

## Chapter 5

# Migration and agriculture in the Philippines

*Agriculture contributes only about 10% of the Philippines' economy, which is diversifying rapidly. Nevertheless, rural and agricultural poverty is deepening and it has become common for rural residents to move within the Philippines but also internationally to the Gulf or other Asian countries to seek work. The Philippine government views agriculture as an important component of its development strategy. This chapter explores data gathered from the IPPMD survey of 593 farming households across the country to understand how migration is affecting the sector and how agricultural policies influence people's migration decisions. The findings have policy relevance in terms of the role of emigration and return migration in diversifying the rural economy, and the role of agricultural programmes such as subsidies and agricultural land title certificates in contributing to emigration.*

As in many countries, economic and social development in the Philippines has been accompanied by a move away from rural areas, and thus from agricultural activities. While in many cases this movement tends to be internal, international migration is also frequent, driven by deepening rural and agricultural poverty (IOM and SMC, 2013). It has become common for rural residents from the Philippines, including those from agricultural households, to work in the Gulf countries or countries in Asia where there is strong labour demand. This emigration can alter the agricultural activities of their households, and the sector as a whole.

There are several components to this change. The departure of a member decreases household labour availability, which may in turn change the roles and types of activities the household engages in. If several individuals leave from the same community, the aggregate effect can reduce the overall production of the community. However, emigrants often remit part of their earnings, which can ease households' financial constraints and encourage productive investment. The income sent home by emigrants represents a vital life source for rural regions that often lack financial capital. At the aggregate level, investments in the agricultural sector can have positive spillovers which benefit the sector as a whole. Finally, emigrants may return with new ideas, key contacts, and financial capital which they put to productive use, providing a general boost to the sector. Despite the growing links between migration and the agricultural sector, migration has generally not been factored into rural development policy in the Philippines (Gregorio and Opiniano, 2011).

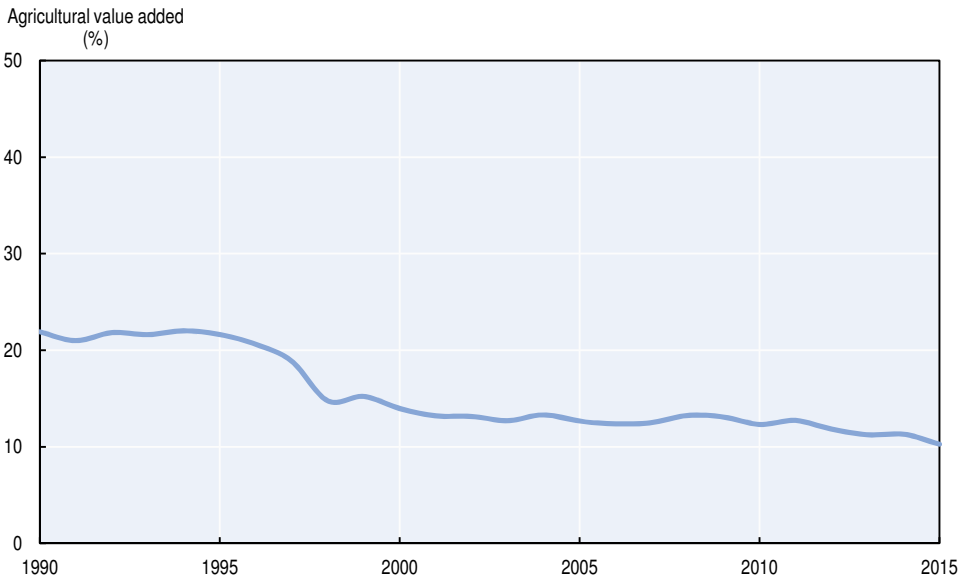
This chapter investigates these dynamics, drawing on analysis of the IPPMD survey. It is divided into four parts. The first part provides a contextual overview of the Philippines' agricultural sector and the data collected through the IPPMD project in 2014. The second part discusses the impact that migration may have on the agricultural sector through three dimensions: emigration, remittances and return. The third part discusses the influence of agricultural policies on migration decisions, such as whether to leave, remit or return. The chapter concludes by summarising the policy recommendations.

## **A brief overview of the agricultural sector in the Philippines**

The Philippines has not been a primarily agricultural economy for at least 50 years. Since the 1970s, agriculture's share of value added in gross domestic product (GDP) has not exceeded 30% (World Bank, 2016) and its share has consistently decreased over the past four decades. In 2015 it represented only

10% (Figure 5.1). Moreover, an agricultural production per capita index measured at 100 in 2004-06 had only increased to 104 by 2013 (FAO, 2016a), the third lowest amongst IPPMD partner countries. Nevertheless and although agriculture's role in the economy has waned, the sheer size of its agricultural population has ensured that the total value of its agricultural production in 2013 is substantial. It was estimated at constant 2004-06 USD 17.4 billion (FAO, 2016b), the highest by a wide margin of all the IPPMD partner countries, and 26<sup>th</sup> in the world.

Figure 5.1. **The weight of agriculture in the Philippines' economy continues to fall**  
Valued added in agriculture (% of GDP), 1990-2015



Source: World Bank (2016), *World Development Indicators* (database), <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>.  
StatLink  <http://dx.doi.org/10.1787/888933458321>

While the importance of agriculture has fallen as a share of the country's GDP, it continues to play an important role. In 2013, 31% of the population were working in the agricultural sector (FAO, 2016c), although this was the third lowest figure amongst IPPMD partner countries and much lower than the share of the population living in rural areas (56%, United Nations, 2014). The failure to pursue structural reforms and fix shortcomings in infrastructure has contributed to a relatively sluggish agricultural sector and chronic development imbalances between rural and urban areas (Malaluan and Dacio, 2001; IOM and SMC, 2013). Moreover, the country's irrigation system is poor and not improving (PIDS, 2014). Despite these shortcomings, the Philippines has been commended for having successfully achieved the Millennium Development Goal target of reducing the proportion of undernourished people by at least 50% by the end of 2015 (FAO, 2016d), in large part due to growth in agricultural productivity (FAO, 2015).

