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A Note on International Migrants' Savings and Incomes

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- Annual savings of international migrants from developing countries are estimated to be larger than $500 billion (or 2.3 percent of GDP) in 2012. Diaspora savings are relatively larger (9.3 percent of GDP) in low-income countries, and even higher for fragile and conflict affected states.
- Incomes of international migrants from developing countries are estimated to be $2.6 trillion in 2012, larger than the GDP of the sixth largest economy in the world.
- Migrant savings can be mobilized, through diaspora bonds or non-resident deposits, for financing development efforts in countries of origin.

The potential for mobilizing diaspora savings for financing education, healthcare and infrastructure in countries of origin is massive. Over 230 million international migrants from developing countries send over $400 billion in remittances to their countries of origin. At the same time, migrants also save a part of their incomes in the country of origin, mostly as bank deposits (see Figure 1 for a stylized representation of the uses of migrants' incomes in the country of destination and in the country of origin). In this note, we provide estimates of diaspora savings (following the methodology previously reported in Migration and Development Brief 14). A useful byproduct of this exercise is a set of estimates of diaspora incomes for developing countries.

For developing countries, diaspora savings are estimated to be $511 billion or 2.3 percent of GDP in 2012. The share of diaspora savings in GDP is around 9.3 percent for low-income countries, over four times that for middle-income countries. This share is even higher for Fragile and Conflict Affected States. For Eritrea, Liberia and Haiti, for instance, it could be as high as 27 percent, 44 percent and 65 percent respectively.

Diaspora incomes for developing countries are estimated to be nearly $2.6 trillion in 2012, larger than the GDP of United Kingdom, and just below the GDP of France, the fifth largest economy in the world.

Methodology

Migrants' incomes

Following Ketkar and Ratha (2009) and Ratha and Mohapatra (2011), the diaspora income of a country of origin *i* is the sum of migrants' incomes across all host countries *j*. In each host country *j*, diaspora income can be written as the product of the size of working-age diaspora stock and the average income earned by a working-age diaspora member.

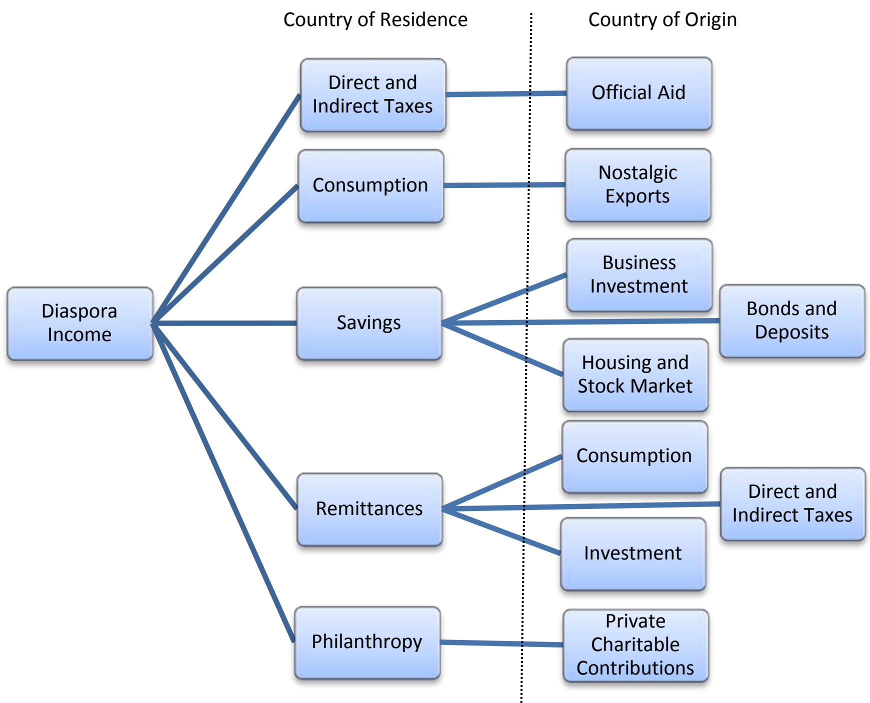
Thus,

$$Diaspora\ Income_i = \sum_j Diaspora\ Worker\ Stock_{ij} \times Migrant\ Income\ per\ Worker_j \qquad (1)$$

[1] Migration and Remittances Unit, Development Prospects Group, World Bank. Thanks to Auguste Kouame and Sanket Mohapatra for stimulating discussions on this topic.

