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The drivers of diaspora donations for development: Evidence from the Philippines

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The Drivers of Diaspora Donations for Development: Evidence from the Philippines *

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Little is known about the drivers of migrant donations to their home countries. Using data on all donations from Filipino migrants administered by the Philippine Commission on Filipinos Overseas between 1990 and 2010, this paper explores which host and home country factors are associated with migrant donations. On the host country side, we find that donations increase with the level of income earned by the Filipino diaspora and with the number of hate crimes against minorities. On the home country side, we find that donations are not well-targeted. As donations mainly flow to provinces with high rates of emigration, they do not reach the least developed Philippine provinces. However, the diaspora is responsive to natural disasters and channels donations to provinces when they are hit by a typhoon.

Keywords: International migration, philanthropy, collective remittances

JEL classification: F22, F24

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1. Introduction

Migrant-sending countries are increasingly recognizing the development potential of their diasporas. Many developing countries are trying to integrate their native citizens abroad into efforts to promote development at home. Above all, migrants have been encouraged to contribute to the provision of public infrastructure (Newland et al., 2010). The most prominent policy example is Mexico's 3-for-1 program where every dollar donated by a migrant or a migrant association is matched by three dollars of government funds at the federal, state and municipal level to finance local development projects in the home communities.¹ In contrast to private remittances which migrants send to family members or friends for their private benefits, donations by migrants to community projects potentially generate benefits to all community members. In other words, migrant donations can be seen as migrants' private contribution to the provision of local public goods at home. Therefore, such migrant donations have also been termed collective remittances (Goldring, 2004).

Despite the increasing policy interest, little is known about migrant donations to their home countries. The literature on migrants' transfers to their home countries has almost exclusively focused on private, not collective remittances. Exceptions include Beauchemin and Schoumaker (2009) and Kiyima and Gonzales-Ramirez (2012) who show that migrant donations can foster local development in Burkina Faso and Mexico. Aparicio and Meseguer (2012) investigate the municipality-level determinants of the utilization of the 3-for-1 program in Mexico. They find that the program does not reach poorer municipalities and is politically biased. Luecke et al. (2012) analyze the individual-level determinants of donations by migrants from Moldova. They document that migrants are more likely to donate if they earn a high income, communicate frequently with their family members left behind, plan to return to their home country, have an insecure status in the host country, or have left children or elderly family members left behind.

This paper is the first to assess the host and the home country drivers of migrant donations simultaneously and over a long period of time using unique administrative data from the Philippines. The Philippines make a very interesting case study. With an estimated stock of 4.4 million permanent and 4.3 million temporary migrants in 2010 the Philippines is one of the largest migrant-sending countries in the world. In addition, the Philippine government has a long history of managing migration. The Commission on Filipinos Overseas (CFO) is one of the central government agencies entrusted with the management of migration. Since 1990 CFO has

¹ In addition, governments of several migrant-sending countries like Kenya, Nepal, or India have issued diaspora bonds, mainly to finance infrastructure development.

been facilitating the flow of migrant donations in the so-called LINKAPIL program (*Lingkod sa Kapwa Pilipino*, also known as *Link for Philippine Development Program*). The ultimate aim of this program is to increase the development impact of migration by channeling donations from Filipino migrants to local development projects in Philippine communities. Our analysis draws on detailed data on all LINKAPIL donations from Filipino migrants that were administered by CFO between 1990 and 2010.

We conduct the analysis in two steps. First, we analyze who donates by studying the relationship between host country characteristics and migrant donations. As the vast majority of LINKAPIL donations originate from the United States, the main destination of permanent migrants from the Philippines, we concentrate on donations from the US and use variation in the socio-economic conditions of the overall population and the Filipino population between US states and over time. Second, we analyze how donations are allocated across the Philippines by studying the relationship between home country characteristics and migrant donations. We consider all donations regardless of their origin and use variation in the socio-economic conditions between Philippine provinces and over time.

We draw on the economic literature on the motives of private remittances and philanthropy in general to inform the choice of host and home country characteristics used in our analysis (see Rapoport and Docquier, 2006, and Andreoni, 2006, for a summary). As Luecke et al. (2012) discuss in detail, these two literatures provide guidance to potentially relevant drivers of migrant donations. They identify altruism and exchange as the principal motives for migrant donations.

In the case of altruism, migrants care about the welfare of those who stay behind in the home country. If those in the home country are worse off than the migrant, altruism induces migrants to make donations for their home country. Altruism may play an important role as migrants typically multiply their income by working abroad (Clemens et al., 2008; McKenzie et al., 2010) thus widening the income gap between migrants and those who stay behind. The altruism motive predicts that donations increase with migrants' income and the degree they are still attached to their home country. In addition, for given stocks of migrants, more donations should flow to relatively poor areas in their home country.

In the case of exchange, migrants enter an (implicit) agreement with their home communities. Migrants donate to community projects to compensate community members for services they provide to migrants. For instance, migrants may need to rely on community members to look after children or elderly they leave behind. Migrants would donate to community facilities such as

schools or health centers to reward community members directly or indirectly for their additional efforts. Alternatively, migrant donations may also be viewed as a form of intertemporal exchange. Migrants would donate to build up or maintain social capital in their home communities, so they can draw on community support in the future. In this sense, donations would also help to preserve community membership rights, which may be important should migrants ever (need to) return home (Osili, 2004). The exchange motive predicts that donations rise if migrants intend to return home (compare Dustmann and Mestres, 2010) or if their status abroad is insecure so that the option of return provides insurance (compare Delpierre and Verheyden, 2010). Moreover, donations should primarily flow to migrants' home communities, not to other areas of the home country.

Our results provide support for both the altruism and the exchange motive for migrant donations. On the host country side, we find that migrant donations from the US increase with the level of income earned by the Filipino diaspora and with migrants' insecurity in the home country which we proxy by xenophobia as measured by the number of hate crimes. On the home country side, we find that migrant donations flow to provinces with high rates of emigration, but not to those with low levels of development. However, the Filipino diaspora is responsive to natural disasters and channels donations to provinces when they are hit by a typhoon.