The IPPMD survey included a specific module on household agricultural activity.<sup>1</sup> The module was divided into three strands: i) activities related to arable farming; ii) those related to animal husbandry; and iii) specific agricultural policies from which households may have benefited. Any household declaring an involvement in arable farming or livestock rearing was considered to be an agricultural household – the questions on agricultural policies were only put to these households.<sup>2</sup>

Less than one-third of the households in the sample were involved in some type of agricultural activity at the time of the interview (only 593 of the 1 999 households interviewed; Table 5.1).

**Table 5.1. The majority of the households surveyed were not agricultural**

Type of agricultural activity	Number of households	Share of households (%)	Total share (%)
Non-agricultural households	1 406	70	100
Agricultural households	593	30	
Amongst agricultural households:			
<i>Arable farming only</i>	115	19	
<i>Livestock rearing only</i>	372	63	100
<i>Arable farming and livestock rearing</i>	106	18	

Farming households have a similar number of members on average as non-farming households (4.8 vs. 4.7). However, they have a lower dependency ratio (0.73 vs. 0.77), meaning they contain relatively fewer children and elderly people. In addition, such households have a higher adult male-to-female ratio (1.04 vs. 0.95) and fewer heads of households that are women (27% vs. 33%).

In terms of geographical location, 65% of agricultural households are in rural areas, while only 39% of rural households are involved in agriculture. This means that a significant part of agriculture takes place in areas deemed “urban”, and that there is also a wide variety of non-farming activities undertaken in rural areas.

## How does migration affect agriculture in the Philippines?

The global literature offers two main views on how migration affects the agricultural sector. The first paints a negative picture, highlighting the loss of labour and the potential for that loss to affect food security and economic growth in rural areas. The second highlights the positive effect garnered from remittances and return migration (FAO and IFAD, 2008). The two views are not mutually exclusive and can be summarised as follows:

- Emigration decreases labour availability within the household and potentially in the wider community. For example, households in central Mali consider the loss of a young man’s agricultural contribution to be greater than any gain

from remittances (McDowell and de Haan, 1997). The departure of the most productive workers may even lead to labour shortages (Tacoli, 2002) and food insecurity in certain communities (Skeldon, 2009; Cotula and Toulmin, 2004; Cissé and Daum, 2010; Tsiko, 2009).

- Migration can be a source of investment and innovation for the sector through remittances and social and financial capital brought home by return migrants. These can be invested in productive assets such as machinery, barns, fencing, feeding mechanisms, irrigation systems and tractors (Mendola, 2008; Tsegai, 2004). The productive investment of remittances can also help households move from labour-intensive to capital-intensive activities (Lucas, 1987; Miluka et al., 2007; Taylor and Wouterse, 2008; Gonzalez-Velosa, 2011), or into specialisation (Böhme, 2015; Gonzalez-Velosa, 2011). Remittances also permit agricultural households to resist and insure against hardships (Lucas and Stark, 1985). At the same time, migration can also be the catalyst for a move out of the sector as remittances and the various forms of capital repatriated by return migrants can be used to invest in activities outside of the agricultural sector (Miluka et al., 2007).

This section explores these issues in the Philippines, drawing on the empirical analysis of the IPPMD dataset.

### ***Households with emigrants draw on more external labour for agricultural activities***

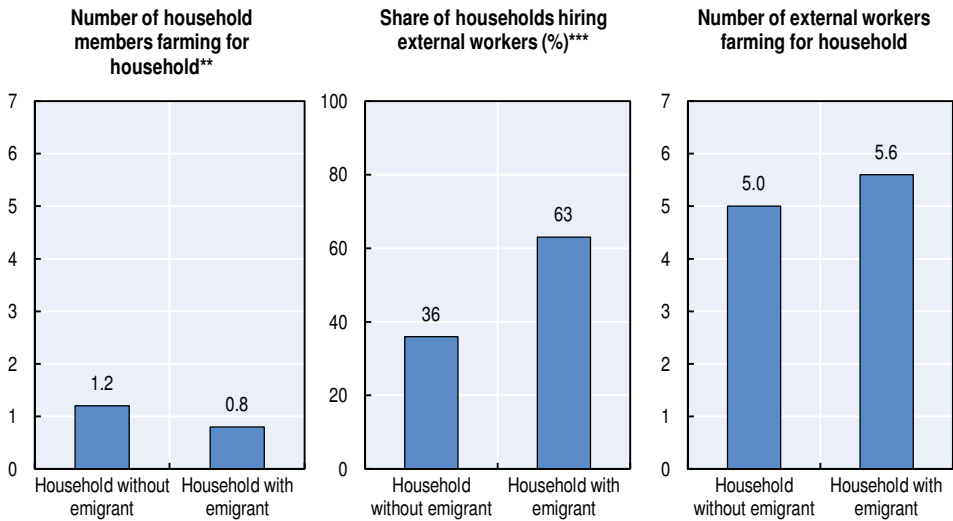
How does migration affect labour in the agricultural sector? Agriculture relies heavily on manual labour – as such, the departure of workers can potentially alter households' activities as well as the sector as a whole. The departure of a household member may cause remaining family members to adjust their labour patterns. In general (not just in agricultural households), it increases the probability that those remaining behind will have to work, unless remittances are received – in which case this probability decreases (see Chapter 4). There are two ways agricultural households can fill the labour gap – they may either put more household members to work in their fields, or they may have to hire in workers. In terms of farming labour, 129 of the 187 (69%) arable farming households that provided an answer to the question had at least one household member working on the land during the last harvest season;<sup>3</sup> only 20% of households had more than one household member working in agriculture. About half (49%) of the households hired in external farming labour – on average 5.2 per household.

What do the IPPMD data tell us about the effect of emigration on household labour in the Philippines? If emigrant households are replacing emigrants with other household members to work in household farming activities, the average number of such members per household should not differ from that of households without emigrant members. According to the data, households

with emigrants have fewer household members working on the farm than non-migrant households (0.8 vs. 1.2), suggesting that emigrants are not necessarily replaced when they leave. However, the survey also suggests that households with emigrants are more likely to hire in external labour (63% vs. 36%) and in greater numbers (5.6 vs. 5.0 per household) than households without (Figure 5.2).