Given the paucity of data on second and higher generation diaspora stocks, we use data on only first generation migrant stocks. Also, since data on the age structure of migrants in destination countries are not available, we assume that the share of working age (15-64) migrants in the total migrant stock is similar to that of the country of residence. This is a conservative assumption since migrants tend to be younger and of working age compared to the general population of many receiving countries, especially rich countries.

Figure 1: Use of migrants' income in countries of residence and origin.



The average income per worker (*GNIPW)* is taken as the Gross National Income per capita (*GNIPC)* divided by the working age to total population ratio. To adjust for variations in migrant income levels across destination countries, we assume that: (i) in the OECD countries, skilled migrants earn the same as the average income in the host country, and low-skilled migrants earn one-third of that; (ii) in the Gulf Cooperation Council countries, all migrants earn one-fifth of the average income in the host country; (iii) in all other countries, migrants earn a half of the average income in the host country. Thus,

$$Migrant\ Income\ per\ Worker_j = \sum_h w_h \times a_{jh} \times GNIPW_j \qquad (2)$$

where w_h is the share of workers with skill level *h* (high or low), and *a* is an adjustment factor. We assume that *a*=1 for high-skilled migrants and *a*=1/3 for low-skilled migrants in the OECD countries; a=1/5 in the Gulf Cooperation Council countries; and *a*=1/2 in all other countries.

Migrants' savings

Diaspora savings are the sum of migrants' savings of a particular country *i* across all host countries *j*. In each destination country *j*, they are assumed to be a product of the savings rate (*s)* and the income of the diaspora:

$$Diaspora\ Savings_i = \sum_j s_{ij} \times Diaspora\ Income_{ij} \qquad (3)$$

Three alternative assumptions are made regarding the savings rate of the diaspora: (a) a uniform savings rate of 20 percent, the observed average savings rate for developing countries in 2009 (used in Ratha and Mohapatra 2011) or s_{ij} =1/5 for all *i* and *j*; (b) the saving rate of the country of origin or $s_{ij} = s_i$ for all *j*; which reflects the notion that migrants retain savings norms of their country of origin (Al-Awad and Elhiraika, 2003); and (c) the saving rate of the country of residence, that is, $s_{ij} = s_j$ for all *i*.

Estimates

Migrants' incomes

Using data on per capita GNI from World Development Indicators, bilateral migrant stocks from United Nation Population Division (UNPD 2013), and the share of skilled migrants from Migration and Remittances Factbook 2011, equation (1) yields an estimate of migrants' income of $2.6 trillion in 2012. At this level of income, the migrant nation—a hypothetical economy comprising entirely of the current international migrants from developing countries—would lie between the GDP of France (the fifth largest economy in the world) and that of the United Kingdom (the sixth largest economy, see Table 1).[2] If incomes are adjusted for differences in the cost of living, the hypothetical migrant nation would rank as the eighth largest economy in the world in terms of GDP in purchasing power parity (PPP) terms (Table 1 and Box 1).

Table 1: Comparison of diaspora income with the GDP of the largest economies in 2012

Country	GDP ($ trillion)	Country	GDP PPP ($ trillion)
United States	16.2	United States	16.2
China	8.2	China	14.8
Japan	5.9	India	6.4
Germany	3.4	Japan	4.5
France	2.6	Germany	3.4
Migrant nation	*2.6*	Russian Federation	*3.4*
United Kingdom	2.5	Brazil	2.9
Brazil	2.3	*Migrant nation*	2.8
Russian Federation	2.0	France	2.4
Italy	2.0	United Kingdom	2.3
India	1.9	Italy	2.1

Source: Authors' calculations and World Bank, World Development Indicators database.

[2] The hypothetical migrant nation comprising about 181 million migrants from developing countries would be the sixth largest country by population, after China, India, United States, Indonesia, and Brazil.

