-term effect (the changes in stock of migrants). For males, none of coefficients of the differences are significant, but for females, changes in male stock have a negative effect, while changes in female stock have a positive effect. Taking into account coefficients for both the lagged and the changes in migrant stock variables, the long-term equilibrium is identified. The positive and highly significant coefficient for the lagged first difference on migration can be interpreted as evidence of the network or ‘herd effects’ (Epstein and Hillman 1998). However, in the long-run the propensity to migrate in the sending countries for females decreases as the share of the female population living abroad increases. The FGLS results are consistent in the lagged migration rate of either men or women. However, the short-term effects have completely different results. The proportion of men migrating increases in the short term with an increasing male population overseas but decreases with an increasing female population in the United States. For females, these coefficients are not significant. It is not surprising given the number of periods available in the dataset that changes in variables are not as robust; however, these findings warrant more research with richer dataset.

Finally, distance plays a role in the propensity to migrate for males but not for females. This, again, stresses the idea that economic reasons are stronger for males than for females.

¹² The coefficients differ is 1.05 with s.e. of .226 in the FE model (t -test 4.95), and .25 difference and s.e. .1558 in the FGLS model (z -test 1.6)

The results for Australia are relatively similar to the U.S. results, although the migrant stocks variables dominate as determinants for migration propensities. It is worth mentioning that the timeframe in the Australian case is shorter than in the U.S. case, so it is not surprising to find a lack of significance for the income variables. As in the U.S. case, there is evidence that supports country-specific effects with heteroscedastic errors.

In the case of the effects of the migrant population living in Australia, the results indicate that the propensity to migrate for male and female migrants increases with stock of males and decreases with the stock of females. This also holds for males in the FGLS model. In contrast with the U.S. case, the size of the coefficient for the proportion of female migrants is larger in absolute value than the coefficient for the proportion of male migrants living in Australia. Overall, this indicates a long-term equilibrium driven by the number of females living in Australia. The short-term network or herd effects are interesting. Both males and females respond positively to increases in the female stock, but negatively to increases in the male stock. This could be the result of increasing opportunities for women in the short-term either in the labor market or for gaining utility from family reunification and the over saturation of the male stock living in Australia. Distance plays a role in the propensity to migrate for both males and females. In both, the farther away the country of origin, the higher the cost of migrate and the lower the propensity to migrate to Australia.

Table 8. Regression results for the change in the proportion of stock migrants in Australia by sex [†]

Variable	Fixed Effects		FGLS with Heteroskedasticity	
	Males	Females	Males	Females
Proportion of male migrant stock [†] in t-1	0.84 (0.519)	1.28 (0.472)***	-0.29 (0.134)**	-0.08 (0.135)
Proportion of female migrant stock [†] in t-1	-1.28 (0.553)**	-1.71 (0.503)***	0.29 (0.148)*	0.07 (0.150)
Log of relative GDP in t-1	0.00 (0.001)	0.00 (0.001)	0.00 (0.000)	0.00 (0.000)
Log of GDP in origin country in t-1	0.00 (0.001)	0.00 (0.001)	0.00 (0.000)	0.00 (0.000)
Change in Log of relative GDP	0.00 (0.002)	0.00 (0.002)	0.00 (0.001)	0.00 (0.001)
Change in Log of GDP in origin country	0.00 (0.002)	0.00 (0.002)	0.00 (0.001)	0.00 (0.001)*
Change in proportion of male migrant stock [†] in t-1	-2.13 (0.653)***	-2.00 (0.594)***	0.93 (0.302)***	0.08 (0.316)
Change in proportion of female migrant stock [†] in t-1	1.71 (0.729)**	1.68 (0.663)**	-0.57 (0.363)	0.34 (0.388)
Log of distance between capitals X 100	—	—	-0.02 (0.000)**	-0.02 (0.000)***
Constant	0.01 (0.008)	0.01 (0.007)	0.00 (0.003)	0.00 (0.000)***
R ² within	0.84	0.84	—	—
Log Likelihood	—	—	1367	1382
F-Test (8,97)	61.25***	64.18***		
$\chi^2(9)$ heteroscedastic vs. homoscedastic model			145.69***	113.98***

Standard Errors in parenthesis ()

[†]the proportion of (male/ female) stock migrants refers to the number of migrants (males or females) divided by the total population of the country of origin.