**Figure 5.2. Households with emigrants have fewer family workers, and are more likely to hire in labour**

Use of labour in agricultural activities by emigrant and non-emigrant households



Note: Statistical significance calculated using a t-test (1<sup>st</sup> and 3<sup>rd</sup> figure) and a chi-squared test (middle figure) is indicated as follows: \*\*\*, 99%; \*\*, 95%; \*, 90%.

Source: Authors' own work based on IPPMD data.

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Many other factors influence the number of farm workers per household, including the number of household members. Regression analysis was therefore used to probe these patterns further (Box 5.1). To help isolate the effects of emigration and remittances (which may also affect labour behaviour within the household), the first model excluded remittance-receiving households. The results (Table 5.2) suggest that there is no statistically significant link between emigration and the number of household or external workers, or the probability of hiring in labour. However, as it is difficult to isolate the effect of emigration from that of receiving remittances, a second model includes remittance-receiving households and also controls for the fact that a household may receive remittances (Table 5.2).

### Box 5.1. The links between emigration and labour in agricultural households

To estimate the probability that an agricultural household draws on more household or external labour, the following ordinary least squares (OLS) regression model is estimated:

$$\text{number\_workers}_{hh} = \beta_0 + \beta_1 \text{emig}_{hh} + \gamma \text{controls}_{hh} + \delta_r + \varepsilon_{hh} \quad (1)$$

where the unit of observation is the household  $hh$  and the dependent continuous variable  $\text{number\_workers}$  in equation (1) represents the number of people working in the field,  $\text{emig}_{hh}$  represents the whether the household has a former member that has emigrated or not.  $\text{control}_{hh}$  stands for a set of household-level regressors<sup>a</sup> while  $\delta_r$  represents regional-level fixed effects. Standard errors,  $\varepsilon_{hh}$ , are robust to heteroskedasticity.

In addition, the following probit model is estimated:

$$\text{Prob}(\text{hire\_external})_{hh} = \beta_0 + \beta_1 \text{emig}_{hh} + \gamma \text{controls}_{hh} + \delta_r + \varepsilon_{hh} \quad (2)$$

where  $\text{Prob}(\text{hire\_external})$  takes on a value of 1 if the household has hired at least one external worker and 0 otherwise. The other variables are defined as in equation (1).

Table 5.2. **Emigration has little impact, but remittance-receiving households hire in fewer workers**

<b>Dependent variable:</b> Agricultural labour working for the household			
<b>Main variables of interest:</b> Household has an emigrant			
<b>Type of model:</b> Probit/OLS			
<b>Sample:</b> Agricultural households			
Variables of interest	Dependent variables		
	(1) Number of household members working (equation 1)	(2) Household hired external labour (equation 2)	(3) Number of external workers hired by household <sup>1</sup> (equation 1)
All agricultural households, excluding remittance-receiving ones			
<b>Household has an emigrant</b>	-0.010 (0.492)	n/a n/a	3.923 (2.843)
<i>Number of observations</i>	83	n/a	30
All agricultural households, including remittance-receiving ones			
<b>Household has an emigrant</b>	-0.553 (0.531)	0.141 (0.129)	3.843 (2.506)
<b>Household receives remittances</b>	0.521 (0.544)	0.048 (0.132)	-3.757** (1.705)
<i>Number of observations</i>	187	189	87

Note: 1) This regression model is estimated only for those households that hired at least one external worker. Coefficients from probit model estimations reflect marginal effects. Statistical significance is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. N/a indicates that the sample was too small to adequately analyse.

**Box 5.1. The links between emigration and labour in agricultural households (cont.)**

Results are presented in Table 5.2. Column (1) presents results on the number of household members working in agricultural activities for the household, column (2) presents results on whether the household hired external labour to work for their agricultural activities, while column (3) presents results on the number of external workers hired by the household. Results are also divided into two sections. The top rows present results based on a sample excluding non-migrant households receiving remittances, while the bottom rows present results based on a sample including remittance-receiving migrant households and show coefficient results related to both emigration and remittances.

a. Control variables for all regression model estimations presented in this chapter include the household's size, its dependency ratio (number of children 0-15 and elderly 65+ divided by the total of other members), the male-to-female adult ratio, its wealth estimated by an indicator (Chapter 3), whether it is in a rural or urban region and a fixed effect for its geographic region. In regression models related to policies, the regional fixed effect is omitted due to smaller sample sizes.

The results suggest that emigrant households are more likely to hire external workers and in larger numbers than households without emigrants, but that these links are not statistically significant. However, they also suggest that households receiving remittances hire *fewer* external workers than households not receiving remittances (Table 5.2, column 3). This shows that while emigration may have little effect on how households deal with labour, remittances can reduce the need to hire more labour, perhaps because they allow the household to live on lower agricultural outputs or because remittances are used in other productive ways, perhaps more efficiently, thus reducing the need for labour. The ways in which remittances can help households finance assets and activities are the focus of the next section.

***Agricultural households do not seem to invest remittances in agriculture***

Many households receive money and goods from friends and family living in other countries; according to Chapter 2 the amount represented 10% of GDP in 2015. As agricultural households are mostly located in rural areas with poor credit and labour markets (Geron and Casuga, 2012), remittances may be especially important to these households. Although banking facilities are lacking in rural areas, there are other money transfer operators (e.g. pawnshops) in these areas (Remo, 2012; Agcaoili, 2016). An inherent issue, however, is that the cost of transferring remittances to rural areas remains high in the Philippines.



As argued earlier, remittances may provide the financial means to invest in agricultural assets or new activities. The lack of diversification by agricultural households, beyond rice production, has been identified as a weakness in the agricultural sector in the Philippines (Briones and Galang, 2013). They might also be used to finance entrepreneurial non-farm activities that require capital, such as a retail business or transport services (FAO and IFAD, 2008). This would be consistent with the gradual move away from agricultural dependence occurring in many countries, especially the Philippines. This has been the case in Albania, for instance, where remittances have been negatively associated with both labour and non-labour inputs in agriculture (Miluka et al., 2007).