Table 2: Estimated diaspora savings and incomes, 2012

	Diaspora stock (millions)	Diaspora income ($ billions)	Diaspora savings ($ billions)	Diaspora savings (% of GDP)
East Asia and Pacific	29	580	116	1.1
Europe and Central Asia	42	463	93	4.9
Latin America and Caribbean	34	731	146	2.7
Middle-East and North Africa	19	236	47	4.1
South Asia	35	359	72	3.1
Sub-Saharan Africa	22	184	37	2.9
All developing countries	181	2,553	511	2.3

Source: Authors' calculations and World Bank, World Development Indicators database.

Box 1: Diaspora savings with incomes adjusted for purchasing power parity

To account for differences in the cost of living across various destination countries of migrants, we re-estimate their savings using GDP per capita at purchasing power parity (based on the latest 2011 estimates). Since the cost of living in the developing countries is lower (and the purchasing power of the dollar is higher) than those in the high-income countries, the estimate of diaspora savings is higher. The PPP estimate of diaspora incomes is $2.8 trillion and diaspora savings, $569 billion in 2012 (Table 3).

Table 3: Estimated diaspora savings and incomes of developing regions in 2012 adjusted for purchasing power parity (PPP)

	Diaspora stock (millions)	**Diaspora income ($ billions)**	**Diaspora savings ($ billions)**
East Asia and Pacific	29	641	128
Europe and Central Asia	42	563	113
Latin America and Caribbean	34	725	145
Middle-East and North Africa	19	260	52
South Asia	35	464	93
Sub-Saharan Africa	22	190	38
All developing countries	181	2,843	569

Source: Authors' calculations and World Bank, World Development Indicators database.

Migrants' savings

If we assume that migrants save on average one-fifth of their income (the average saving rate for developing countries was just over 21 percent in 2012) we obtain an estimate of total migrant savings of $511 billion in 2012. According to these estimates, Latin America and the Caribbean (LAC) has the largest pool of diaspora savings ($146 billion), followed by East Asia and the Pacific (EAP) ($116 billion) (Table 2).

Among middle-income countries, Mexico has the largest pool of diaspora savings of around $59 billion and diaspora income of about $295 billion in 2012 (Table 4). This is followed by China with diaspora savings of around $46 billion and income of $228 billion. India comes next with diaspora savings of $42 billion approximately and diaspora income of about $210 billion. The magnitude of these savings relative to the size of the economies gives an alternative picture. In Jamaica, these savings are estimated at 46 percent of GDP followed by El Salvador at 29 percent and the Philippines at 11 percent. For middle-income countries for which Gross Domestic Savings are available, for Pakistan these savings are over 75 percent of domestic savings, for Philippines about 74 percent and for Ukraine around 71 percent.

The importance of diaspora incomes and savings is probably greater for low-income countries (Table 4). Among these countries, Bangladesh has the largest figures (diaspora income of $45 billion and savings of

$9 billion), followed by Haiti (diaspora income of $26 billion and savings of $5 billion), and Afghanistan (diaspora income of $14 billion and savings of $3 billion). For Fragile and Conflict Affected States the share of diaspora savings as a percentage of GDP tends to be even higher. Haiti's diaspora savings are around 65 percent of GDP while for Liberia and Eritrea they are about 44 percent and 27 percent of GDP, respectively.

Conclusion and caveats

Given the lack of reliable data, our estimates rely on many simplifying assumptions. We assume that migrants tend to retain home country savings behavior, which appears to be a conservative assumption since migrants may save an even larger proportion of income than their compatriots in the origin countries. Furthermore, the proportion of working age population (and therefore the resulting income and saving estimate) is likely to be higher among migrants than among the natives in the countries of residence. Our estimates of migrants' incomes could be improved by using parametric estimates of determinants of migrant income.[3]

The estimates above indicate that the size of diaspora savings and consequently the market for diaspora bonds (or non-resident deposits) is large. This is noteworthy for developing countries looking for new funding sources for financing development programs such as housing, schooling, hospitals, and infrastructure. Projects with direct and tangible benefits to the families of the migrants and their communities back home are likely to be particularly attractive to diaspora investors (Okonjo-Iweala and Ratha, 2011).