2. Data and Empirical Strategy

2.1 Migrant Donations and the LINKAPIL Program

The Philippine government has built strong capacities to manage permanent and temporary migration. Among the most important government agencies entrusted with the task of migration management is the Commission on Filipinos Overseas (CFO). Its mission is to promote and uphold the interests of Filipino migrants abroad and preserve and strengthen the ties with overseas Filipino communities. One of CFO's core tasks is to facilitate migrant donations in the LINKAPIL program. CFO acts as the principal conduit between overseas Filipino donors, local counterparts such as local authorities and NGOs and the beneficiaries of the donations in the Philippines. Donations may be in cash (e.g., to finance scholarships), in kind (e.g., medical materials or school books) or in the form of direct assistance (e.g., medical missions). We base our analysis on administrative data of all LINKAPIL donations between 1990 and 2010. CFO records information on the donor and recipient including the geographical origin and destination as well as the type, purpose and amount of each donation. It is important to note that by no means all donations made by Filipino migrants are channeled through the LINKAPIL program

and recorded by CFO. The data capture only those donations that have been facilitated by CFO. In most cases, CFO facilitation is required due to Philippine regulations. For instance, donations of goods such as medical equipment, books, computers and the like are typically subject to tariffs or taxes or require a government permit to enter the country. Donations of direct assistance such as medical missions require a government permit, too. Therefore, the LINKAPIL database should provide an accurate picture of the types of donations that need CFO facilitation. At the same time, however, the database certainly misses a very substantial amount of donations that do not need CFO facilitation.

Most LINKAPIL donations come from individual Filipino migrants or migrant associations. Some LINKAPIL donations, however, are made by non-Filipino individuals or organizations that use CFO's facilitation services. We exclude these donations from our analysis. To distinguish between donations of Filipino and non-Filipino origin, we first examine whether the name of the donating organization bears any reference to the Philippines (e.g., Arkansas Philippine Association). If not, we then examine whether the name of the person who organized the donation is (likely to be) of Filipino origin.² We restrict our analysis to the remaining donations. According to this definition, 78 percent of all donations and 61 percent of the overall value of the donations involved Filipino migrants. These numbers are likely to be lower bounds as some of the donations that we classify as donations of non-Filipino origin may not have been made without the initiative and active role played by a Filipino migrant.³

For the period 1990-2010, the LINKAPIL database lists 3648 donations by Filipino migrants amounting to a total of about US\$ 40 million (evaluated in constant 2010 PHP and converted into US\$) or about US\$ 11,080 for the average donation. Most donations, however, are smaller than the average donation. The median donation has a value of US\$ 1127. Donations come from 259 different Filipino diaspora associations and 388 different private Filipino individuals. With 93% of the total volume of donations, diaspora associations play a far more important role than private Filipino individuals. As diaspora associations raise money among the Filipino population in the US and channel the money as a single donation to the Philippines, it is not possible to estimate how many Filipino migrants actually contributed to a LINKAPIL donation. 71% of the

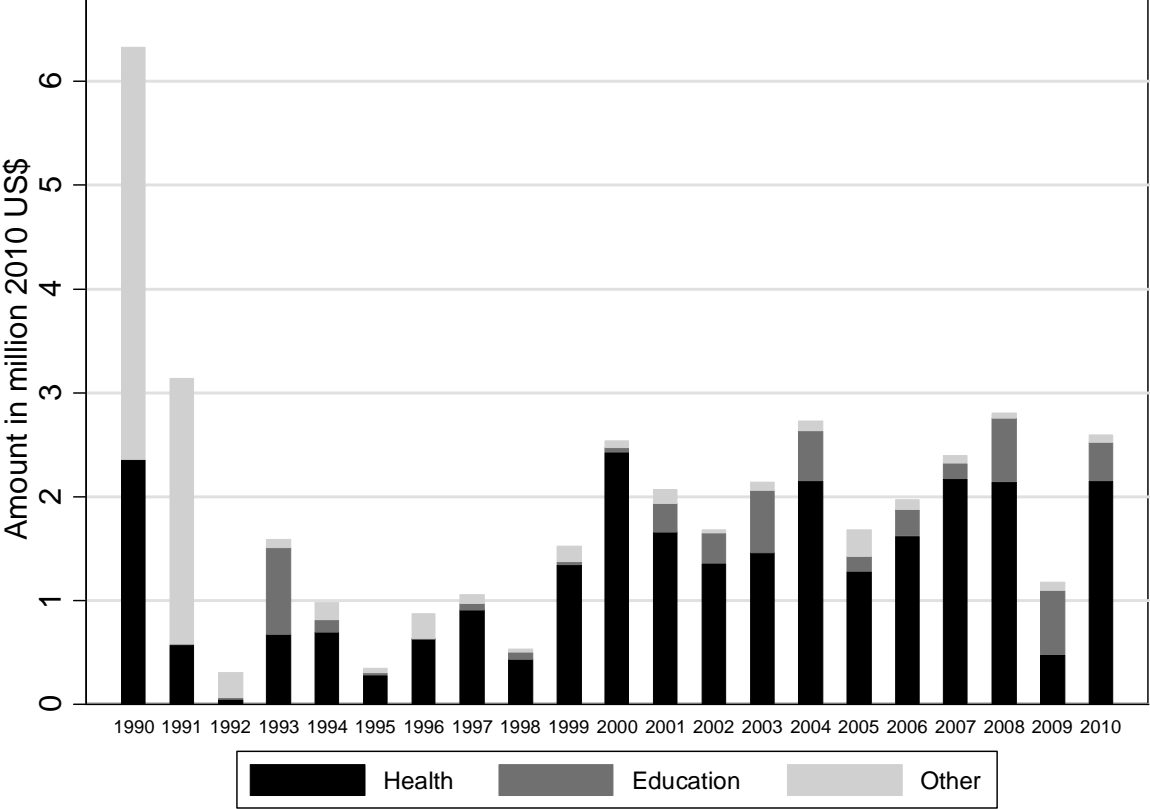
² This task was performed by our Filipino research assistant at the Asian Institute of Management.