Table 5.3 provides an overview of the project findings on remittances. Agricultural households are more likely to receive remittances than non-agricultural households. The difference is statistically significant for remittances originating from any source (49% vs. 43%), as well as for remittances from former household members only (41% vs. 37%), although the latter relationship is weaker. Almost all emigrant households (96%) receive remittances – a rate that is similar for both agricultural and non-agricultural households, and consistent with previous research findings (Asis, 2015).<sup>4</sup>

**Table 5.3. Agricultural households are more likely to receive remittances than non-agricultural households**

Household type	Households that receive international remittances from any source	Households that receive international remittances from a former member	Rate of remittance receipt (amongst emigrant households)
Agricultural household	293** (49% of agricultural households)	241* (41% of agricultural households)	241 (96% of emigrant agricultural households)
Non-agricultural household	610 (43% of non-agricultural households)	514 (37% of non-agricultural households)	514 (96% of emigrant non-agricultural households)

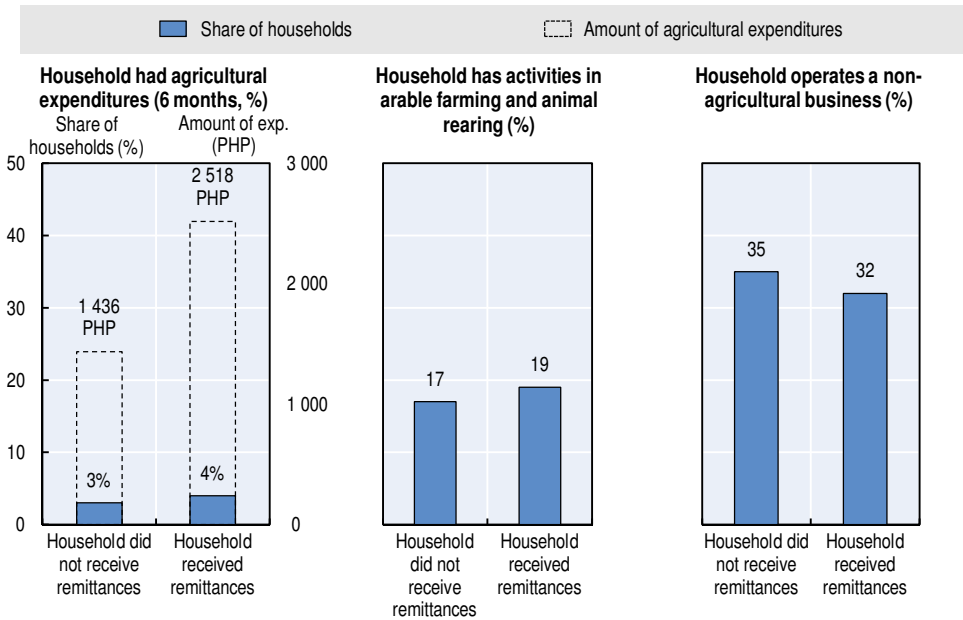
Note: Differences between agricultural and non-agricultural households are calculated based on a chi-squared test. Significance tests are indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%.

Source: Authors' own work based on IPPMD data.

What do these households use their remittances for? The IPPMD survey asked how much the household spends on average on agricultural productive assets (such as farming equipment) in a six-month period; only 20 agricultural households claimed to make such expenditures. Looking more closely at these 20 households, those receiving remittances were only slightly more likely to have made such expenditures (4% vs. 3% in Figure 5.3).<sup>5</sup> However, they spent more on average than those not receiving remittances (PHP 2 518 (Philippine Pesos) vs. PHP 1 436) (Figure 5.3).<sup>6</sup>

Households that receive remittances may also choose to spend their additional income on either specialising or diversifying their farming activity or on financing a non-farm business. Looking across all agricultural households, however, the data suggest little difference between remittance and non-remittance households in diversification (19% vs. 17%). They also suggest that households receiving remittances are slightly less likely to own a non-agricultural business than those not receiving remittances (32% vs. 35%) (Figure 5.3).

**Figure 5.3. Surveyed households did not invest remittances in agriculture**  
Household expenditures and business ownership, by whether household receives remittances



Note: Statistical significance calculated using a chi-squared test is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%.  
Source: Authors' own work based on IPPMD data.

StatLink <http://dx.doi.org/10.1787/888933458348>

Regression analysis explored these links more closely (Box 5.2). It investigated the links between remittances and: i) whether the household typically makes agricultural asset expenditures; ii) the amounts spent in a six-month period; iii) whether the household has activities in both arable farming and animal rearing; and iv) whether the household operates a non-agricultural business. The results largely confirm the patterns suggested above. There was no link between a household receiving remittances and investing in agricultural assets (Table 5.4). However, amongst the households that did receive remittances from former members, the amount of remittances received seemed to be negatively related to whether they invested or not (Table 5.4, column 1). There is no statistically significant link between the amount of remittances received by a household and

any other agricultural outcome, including whether the household has activities in both arable farming and livestock rearing. So what do remittance-receiving households do specifically if they do not have activities in both arable farming and animal rearing? Descriptive statistics suggest that they specialise in arable farming. Remittance-receiving households were statistically significantly more likely to have arable farming activities than households not receiving remittances (26% vs. 13%), whereas the reverse was true for animal rearing (56% vs. 70%).

The regression analysis also explored the probability of owning a non-agricultural business. Across all agricultural households, the results suggest that there is a negative link between remittances and ownership of a non-agricultural business (Table 5.4, column 4). This backs up the descriptive statistics shown in Figure 5.3. There was also a negative link with the amount of remittances sent and owning a non-agricultural business. Overall, remittances seem to have little positive effect on investments in or out of the agricultural sector.