Note: t-1 refers to the previous census year.

6. CONCLUSIONS

This paper seeks to fill a gap in global data on international migration flows by gender. Some of the most common destinations for migrants, the United States and Germany are included in the analysis, as well as other important destinations where data has been collected on their immigration experience: Canada, Australia and some countries in Europe. There are still much data that are not available either by sex or by

year of arrival. Countries such as Russia, Ukraine and France are important sources and recipients of migrants, yet there are no data available for these countries and this represents a big hole in this attempt to account for migration flows.

The answer to the question of whether or not there has been a “feminization” of the migration trends is complex. Given the data of the United Nations, it can be concluded that there has not much of a global feminization of migration flows. However, certain countries and regions have experienced different trends in this respect at different points in time. In fact, migration flows are not stable in terms of sex composition. Flows from regions or countries can be female-dominated in one period and sex-balanced or male-dominated in the next. In general, flows from Africa, South Asia and the Middle East tend to be more male-dominated, while flows from East Asia and Pacific, Europe and Central Asia, and Latin America and Caribbean tend to be more female-dominated. However, the intensity and stability of those flows depends on the destination country and the period being examined.

The paper also looked at how economic and network factors influence the propensity to migrate for males and females using a model that allows examination of the long-term equilibrium as well as short-term effects on this propensity. The results vary for men and women, and for the United States and Australia. In the U.S. case, the long term differentials in GDP between countries are significant, and short-term differentials and liquidity constraints affect the propensity of male migration. The long term equilibrium of the stocks is driven positively by male stocks, although in the short term, females are a positive influence where there are increases in female stock. Distance is only significant for men. These results indicate that male flows are driven more by economic factors than

those of women. However, the positive response of female migrants to the stock of females in the short-term might imply a shift towards networks of women that are working.

In the Australian case, migration is strongly driven by the migrant population already living there. However, the long-term and short-term effects of the migration stocks affect the propensity to migrate in an interesting way. The long-term equilibrium is dominated by the negative effect of the female stock. However, in the short-term, changes in the female stock are playing a positive role in the propensity to migrate for both men and women. This could be the result of an increase in the importance of female workers to Australia.

Further research should focus on increasing the number of countries for which this information is available and also introducing new measures for factors such as economic participation and family reunification. The econometric model also could be extended to include institutional variables such as changes in government regimes and changes in migration laws. Finally, the Australian analysis could benefit from a longer time series.

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Appendix Table 1. Total number of migrants and female migrants that arrived to the Canada during the last 5 years previous to the census by World Bank region: 1970–2000