³ At the same time, however, many Filipino migrant associations raise funds from both Filipinos and non-Filipinos. Although, as a consequence, we do not know much money is actually donated by Filipino migrants, there is certainly migrant effort involved in all donations that we classify as donations of Filipino origin.

total amount donated was in form of an in-kind contribution⁴, which also reflects the fact that cash donations by migrants are less likely to be captured by CFO.

Figure 1 plots the value of donations by purpose and over time. In general, the volume of donation does not follow a noticeable trend and fluctuates considerably over time. The overwhelming share of donations is health-related, mostly in the form of medical missions and medical materials. A sizeable share is dedicated to educational purposes such as educational materials, scholarships and the construction/renovation of classroom buildings. Other types of donation play a minor role. They include donations for calamity relief, or feeding and gift-giving programs. Table A1 in the appendix provides more details on the different types of donations. The unusually high levels of other donations in 1990 and 1991 are due to donations for calamity relief in response to a severe earthquake in Luzon, the most populated Philippine island, and the volcanic explosion of Mount Pinatubo.

FIGURE 1: Value of migrant donations by purpose and over time (1990-2010), in constant 2010 US\$



⁴ Valuation of in-kind donations is based on a standard rate sheet, which gives standard valuation for goods and services. E.g., for medical missions, the imputed value of the service rendered per patient is PHP 500 per patient for medical consultations, PHP 15,000-25,000 for minor surgery and PHP 30,000-50,000 for major surgery.

While Filipino migrants are relatively dispersed around the globe, the origin of migrant donations is very concentrated. Table 1 shows that more than 90 percent of donations (as measured by value) come from Filipino migrants in the US. This number contrasts with the fact that only 65 percent of recorded Filipino migrants (considering only permanent, not temporary migrants) live there. In other words, Filipino migrants in other countries account for only ten percent of donations.

TABLE 1: Origin of Filipino migrant donations and Filipino migrants' host countries

	Origin of donations (1990-2010)	Permanent migrants' host countries (stocks in 2010)
USA	90.75%	65.2%
Canada	4.58%	13.1%
Europe	1.71%	7.1%
Australia	0.43%	6.8%
Other	2.52%	7.8%

Notes: Data come from the Commission on Filipinos Overseas.

It is also illustrative to compare the overall amount of donations to the overall number of Filipino migrants. According to CFO estimates, there were 4.4 million permanent Filipino migrants in 2010. In addition, there were about 4.3 million temporary Filipino migrants who typically work on short-term contracts in the Middle East and Asian countries. Compared to these numbers, the amount of donations received in 2010, US\$ 2.6 million, appears low. However, one should keep in mind that the LINKAPIL database is likely to miss a considerable amount of other migrant donations to the Philippines.

2.2 Host and Home Country Characteristics

In the following, we introduce the host and home country characteristics used in our analysis. We also provide a visual analysis of the association between the most important host and home country characteristics and migrant donations. On the host country side, we exploit variation between US states and over time. On the home country side, we exploit variation between Philippine provinces and over time.

Host Country Characteristics: Socio-economic Conditions in US States

For the analysis of host country drivers of migrant donations, we only consider Filipinos who live in the US. We do so for two reasons. First, as shown above, migrants in other countries hardly make any donations through the LINKAPIL program. Second, for the US a wide range of state-level socio-economic variables is available including variables that are specifically based on the residential Filipino population. We characterize economic conditions of US states by their overall

levels of GDP per capita and unemployment rates (as reported by the Bureau of Economic Analysis) as well as Filipino-specific levels of per-capita income and unemployment rates (based on American Community Survey and Census data). In line with the altruism motive, we expect favorable economic conditions to increase migrant donations. We proxy the degree to which migrants' status abroad is insecure by the existence of xenophobic tendencies as measured by the number of hate crimes in each US state (as recorded by the Federal Bureau of Investigation). Xenophobia may increase migrants' probability to relocate and eventually return to their home country. In line with the exchange motive, we therefore expect the number of hate crimes to be positively associated with migrant donations. We also consider the share of naturalized Filipinos and the median age of the Filipino population in each US state (based on Census and American Community Survey data) as proxy for integration into the American society. Better integration into the host society may weaken links to the home country and possibly reduce migrant donations. Additional variables include the absolute and relative population size of the Filipino diaspora in each US state. For some state-year observations, data are missing. If data gaps are reasonably small, we interpolate missing values linearly. The upper two panels of Table A2 in the appendix provide summary statistics of the US variables used in our analysis.

As the maps in Figure 2 show, by far the largest amount of donations originates from California, which is also the state with the largest Filipino population. Other sizeable donation flows originate from Illinois, Michigan, and Virginia. As expected, there is a strong association between the flow of donations and the size of the Filipino population. One big exception is Hawaii, which hosts the second largest Filipino population after California, but ranks only 14th when it comes to the level of migrant donations. The last map in Figure 2 plots the average income of Filipinos across the US. Incomes of Filipinos are highest in New York and New Jersey and lowest in Hawaii and Alaska. Although reliable data is available for only 18 states, a positive association between migrant donations and the average income becomes apparent. The low average income of Filipinos in Hawaii may explain why donations from Hawaii are relatively low given the size of the local Filipino diaspora.