This research and policy agenda deserves far greater attention than it has received so far. To produce more reliable estimates of migrant incomes and savings, we need better data on bilateral migrant stocks. Also diaspora surveys in major destination countries are needed to collect data at the household level on migrants' income and savings profiles, age distribution and workforce participation.

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[3] In an attempt to encapsulate a better measure than income per person to assess the benefits of migration for countries, Clemens and Pritchett (2008) introduce "income per natural" defined as the average income earned by natives of a country residing in any part of the world. They use US census data to estimate household income per person by country of birth for foreign-born persons in the United States. Using this as a dependent variable, they run a regression using different explanatory variables to account for variations in this income. Since migrant incomes for other OECD countries are not available, they use coefficients from the US income determination regression to impute migrant incomes in other high-income OECD countries. Due to paucity of data, they do not report estimates of income per natural for migrants residing outside OECD countries.

Table 4: Estimated annual diaspora savings and incomes of select developing countries in 2012

		Diaspora stock (million)	Diaspora income ($ billion)	Diaspora savings ($ billion)	*Diaspora savings (% of GDP)*
	Middle Income Countries				
1	Mexico	13.2	295.1	59.0	*5.0%*
2	China	9.3	228.0	45.6	*0.6%*
3	India	14.2	209.6	41.9	*2.3%*
4	Philippines	5.5	142.1	28.4	*11.4%*
5	Russian Federation	10.8	86.2	17.2	*0.9%*
6	Vietnam	2.6	70.8	14.2	*9.1%*
7	Pakistan	5.7	59.3	11.9	*5.3%*
8	Ukraine	5.6	57.7	11.5	*6.6%*
9	Romania	3.3	56.7	11.3	*6.7%*
10	Turkey	3.1	52.4	10.5	*1.3%*
11	Morocco	2.9	45.8	9.2	*9.5%*
12	Colombia	2.4	41.8	8.4	*2.3%*
13	Cuba	1.5	41.2	8.2	*12.1%*
14	Kazakhstan	3.8	38.2	7.6	*3.7%*
15	Malaysia	1.4	38.1	7.6	*2.5%*
16	Brazil	1.8	38.0	7.6	*0.3%*
17	Iran, Islamic Rep.	1.1	35.4	7.1	*1.3%*
18	El Salvador	1.5	35.0	7.0	*29.3%*
19	Jamaica	1.1	33.7	6.7	*45.7%*
20	Egypt, Arab Rep.	3.5	33.7	6.7	*2.6%*
	Low income countries				
1	Bangladesh	7.8	45.0	9.0	*7.8%*
2	Haiti*	1.1	25.6	5.1	*65.4%*
3	Afghanistan*	5.1	14.1	2.8	*13.7%*
4	Ethiopia	0.6	12.6	2.5	*6.0%*
5	Myanmar*	2.6	12.1	2.4	*..*
6	Ghana	0.7	11.5	2.3	*5.6%*
7	Kenya	0.4	11.1	2.2	*5.5%*
8	Somalia*	1.9	10.6	2.1	*..*
9	Cambodia	1.1	10.2	2.0	*14.5%*
10	Lao PDR	1.3	9.5	1.9	*20.2%*
11	Nepal*	1.0	8.8	1.8	*9.3%*
12	Zimbabwe*	0.7	7.7	1.5	*15.6%*
13	Kyrgyz Republic	0.7	5.6	1.1	*17.2%*
14	Congo, Dem. Rep.*	1.2	5.4	1.1	*6.3%*
15	Eritrea*	0.4	4.2	0.8	*27.2%*
16	Liberia*	0.4	3.8	0.8	*44.0%*
17	Tajikistan	0.6	3.8	0.8	*10.8%*
18	Uganda	0.6	3.6	0.7	*3.6%*
19	Madagascar	0.1	3.4	0.7	*6.8%*
20	Tanzania	0.2	3.1	0.6	*2.2%*

Source: Authors' calculations and World Bank, World Development Indicators database. *Note:* Fragile and Conflict Affected States are marked by an asterisk (*). Complete data for some of the countries are not available.