#### Box 5.2. The links between remittances and investing in farming

To estimate the probability that an agricultural household has invested remittances in an asset or activity, the following regression models are estimated:

$$\text{Prob}(\text{agri\_outcome}_{hh}) = \beta_0 + \beta_1 \text{remit}_{hh} + \gamma \text{controls}_{hh} + \delta_r + \varepsilon_{hh} \quad (3)$$

where the unit of observation is the household  $hh$  and the dependent binary variable  $\text{agri\_exp}$  in equation (3) represents the probability that the household engaged in a particular agricultural outcome (e.g. making expenditures or having a specific activity) and takes on a value of 1 if the household did so and 0 otherwise,  $\text{remit}_{hh}$  represents the fact that the household received remittances in the past 12 months,  $\text{control}_{hh}$  stands for a set of household-level regressors while  $\delta_r$  represents regional-level fixed effects. Standard errors,  $\varepsilon_{hh}$ , are robust to heteroskedasticity.

A second OLS model is also estimated:

$$\text{Ln}(\text{agri\_exp}_{hh}) = \beta_0 + \beta_1 \text{remit}_{hh} + \gamma \text{controls}_{hh} + \delta_r + \varepsilon_{hh} \quad (4)$$

where  $\text{agri\_exp}$  represents the logged amount of the agricultural expenditures that were spent. All other variables are as defined in equation (3).

Table 5.4 presents the regression results. Column (1) presents results on whether the household typically makes agricultural asset expenditures, column (2) on the amount spent on agricultural assets in a six-month period, column (3) on whether the household has activities in both farming and animal rearing and column (4) on whether the household operates a non-agricultural business. The table also presents results for two variables of interest. The top rows present results related to the fact that the household received remittances in the past 12 months, whereas the bottom rows present results related to the logged amount of remittances received by former members of the household in the past 12 months, limiting the sample to those that received remittances only.

Box 5.2. **The links between remittances and investing in farming** (cont.)Table 5.4. **Remittances have little effect on investments**

<b>Dependent variable:</b> Investment outcomes				
<b>Main variables of interest:</b> Household received remittances/amount of remittances received by household				
<b>Type of model:</b> Probit/OLS				
<b>Sample:</b> Agricultural households				
Variables of interest	Dependent variables			
	(1) Household has made agricultural asset expenditures (equation 3)	(2) Logged amount spent on agricultural assets in a six-month period (equation 4)	(3) Household has activities in both farming and animal rearing (equation 3)	(4) Household operates a non-agricultural business (equation 3)
<b>Household received remittances in the past 12 months</b>	0.003 (0.011)	-0.493 (0.481)	0.003 (0.033)	-0.125*** (0.043)
<i>Number of observations</i>	583	20	593	593
<b>Logged amount of remittances sent from former household members</b>	-0.028** (0.013)	-0.090 (0.442)	-0.018 (0.020)	-0.062** (0.025)
<i>Number of observations</i>	228	10	232	232

Note: Statistical significance is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. Coefficients from probit model estimations reflect marginal effects. Standard errors are in parentheses and robust to heteroskedasticity.

### **Agricultural households with return migrants channel their migration capital into non-agricultural investments**

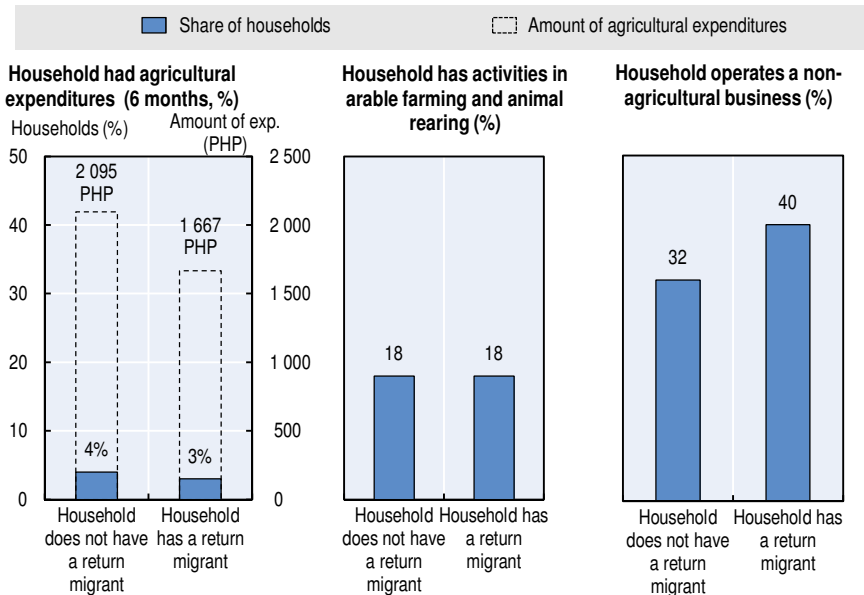
Return migration can also affect the agricultural sector in many of the same ways as remittances, since the migrants may return with savings, their own labour, new skills and contacts (financial, human and social capital). The share of households with return migrants is higher amongst farming households than amongst non-farming households. Of the 335 households with return migrants, 107 were from farming households (18% of all farming households) while 228 were from non-farming households (16% of all non-farming households), although the difference is not statistically significant. Looking specifically only at migrant households (those with current emigrants or return migrants), the difference in rate between farming and non-farming households is similar (35% vs. 33%).

Looking at the same outcomes as for remittances, but this time for return migrant farming households, results suggest that households with return migrants are less likely to invest, and invest less,<sup>7</sup> in agricultural assets (Figure 5.4). Return migration made no difference to whether the household operated either arable farming or animal husbandry (18% each). However, just as for remittances, return migrant households were particularly more involved in arable farming (32% vs. 17%) than in animal rearing (50% vs. 65%), compared to households without return migrants.

Households with return migrants were also more likely to be operating a non-agricultural business than those without a return migrant (40% vs. 32%). This may be because return migrants bring home novel ideas for activities not currently being exploited in the country (Wahba, 2015). It may be a sign that return migration is a catalyst for a country's transition from a primarily agrarian to a more diversified economy.

Figure 5.4. **Agricultural households with return migrants are more likely to own a non-agricultural business**

Household asset expenditures and business ownership, by whether household has a return migrant



Note: Statistical significance calculated using a chi-squared test is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. Using the exchange rate as of 1 July 2014, the equivalent totals in the first panel of Figure 5.4 are USD 48 vs. 38.