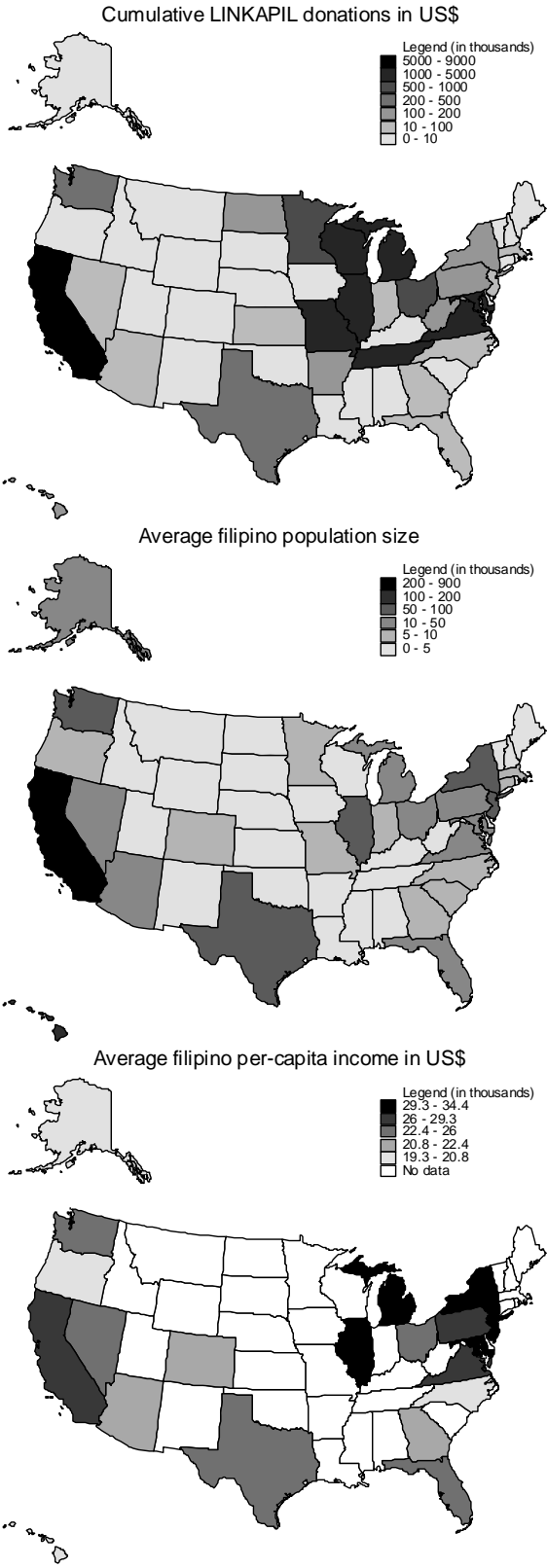
Home Country Characteristics: Socio-economic Conditions in Philippine Provinces

For the analysis of home country drivers of migrant donations, we examine the allocation of migrant donations across Philippine provinces. We consider all migrant donations regardless of their origin, not only those from the US. As a proxy for the level of socio-economic development of each Philippine province, we use the Human Development Index (HDI, compiled by the National Statistical Coordination Board). The HDI is a normalized and composite index that

gives equal weight to life expectancy, schooling levels, and per-capita income. Altruism suggests that less developed provinces attract more donations. Likewise, the literature on the allocation of aid argues that well-targeted aid should favor less developed regions (World Bank, 1998). Demographic variables include the overall population size (based on Census data and official population estimates) and the number of emigrants in flows not stocks (as recorded by CFO). We calculate the emigration rate as the share of the population that emigrates from the Philippines in a given year. As stock estimates of the number of emigrants by Philippine provinces are not available over time, we use the cumulative emigration rate of the past five years to proxy for the stock of emigrants. We expect provinces with higher emigration rates to receive more donations. We also examine whether Filipino migrants donate in response to natural disasters. Every year, several typhoons hit different parts of the country. We include a dummy that takes the value of one if a province was hit by a severe typhoon in a given year. In line with the altruism motive, we expect donations to be channeled to provinces that have been hit by a typhoon. The lower panel of Table A2 in the appendix provides summary statistics of the Philippine variables used in our analysis.

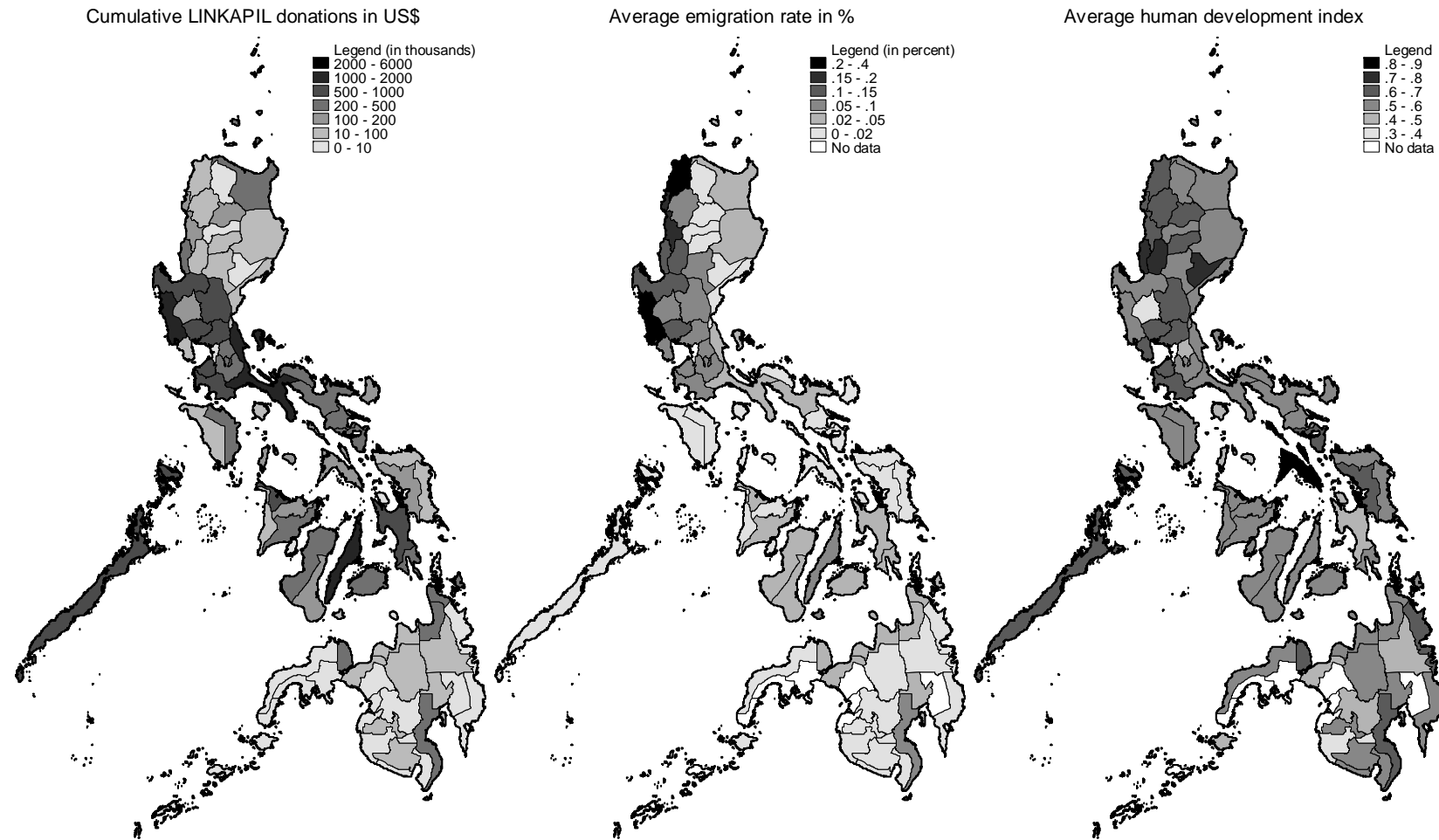
Figure 3 maps migrant donations, emigration rates, and the level of human development across Philippine provinces. It clearly shows that provinces with higher emigration rates receive more donations. The provinces with the highest inflows of donations are Calabarzon and Central Luzon, which also have a high number of emigrants both in terms of absolute numbers and relative to the population. There is a positive correlation between the level of socio-economic development and emigration rates. Thus, migrant donations are not targeted less developed provinces, which may be due to the fact that migrants originate from more developed provinces.