Country of Birth	Census Year					
	1971		1981		1986	
	females	total	females	total	females	total
United States	37500	74200	25050	44100	19200	32300
Belgium and Luxemburg	1700	2600	900	1800	600	1150
France	8500	18800	3300	7000	1850	3600
Germany	14800	28200	4700	8150	5500	9650
Netherlands	4400	10400	3050	7000	1900	3550
Austria			450	650	600	1050
Ireland	3400	6900	900	1750	1050	2050
UK	75900	148500	38250	74950	20400	37500
Yugoslavia			3250	6050	1750	2800
Greece	12100	28500	2200	4300	800	1850
Italy	35600	79700	4650	9100	2100	4500
Portugal			8350	17550	3650	8650
Spain and Portugal	20200	40900				
Hungary			950	1750	1500	2900
Poland	4200	7700	3450	5900	12850	24450
USSR	1300	2400	3550	7500	1150	2300
Czechoslovakia			1450	3000	2800	5350
Other (Malta, Yugoslavia, Albania, other Souther Europe)	13500	26600				
Other (Denmark, Finland, Iceland, Norway, Sweden)	3900	7300				
Other (Austria, Switzerland, Other Western Europe)	3900	6300				
Other (Czechoslovakia, Hungary, Romania, Bulgaria)	10300	21200				
Other Europe			6850	13900	5600	10600
China	10700	21200				
Asian			106800	210000		
Philippines						
Viet Nam						
Middle East and West central Asia						
Eastern Asia					30350	56750
South East Asia					39800	74100
Southern Asia					15550	35500
Western Asia					11300	24950
India						
India, Pakistan	10900	28800				
Other (Japan, Ceylon, Iran, Israel, Lebanon, Other Asia, Philippines, syria, Turkey)	20300	39900				
Other Eastern and South East Asia						
Other Southern Asia						
Other Eastern and South East Asia						
Northern Africa					2200	4550
Southern Africa					1350	2900
Other Africa					5500	12250
Eastern Africa						
Africa	11600	23700	13700	27650		
South adn Central America					23450	43200
Caribbean and Bermunda					13800	26500
West Indies and Latin America	33500	63400	42300	77750		
Other commonwealth and British depencencies, all other	12800	24500				
Oceania						
Other			4700	9200	4350	9250

Notes at end of table.

Appendix Table 1. Total number of migrants and female migrants that arrived to the Canada during the last 5 years previous to the census by World Bank region: 1970–2000—Continued

Country of Birth	1991		1996		2001	
	females	total	females	total	females	total
United States	17133	29800	15228	26172	15370	28469
Belgium and Luxemburg						
France					6221	13216
Germany	4567	7467	4212	7524	3896	7705
Netherlands			1332	2772	1777	4179
Austria						
Ireland						
UK	17267	32167	11628	23940	8964	18246
Yugoslavia			18288	38052	16758	34200
Greece					370	998
Italy	2400	4633	1764	3636	1591	2884
Portugal	12467	24700	3384	7416	1443	2886
Spain and Portugal						
Hungary						
Poland	26833	52233	20304	35028	4773	8064
USSR	3700	7533	11232	21780	24464	46133
Czechoslovakia						
Other (Malta, Yugoslavia, Albania, other Souther Europe)						
Other (Denmark, Finland, Iceland, Norway, Sweden)						
Other (Austria, Switzerland, Other Western Europe)						
Other (Czechoslovakia, Hungary, Romania, Bulgaria)						
Other Europe	24167	49967	24048	47556	21663	41740
China	62033	119033	103212	195336	88107	162357
Asian						
Philippines	27933	46000	43632	71496	30859	55811
Viet Nam	15067	29900	18612	31824	7327	11466
Middle East and West central Asia	34300	78167	37656	79992	46426	94910
Eastern Asia						
South East Asia						
Southern Asia	34967	74533				
Western Asia						
India			37944	72360	43839	91221
India, Pakistan						
Other (Japan, Ceylon, Iran, Israel, Lebanon, Other Asia, Philippines, syria, Turkey)						
Other Eastern and South East Asia						
Other Southern Asia			32580	65628	39277	81552
Other Eastern and South East Asia	26500	51333	34812	65196	41226	77452
Northern Africa						
Southern Africa						
Other Africa			18324	41868	27147	60062
Eastern Africa			15768	30744	9438	18902
Africa	24167	55067				
South adn Central America						
Caribbean and Bermunda						
West Indies and Latin America	65667	128200	70704	130104	46762	84329
Other commonwealth and British depencencies, all other			4752	9468		
Oceania					3071	6023
Other	4367	7333			0	37

Source: Author's calculations based on Census Public Use Microdata Files: 1971, 1981, 1986, 1991, 1996, and 2001.