Source: Authors' own work based on IPPMD data.

StatLink  <http://dx.doi.org/10.1787/888933458355>

A similar regression analysis as the one described in Box 5.2 was used to explore whether return migrant households invest in agriculture. The probability of receiving remittances is replaced in equation (3) with the probability of having a return migrant in the household. The results found no relationship between having a return migrant in a household and making an agricultural expenditure, the amount spent, running both arable farming and animal husbandry activities or running a non-agricultural business (Table 5.5). Although the descriptive statistics suggest that return migrant households are more likely to have a non-agricultural business, when adding household-level controls such as the

household's wealth, the relationship disappears. It seems that having a non-agricultural business is related to household wealth: richer households are more likely to have non-agricultural businesses, which is not surprising given the often high entry costs involved.

Table 5.5. **Return migration has no influence on agriculture**

Variables of interest	Dependent variables			
	(1) Household has made agricultural expenditures (equation 3)	(2) Logged amount spent on agricultural asset expenditures (equation 4)	(3) Household has activities in both farming and animal rearing (equation 3)	(4) Household operates a non-agricultural business (equation 3)
<b>Household has a return migrant</b>	-0.007 (0.012)	0.341 (0.513)	-0.032 (0.038)	0.033 (0.054)
<i>Number of observations</i>	583	20	593	593

Note: Statistical significance is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. Coefficients from probit model estimations reflect marginal effects. Standard errors are in parentheses and robust to heteroskedasticity.

Source: Authors' own work based on IPPMD data.

The analysis therefore finds migration to have little impact on the agricultural sector in the Philippines. Many of the descriptive findings do not hold up to more robust regression analysis, although this is partly due to the small sample size of agricultural households. Households with emigrants draw on less household labour, but tend to be more likely to hire external labour and more of it. However, those that receive remittances tend to hire fewer external farm labourers. This fact is likely not related to a move to more efficient means of production requiring less labour, as remittances are generally not used for agricultural expenditures. There is some evidence, although not robust to regression analysis, that agricultural households with return migrants tend to own non-agricultural businesses, perhaps opening the way for economic diversification.

## How do agricultural policies affect migration?

In addition to the impact of migration on the sector, public policies in the agricultural sector (Box 5.3) are also likely to have an impact on migration outcomes, such the decision to emigrate, remit, return to and stay in the country. This dynamic is investigated in this section. Despite its decreasing share in the country's GDP, the Philippine government still views agriculture as an important component of its development strategy. The *Philippine Development Plan 2011-2016* contains a dedicated chapter – “Competitive & Sustainable Agriculture

& Fisheries Sector” – which highlights the following five challenges for the country (NEDA, 2011):

1. growth in production and productivity faces formidable constraints
2. inefficient supply chain and logistics systems
3. inadequate provision of irrigation infrastructure
4. low rate of adoption of technologies, including mechanisation
5. limited access to formal credit and financing.

**Box 5.3. Agricultural policies and programmes in the Philippines covered in the IPPMD project**

The IPPMD household survey asked households whether they had benefited from certain agricultural policies and programmes in the five years prior to the survey. Agricultural policies include subsidies or free services, agricultural training programmes and insurance mechanisms such as crop insurance and contract farming (listed in Figure 5.5). In addition, the community survey collected information on whether the communities have farmers’ cooperatives. It also asked if certain types of subsidies and training programmes were implemented in the communities.

**Figure 5.5. Agricultural policies explored in the IPPMD surveys**

Subsidy-type programmes	Training programmes	Insurance-based programmes	Programmes included in the community survey
<ul style="list-style-type: none"> <li>• Subsidies:               <ul style="list-style-type: none"> <li>• seeds</li> <li>• other types of inputs</li> <li>• hiring labour</li> </ul> </li> <li>• Animal dispersal</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural training</li> <li>• Other types of extension programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Contract farming</li> <li>• Crop insurance coverage</li> <li>• Certificate of land title</li> <li>• Aid for crop loss</li> </ul>	<ul style="list-style-type: none"> <li>• Farmers’ cooperatives</li> <li>• Subsidies</li> <li>• Training programmes</li> </ul>

In addition to these challenges, it is noteworthy that globally the Philippines is one of the countries most exposed to and affected by tropical storms (Kreft et al., 2015). In addition stakeholders mentioned corruption and the difficulty in ensuring that aid reaches farmers rather than intermediaries as a challenge.

A major policy tool for agricultural workers in the Philippines is the Republic Act Number 7607, also known as the *Magna Carta of Small Farmers*, signed into law in 1992. Through this act, several farmers have been supported through infrastructure, commodity price stability, training, financing and subsidies

(Aquino, Lim and Ani, 2013). In particular, policies enacted since this act have aimed at price stabilisation, typhoon and drought relief, subsidies (livestock, feed, fertiliser, other inputs) and crop insurance schemes (Quiland, 2011). However, interviews conducted for this project revealed that the implementation of these policies in the country has been inadequate. Since 2014, the World Bank and the Department of Agriculture have also spearheaded the six-year Philippine Rural Development Project, which aims to “establish a modern, value chain-oriented, and climate-resilient agriculture and fisheries sector” (PRDP, n.d.). The project works closely with national and local government units throughout the country.

The current agriculture strategy targets more efficient value chains, integrated domestic and international markets, inclusive growth and poverty reduction. Specific objectives are set for food security, rural incomes, resilience to climate change and better governance in the sector. To support these objectives and tackle the challenges, the government has put in place several agricultural programmes aimed at agri-business, cooperatives and households (Box 5.3).

It is not always clear whether the types of agricultural policies listed in Box 5.3 have a net positive or negative effect on migration flows. By increasing the household’s income flow, **agricultural subsidies** reduce financial constraints. In doing so, they may reduce the household’s need to seek income elsewhere, and thus reduce emigration pressure. On the other hand, they may provide enough additional income to cover the costs of emigration. Or they may provide the incentive for households to invest and channel funds towards agricultural activities, thus increasing the need for remittances, or they may make them less necessary, thereby reducing their flow. Similarly, they may provide the incentive for emigrants to return and – more importantly – to stay.