FIGURE 2: Origin of migrant donations, Filipino population and Filipino per-capita income by US states (1996-2010)



Notes: Cumulative donations are the sum of LINKAPIL donations in the period 1996-2010 in constant 2010 US\$. Average Filipino population size is calculated for the period 1996-2010. The size of the Filipino population is interpolated for the years, in which no numbers are available. Average Filipino per capita income is calculated for the period 2000-2010.

FIGURE 3: Destination of migrant donations, emigration rate and Human Development Index by Philippine provinces (1995-2006)



Notes: Cumulative donations are the sum of LINKAPIL donations in the period 1995-2006 in constant 2010 US\$. The emigration rate is defined as the share of the population that emigrates from the Philippines in a given year. The average emigration rate is calculated for the period 1995-2006. Total population size is interpolated for the years, in which no numbers are available. The average human development index is calculated for the period 1995-2006.

2.3 Econometric Framework

We estimate the following equation to analyze the host and home country drivers of migrant donations:

$$D_{tr} = \alpha + X'_{tr}\beta + \mu_t + \varphi_r + \varepsilon_{tr}$$

with t indexing years and r indexing host (US states) or home country (Philippine provinces) regions. X is a vector of home or host country characteristics introduced above. We aggregate donations in the LINKAPIL database at the region-year level and use two different donation measures D as dependent variables: i) a dummy capturing whether at least one donation from/to region r was made in year t and ii) the volume of donations measured in constant 2010 US\$. For the first donation variable, we use the Probit model to take into account the binary nature of the dependent variable. For the second donation variable, we face the problem of a high number of region-year cells with zero donations. Performing OLS on such a variable and using linear approximation for the relationship between the conditional mean of donations and our explanatory variables is likely to lead to biased results. We therefore use the Tobit model that explicitly considers the censored nature of the dependent variable. Using the Tobit model we can compute the overall marginal effect and the marginal effect for positive outcomes. Together with the results from the Probit estimation we are thus able to assess the extensive and intensive margins of donations. We estimate the model separately for US states to investigate the host country drivers of migrant donations and Philippine provinces to investigate the home country drivers of migrant donations.

Although our analysis does not claim to identify causal effects, we aim to control for some important confounding factors that may lead to spurious relationships. Most importantly, we want to rule out that observed relationships are the mere result of correlated time trends. As donations fluctuate considerably over time (compare Figure 1), controlling for common time trends may be important to understand the structural drivers of migrant donations. In alternative specifications, we therefore include year dummies μ_t in our model. When looking at the host country drivers of donations, year dummies capture all (observed and unobserved) aggregate changes in the US (e.g., general economic trends) as well as in the Philippines (e.g., general trends in living conditions or the severity of the typhoon season). When looking at the home country drivers of donations, year dummies control for all aggregate changes in the world as well as in the Philippines.

In addition, we also consider region fixed effects φ_r . Region fixed effects eliminate all (observed and unobserved) heterogeneity in the host country (e.g., general attitudes towards immigration) and the home country (e.g., institutional quality) that is constant over the period under consideration. Region fixed effects may also be important to control for the (time-invariant) selection of specific types of Filipinos into migration and their sorting into specific destinations. For instance, migrants who generally care about the Philippines may choose to locate in California, which hosts a huge Filipino community. As a result, any relationship between socio-economic conditions and donation flows from California may be spurious because it merely reflects the type of migrants who choose to live in California. In principle, region fixed effects are helpful to arrive at more causal estimates. However, they limit the identifying variation to different changes between regions over time. Many of the explanatory variables used in our analysis do not vary much over time. As a result, there may be only little identifying variation left, which may lead to imprecise estimates. Hence, the specifications with state fixed effects have to be interpreted with caution.

Allowing for unobserved heterogeneity by means of state or year fixed effects in non-linear models like the Probit or Tobit model is tricky. We start with normal Probit and Tobit models that ignore the panel structure of the data. To consider year fixed effects, we estimate random effects versions of the Probit and Tobit models. To consider region fixed effects, we estimate correlated random effects versions of the two models. These models make parametric assumptions about the distribution of unobserved effects given the observed covariates (see Wooldridge, 2002). The random effects model assumes independence of unobserved effects and the covariates. The correlated random effects model is an extension of the traditional random effects model that allows for correlation between unobserved effects and the covariates. This relationship, however, needs to be modeled parametrically (Mundlak, 1978). We implement the correlated random effects model by including region-specific averages of each covariate over time as additional regressors.

Even though our analysis does not necessarily identify causal effects, the results are still informative for policymakers. Those attributes for which we document a robust statistical relationship with donations, provide a useful starting point for leveraging donations from Filipino migrants abroad to different provinces in the Philippines.

3. Results

3.1 Host Country Drivers of Migrant Donations

We investigate the host country drivers of migrant donations in two ways. First, we examine the relationship between migrant donations and general characteristics of US states including the absolute and relative population size of the Filipino population, overall levels of GDP per capita and unemployment as well as the number of hate crimes (Table 2). Second, we examine the relationship between migrant donations and Filipino-specific characteristics of US states including Filipino per-capita income, Filipino unemployment rate, the share of naturalized Filipinos, and the median age of the Filipino population (Table 3). Filipino-specific variables are only available for the 2000s and only for the 18 US states that host more than 10,000 Filipinos.⁵ Therefore the sample to study Filipino-specific characteristics of US states is considerably smaller.

As expected, we find robust evidence that larger Filipino populations donate more. In the specifications that are based on all US states (Table 2), the marginal effect of the logged Filipino population is close to one. As the dependent variable is also measured in logs, the marginal effect points to a unit elasticity of donations with respect to the Filipino population. In other words, donations increase in proportion to the Filipino population. In the specifications that are based only on US states with a sizeable Filipino population (Table 3), however, the elasticity is higher than one. This result suggests that larger local diasporas facilitate the collection of migrant donations, possibly because they reduce communication and transaction costs.

Donations are driven by the economic situation of Filipinos in the US. Higher per-capita incomes among the Filipino population are strongly associated with higher levels of migrant donations (Table 3). An increase in the average income of Filipino migrants by US\$ 1000 is associated with an increase in the amount of donations by 0.5 to 1 percent. This overall increase is driven by an increase on both the extensive and intensive margin. The relationship is statistically significant and robust to the inclusion of time dummies. Controlling for time invariant characteristics changes the marginal effects only slightly. However, due to the increased standard errors, the marginal effects are no longer statistically significant. By contrast, the relationship between Filipino-specific unemployment rates and migrant donations does not yield a clear pattern (Table

⁵ US states with a Filipino population larger than 10,000 are Alaska, Arizona, California, Florida, Georgia, Hawaii, Illinois, Maryland, Michigan, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Texas, Virginia, Washington.

3). It may be that potential Filipino donors are not at risk of becoming unemployed. If so, the association between Filipino per-capita incomes and migrant donations would be relevant mainly for the intensive margin of income (i.e., when Filipinos are employed and earn income). The general economic situation in the US as measured by overall levels of GDP per capita and unemployment rates is not related to the donation behavior of Filipino migrants in a robust way (Table 2).

We do not find supportive evidence that the level of integration in the American society matters for migrant donations. Naturalization rates are positively associated with migrant donations in the specifications without year dummies and state fixed effects (Table 3). This association ceases to be significant, however, once we control for year dummies. It may hence be that the association is due to common time trends in naturalization rates and donation flows. We find a very robust and in many specifications statistically significant positive relationship between the number of hate crimes and migrant donations (Table 2). This result is consistent with the idea that a xenophobic environment increases migrants' probability of return and therefore the need to maintain membership rights in their home communities.

3.2 Home Country Drivers of Migrant Donations

We investigate the home country drivers of migrant donations by examining the relationship between migrant donations and characteristics of Philippine provinces including the cumulative emigration rate of the past five years, the human development index, the population size as well as a dummy indicating whether a province was hit by a severe typhoon in a given year (Table 4).

Several patterns arise. Most importantly, donations are not targeted well. Migrants appear to channel donations primarily to their home provinces. There is a strong association between past emigration rates and migrant donations on the intensive as well as the extensive margin. As Filipino migrants typically originate from more developed provinces, however, donations do not reach less developed provinces. This argument is supported by the fact that the human development index is not associated with migrant donations. The positive, but insignificant marginal effects suggest that migrant donations do not benefit the poorest parts of the Philippines. Nevertheless, the results also show that the diaspora responds altruistically to natural disasters. Provinces that are hit by a severe typhoon are 15 to 20 percentage points more likely to receive donations and also receive significantly higher amounts of donations in the year of the typhoon.

4. Conclusion

There is no doubt that migrant donations have been a welcome addition to the limited resources available in the Philippines. For instance, health-related donations are a major contribution from the Filipino diaspora and augment the low public health budget. At the same time, our analysis suggests that expectations regarding the development potential of diaspora donations should not be too high. The overall amount of donations has been relatively modest given the enormous size of the Filipino diaspora and donation patterns do not only point to altruism, but also exchange as a motive for donations. Therefore, donations flow primarily into migrants' home provinces, which are relatively well developed. Donations are hence not targeted to those provinces with the greatest needs. Nonetheless, the Filipino diaspora is responsive to natural disasters in its home country.

These results provide useful guidance for policymakers who want to improve the management and coordination of diaspora donations. Three specific policy implications can be drawn from our analysis for the LINKAPIL program. First, CFO may play a more active role in channeling donations to the least developed provinces with low levels of migration. Second, after natural disasters such as typhoons CFO may specifically target migrants from affected provinces and call for their support in calamity relief efforts. Third, CFO may specifically target rich and large segments of the global Filipino diaspora to increase the overall amount of donations. Such measures may help to share the gains from migration and increase the development impact of migrant donations.