**Agricultural training** can provide the skills needed to increase efficiency and improve yields, thereby reducing the need to emigrate. On the other hand, by making workers more efficient and perhaps more employable, training may actually make workers more attractive to employers in other countries. Remittances can complement new skills, by providing the income necessary to invest in mechanisation for instance. Similarly, the availability of training could provide emigrants with an incentive to return if they feel the training would lead to better yields, and can increase their probability of staying in the home country. But on the other hand, if training makes workers more employable elsewhere they may be less likely to return.

**Insurance and risk reduction** are at the core of emigration. Individuals often emigrate in search of more stable income or to overcome a shock. Exposure to risk, through a lack of land or land title for instance, can push households to search for alternatives such as migration. Without land, for example, rural workers in poor agricultural economies may see few alternatives other than migration. Reducing that risk should decrease the need to emigrate. However, on some occasions, it may increase it for risk-taking individuals, who see the



reduced risk as an opportunity to exploit. Risk is also a main determinant for sending remittances, helping households smooth consumption and survive financial stress. Mechanisms which reduce risk – such as crop insurance protection and government contract farming programmes which guarantee incomes even when harvests are poor – may therefore also reduce the need to send remittances. On the other hand, measures which reduce risk may also make investments more secure and thus increase the flow of remittances. Similarly, reduced risk may provide the incentive to return, especially if the reason to emigrate in the first place was to avoid risk. It may also increase the potential to stay once the individual has returned.

The IPPMD project explored these dynamics for the Philippines. The survey collected data on which households had benefitted from the types of policies described above, and households were asked to state each year in which they had benefitted between 2010 and 2014 (Table 5.6). In addition to these programmes, the project collected information on households with land title certificates, as well as those benefiting from direct aid following crop loss.

Table 5.6. **Subsidies are the most common programme to benefit farming households**

Type of policy programme	Number of benefiting households	% of agricultural households
Any type of agricultural programme	34	6
Subsidies	33	6
<i>of which for seeds</i>	26	4
Training-related	11	2
Insurance-related	2	>1
Financial aid following crop loss	7	3 (of arable farming households)
Household has certificate of agricultural land title	134	82 (of arable farming households)
Household is a member of an agricultural cooperative	15	3

### **Few households benefit from agricultural programmes**

Overall, only 34 of the 593 (6%) agricultural households benefited from agricultural programmes between 2010 and 2014 – mostly agricultural subsidies (Table 5.6).<sup>8</sup> Subsidies in the Philippines are mostly aimed at high quality seeds and for small-scale farmers. Few households benefited from other programmes, including agricultural training and aid following crop loss (concerning 2% of farming households and 3% of arable farming households respectively). Due to the small sample size, further analysis is not conducted.

The survey also found that 134 arable farming households (82%) held the titles to their land and 15 households (3%) were members of agricultural cooperatives.

In order to determine whether such policies affected migration-related decisions, a methodology was developed using regression analysis, explained in Box 5.4. The results are discussed in the sections which follow.

#### Box 5.4. The links between agricultural policies and migration

To estimate the probability that an agricultural policy (or its absence) affected a migration-related outcome, the following probit regression model was estimated:

$$\Pr(\text{mig\_outcome}_{hh} = 1) = \beta_0 + \beta_1 \text{agri\_subsidy}_{hh} + \gamma \text{controls}_{hh} + \varepsilon_{hh} \quad (5)$$

where the unit of observation is the household  $hh$  and the dependent binary variable  $\text{mig\_outcome}_{hh}$  takes on a value of 1 if the household has had a migration-related outcome take place and 0 otherwise.  $\text{agri\_subsidy}_{hh}$  represents a dummy variable taking the value of 1 if the household benefited from a certain agricultural policy.  $\text{control}_{hh}$  stands for a set of household-level regressors.<sup>a</sup> Standard errors,  $\varepsilon_{hh}$ , are robust to heteroskedasticity.

Results for four outcomes are presented in Table 5.7. Column (1) shows results reflecting the probability that the household had a member planning to emigrate, column (2) a binary variable equal to 1 if the household has had at least one emigrated member in the past five years, column (3) a binary variable equal to 1 if the household has received remittances from any source in the past 12 months, column, and (4) a binary variable equal to 1 if the household has a member return from an emigration episode within the past five years (including households with either returned or currently emigrated members).

Table 5.7. The link between subsidies and emigration is significant

Dependent variable: Migration outcomes				
Main variables of interest: Household benefited from a policy				
Type of model: Probit				
Sample: Agricultural households				
Variables of interest	Dependent variables			
	(1) Household has a member planning to emigrate	(2) Household has a member leave within five years	(3) Household received remittances in the past 12 months	(4) Household has had a member return in the past five years (amongst migrant households)
<b>Benefited from an agricultural subsidy in the past five years</b>	0.019 (0.089)	-0.145** (0.062)	-0.143 (0.088)	0.106 (0.156)
<b>Benefited from an agricultural subsidy for seeds in the past five years</b>	0.102 (0.098)	-0.116 (0.074)	-0.133 (0.101)	n/a
<i>Number of observations</i>	593	461	593	309