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Tables

TABLE 2: Host-country drivers of migrant donations: The Filipino diaspora in the US, general determinants (1996-2010)

	observed donations (log)									binary donations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	Tobit	Tobit	RE Tobit	RE Tobit	CRE Tobit	CRE Tobit	Probit	RE Probit	CRE Probit
	coef/m.e.	coef/m.e.	coef/m.e.	total m.e.	pos. m.e.	total m.e.	pos. m.e.	total m.e.	pos. m.e.	m.e.	m.e.	m.e.
Filipino population (logged)	0.942** (0.434)	0.963** (0.463)	4.975** (2.512)	0.904** (0.454)	0.843** (0.409)	1.067** (0.502)	1.012** (0.469)	8.051** (3.610)	7.517** (3.076)	0.076** (0.037)	0.097** (0.045)	0.548 (0.400)
Filipino population share (%)	-0.515 (0.699)	-0.503 (0.713)	2.629** (1.257)	-0.917* (0.555)	-0.856* (0.501)	-0.194 (1.447)	-0.184 (1.372)	6.472 (4.441)	6.043 (4.218)	-0.068 (0.049)	-0.021 (0.139)	0.956 (0.752)
General GDP per capita (thousand 2010 US\$)	0.024* (0.014)	0.023 (0.017)	0.016 (0.073)	0.030*** (0.011)	0.028*** (0.010)	0.015 (0.082)	0.014 (0.077)	-0.039 (0.139)	-0.037 (0.130)	0.003*** (0.001)	0.002 (0.008)	-0.004 (0.016)
General unemployment rate (%)	0.096 (0.169)	0.010 (0.364)	0.131 (0.186)	0.141 (0.137)	0.131 (0.129)	0.097 (0.255)	0.092 (0.239)	-0.130 (0.250)	-0.122 (0.236)	0.015 (0.013)	0.015 (0.027)	-0.006 (0.026)
Number of hate crimes (logged)	0.525* (0.296)	0.505 (0.315)	0.406 (0.426)	0.635* (0.381)	0.592* (0.352)	0.455 (0.394)	0.432 (0.373)	0.697 (0.428)	0.650* (0.384)	0.054* (0.032)	0.036 (0.038)	0.058 (0.045)
Year fixed effects		X	X			X	X	X	X		X	X
State fixed effects			X									
State averages								X	X			X
Observations	744	744	744	744	744	744	744	744	744	744	744	744
Adjusted R ²	0.20	0.19	0.05									

Notes: Clustered standard errors in parenthesis. Standard errors for random effects (RE) and correlated random effects (CRE) models are obtained from 999 bootstrap replications with state clusters. ***/**/* denote significance at the 1/5/10 percent level. Total m.e. are mean marginal effects for the overall change in donations. Pos. m.e. are mean marginal effects for the change in positive donations.

TABLE 3: Host-country drivers of migrant donations: The Filipino diaspora in the US, Filipino-specific determinants (2000-2010)

	observed donations (log)									binary donations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS coef/m.e.	OLS coef/m.e.	OLS coef/m.e.	Tobit total m.e.	Tobit pos. m.e.	RE Tobit total m.e.	RE Tobit pos. m.e.	CRE Tobit total m.e.	CRE Tobit pos. m.e.	Probit m.e.	RE Probit m.e.	CRE m.e.
Filipino population (logged)	1.576** (0.737)	1.689** (0.694)	14.289*** (4.431)	2.032*** (0.583)	1.561*** (0.453)	2.062 (1.477)	1.597 (1.161)	21.086* (12.726)	16.817 (11.425)	0.146*** (0.055)	0.185 (0.285)	1.254 (2,159.266)
Filipino population share (%)	0.164 (0.177)	0.149 (0.157)	-1.391 (2.418)	0.225 (0.160)	0.173 (0.125)	0.275 (1.638)	0.213 (1.273)	-0.238 (7.641)	-0.190 (6.092)	0.019* (0.011)	0.023 (0.324)	0.099 (625.683)
Filipino per-capita income (thousand 2010 US\$)	0.658** (0.276)	0.676** (0.310)	0.658* (0.387)	0.920*** (0.288)	0.707*** (0.230)	0.926** (0.401)	0.717** (0.328)	0.551 (0.594)	0.440 (0.487)	0.068*** (0.015)	0.096 (0.062)	0.048 (275.4)
Filipino unemployment rate (%)	-0.491 (0.545)	-0.494 (0.594)	0.478* (0.247)	-0.934 (0.703)	-0.717 (0.538)	0.513 (0.442)	0.397 (0.346)	0.895 (0.650)	0.714 (0.571)	-0.064 (0.050)	0.056 (0.074)	0.086 (94.063)
Filipino median age	-1.067** (0.438)	-1.118** (0.461)	-0.433 (0.395)	-1.665*** (0.440)	-1.279*** (0.340)	-1.149 (0.747)	-0.890 (0.580)	-0.264 (0.828)	-0.211 (0.662)	-0.128*** (0.034)	-0.142 (0.122)	-0.074 (2,036.161)
Share of naturalized filipinos (%)	0.104** (0.048)	0.049 (0.240)	-0.075 (0.147)	0.175*** (0.049)	0.134*** (0.037)	0.075 (0.195)	0.058 (0.151)	0.222 (0.291)	0.177 (0.240)	0.014*** (0.004)	0.008 (0.041)	0.019 (36.427)
Year fixed effects		X	X			X	X	X	X		X	X
State fixed effects			X									
State averages								X	X			X
Observations	198	198	198	198	198	198	198	198	198	198	198	198
Adjusted R ²	0.24	0.22	0.07									

Notes: Clustered standard errors in parenthesis. Standard errors for random effects (RE) and correlated random effects (CRE) models are obtained from 999 bootstrap replications with state clusters. ***/**/* denote significance at the 1/5/10 percent level. Total m.e. are mean marginal effects for the overall change in donations. Pos. m.e. are mean marginal effects for the change in positive donations.

TABLE 4: Home-country drivers of migrant donations: The allocation of migrant donations across Philippine provinces (1995-2006)

	observed donations (log)									binary donation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	Tobit	Tobit	RE Tobit	RE Tobit	CRE Tobit	CRE Tobit	Probit	RE Probit	CRE
	coef/m.e.	coef/m.e.	coef/m.e.	total m.e.	pos. m.e.	total m.e.	pos. m.e.	total m.e.	pos. m.e.	m.e.	m.e.	m.e.
Cumulative emigration rate in periods t-5 to t-1 (%)	1.665*** (0.569)	1.951*** (0.596)	-0.581 (1.635)	1.531*** (0.510)	1.147*** (0.386)	1.968** (0.949)	1.517** (0.737)	1.435 (4.215)	1.111 (3.265)	0.150** (0.060)	0.173* (0.092)	0.026 (0.404)
Human development index	3.398 (3.302)	3.228 (3.275)	2.752 (6.138)	3.120 (3.668)	2.336 (2.752)	3.823 (3.777)	2.948 (2.920)	5.081 (8.041)	3.936 (6.231)	0.258 (0.348)	0.353 (0.395)	0.716 (0.880)
Typhoon (dummy)	1.416*** (0.511)	1.717*** (0.535)	0.840 (0.546)	1.597*** (0.531)	1.196*** (0.400)	1.419*** (0.538)	1.094*** (0.415)	1.161** (0.564)	0.900** (0.436)	0.199*** (0.059)	0.173*** (0.061)	0.147** (0.062)
Population (logged)	1.923*** (0.188)	1.834*** (0.183)	1.571 (3.720)	2.257*** (0.207)	1.690*** (0.161)	2.067*** (0.237)	1.594*** (0.188)	-2.656 (4.387)	-2.057 (3.405)	0.199*** (0.019)	0.206*** (0.022)	0.323 (0.565)
Year fixed effects		X	X			X	X	X	X		X	X
Province fixed effects			X									
Province averages								X	X			X
Observations	876	876	876	876	876	876	876	876	876	876	876	876
Adjusted R ²	0.19	0.28	0.16									

Notes: Clustered standard errors in parenthesis. Standard errors for random effects (RE) and correlated random effects (CRE) models are obtained from 999 bootstrap replications with province clusters. ***/**/* denote significance at the 1/5/10 percent level. Total m.e. are mean marginal effects for the overall change in donations. Pos. m.e. are mean marginal effects for the change in positive donations.

Appendix

TABLE A1: Types of donations (ordered by importance)

Type	Description	Share in total donations (by value)
Medical materials	Donations of medicines, medical supplies and medical equipment, ranging from ambulances, dental chairs, reading glasses up to X-ray machines and diagnostic equipment; freight, shipment and distribution costs are also included	37.46%
Medical mission	Groups of medical personnel come to the Philippines to render medical services such as such as dental, surgical, eye care or medical consultation	28.72%
Calamity relief	Donations for calamity relief including food and non-food items like blankets, medicines and medical supplies, used clothing and donations of cash; freight, shipment and distribution costs are also included	17.96%
Educational materials	Donations of books, school supplies, equipment such as computers including the associated freight, shipment and distribution costs	4.65%
Skills transfer	First component: Participants in the Exchange Visitors Program (EVP) enter the USA on a J-1 visa, which requires the holder to return to her country for at least 2 years prior to re-entering the USA on a regular working visa. However, waivers to the two-year period can be obtained if the holder conducts a training program in the Philippines. Donations are in the form of seminars and workshops conducted by the individual. Second component: Under the EVP Program, another requirement for converting from a J-1 visa to a regular working visa is a donation of US\$ 1,500 which is used by CFO to grant scholarships for students in master or doctoral degrees in the Philippines.	2.97%
Scholarship	Donations to finance scholarships including tuition, stipend, school supplies, uniforms etc.	2.69%
Small-scale infrastructure	Donations mostly for the construction of classrooms, repair of housing, and sanitary facilities and water-well systems	2.38%
Gift giving	Gift bags (assorted goods) for distribution to needy families including rice, toys, assorted goods, including cash for this purpose; may be associated with Christmas	2.29%
Financial assistance	Financial assistance may go to any of the other categories	0.52%
Feeding program	Donations for supplementary feeding such as milk, rice, etc.	0.34%
All		100.00%

Notes: While donations have only been classified for one purpose by CFO, the used classification categories are not mutually exclusive. For instance, medical missions could also be part of calamity relief and vice versa.

TABLE A2: Summary statistics

	# regions	# obs.	mean	std. dev.	minimum	maximum
<i>US states (1996 - 2010)</i>						
value of donations (2010 US\$)	47-50	744	28,004	93,096	0	985,766
donation (dummy)	47-50	744	0.25	-	0	1
number of filipinos	47-50	744	38,717	144,295	303	1,195,580
filipino population share (%)	47-50	744	0.40	0.62	0.05	3.64
GDP per capita (thousand 2010 US\$)	47-50	744	46.16	17.67	27.77	169.90
general unemployment rate	47-50	744	5.29	1.87	2.30	14.90
number of hate crimes	47-50	744	156.39	263.46	0.00	2,246.00
<i>US states with Filipino populations > 10,000 (2000 - 2010)</i>						
value of donations (2010 US\$)	18	198	67,713	147,728	0	985,766
donation (dummy)	18	198	0.48	-	0	1
number of filipinos	18	198	115,287	236,893	11,068	1,195,580
filipino population share (%)	18	198	1.70	3.35	0.11	15.48
filipino per-capita income (thousand 2010 US\$)	18	198	25.72	4.55	18.12	36.40
filipino unemployment rate	18	198	5.62	1.41	3.00	12.70
filipino median age	18	198	32.43	2.20	27.30	38.00
share of naturalized filipinos (%)	18	198	51.14	10.89	22.90	69.75
<i>Philippine provinces (1995 - 2006)</i>						
value of donations (in 2010 US\$)	73	876	19,529	59,701	0	832,422
donation (dummy)	73	876	0.47	-	0	1.00
current emigration rate (%)	73	876	0.04	0.05	0.00	0.43
cumul. emigration rate in periods t-5 to t-1 (%)	73	876	0.20	0.28	0.01	2.21
human development index	73	876	0.56	0.09	0.28	0.87
typhoon (dummy)	73	876	0.09	-	0.00	1.00
population size	73	876	860,548	712,932	14,180	3,780,296

Notes: All numbers are based on region-year cells.