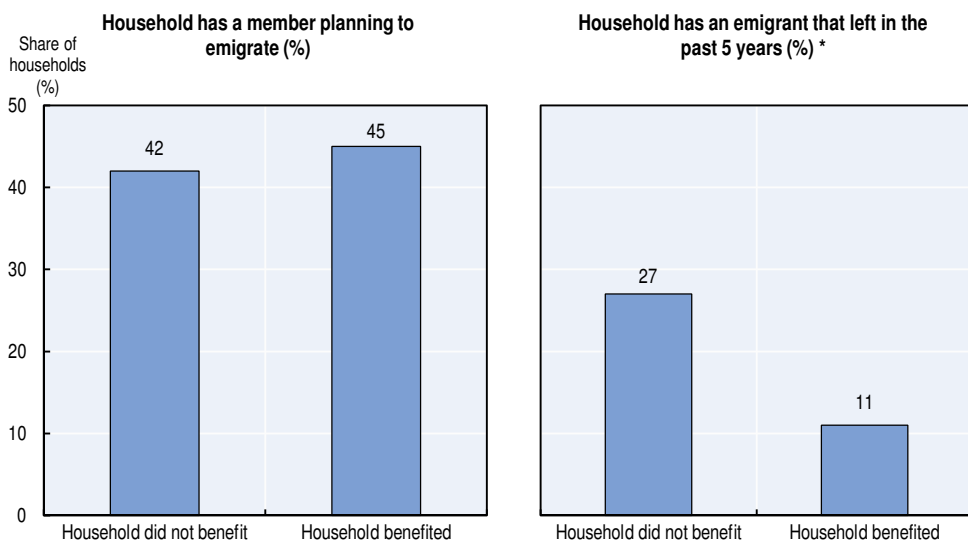
Note: Statistical significance is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. Standard errors are in parentheses and robust to heteroskedasticity. Results denoted “n/a” refer to small sample sizes too small to adequately analyse.

a. Because of the small sample size in this section, a regional-level fixed effect is not included in the regression model.

### ***Agricultural subsidies seem to decrease the probability that a household has an emigrant***

The results show that households that have received agricultural subsidies tend to be less likely to have had a member emigrate in the past five years (Table 5.7, row 1). Overall, the descriptive statistics show that households benefiting from subsidies represent 11% of agricultural households with an emigrant that left within five years, while the share amongst households not benefiting is 27% (Figure 5.6). This lends support to the notion that agricultural subsidies help households overcome the financial issues that lead to emigration, and therefore appear to curb emigration. In contrast, however, agricultural subsidies did not seem to have an influence on whether households have a member planning to emigrate. Looking more specifically at subsidies provided for seeds yielded no statistically significant effect for any migration outcome (Table 5.7), but this may be due to the small sample size (26 beneficiaries).

Figure 5.6. **Households benefiting from agricultural subsidies are less likely to have an emigrant**



Note: Statistical significance calculated using a chi-squared test is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%.

Source: Authors' own work based on IPPMD data.

StatLink  <http://dx.doi.org/10.1787/888933458369>

The fact that only 11 surveyed households benefited from agricultural training makes robust regression analysis difficult. Bearing this in mind, a comparison between households that did and did not benefit from training shows that seven benefiting households had a member planning to emigrate and were more likely percentagewise to have a member plan to emigrate (64% vs. 42%), but that only three benefiting households had a current emigrant and were less likely percentagewise to have a current emigrant (27% vs. 42%). Therefore, there does not seem to be a clear relationship between migration and agricultural training, with the caveat that the sample size may be too small to show a more robust relationship.

### ***Households with land title certificates were more likely to have a member planning to emigrate***

What other farming-related policies might have a bearing on migration decisions? By ensuring that land rights are clear and enforced, having a land title certificate can play a role in migration intentions. For example, in many developing countries, access to land is often contingent on its use. Research suggests that delinking land rights from land use can increase emigration, as household members do not have to use the land productively in order to retain ownership. They are free to leave it fallow or rent it out without risking losing it. In Mexico, for example, households that had obtained certificates through the Mexican land certification programme, rolled out from 1993 to 2006, were found to be 28% more likely to have a migrant member (de Janvry et al., 2014). Secure land title might also be a source of financial collateral to finance emigration. On the other hand, it might ensure financial and food security for the household and avoid the need to emigrate.

The IPPMD survey identified that 134 of 164 land-owning households surveyed (82%) possessed land title certificates. Regression analysis presented in Table 5.8 shows that arable farming households with the titles for their agricultural land were more likely to have members planning to emigrate, corresponding with the descriptive statistics (53% vs. 33%). This suggests that these households may plan to use their land to borrow money to finance emigration. However, and in contrast to this finding, households with land titles were less likely to have a current emigrant (56% vs. 67%). This is perhaps because households feel that either their titles are not well enough enforced to risk leaving it fallow or renting out, or that the returns to farming the land themselves are higher than the returns to emigration.

**Table 5.8. Households with land title certificates are more likely to have a member planning to emigrate**

Results from regression estimations on land titling and cooperative membership

Variables of interest	Dependent variables			
	(1) Household has a member planning to emigrate	(2) Household has had a member emigrate	(3) Household received remittances in the past 12 months	(4) Household has had a member return in the past five years (amongst migrant households)
<b>Household has the land title for their land</b>	0.184* (0.105)	-0.190** (0.095)	-0.126 (0.085)	-0.054 (0.131)
<i>Number of observations</i>	155	155	155	109
<b>Household is a member of an agricultural cooperative</b>	0.068 (0.132)	-0.171 (0.105)	-0.118 (0.117)	n/a
<i>Number of observations</i>	593	593	593	n/a

Note: Statistical significance is indicated as follows: \*\*\*: 99%, \*\*: 95%, \*: 90%. Coefficients from probit model estimations reflect marginal effects. Standard errors are in parentheses and robust to heteroskedasticity. Results denoted "n/a" refer to small sample sizes too small to adequately analyse.

## Conclusions and policy recommendations

The weight of agriculture in the Philippine economy is about 10%, in line with some of the richer countries of the world. It has waned steadily over the last 30 years, as the Philippine economy has diversified. Despite its relatively small role – reflected in the smaller sample of agricultural households in the survey – this chapter has found that migration does appear to have a minor impact on the sector. The IPPMD data point to evidence that households receiving remittances tend to be less likely to hire in external labour, although this does not seem to be because remittances and return migration are channelled towards productive agricultural use. It may, however, be explained by the fact the remittance-receiving households (as well as those with returnees) are more likely to be engaged in arable farming than animal rearing, perhaps growing high-end cash crops. In addition, there is some evidence, although not robust, that return migration is helping households diversify and possibly transition out of agriculture: households with return migrants were more likely to run non-agricultural businesses.

On the other hand, those few households in the IPPMD sample benefiting from agricultural subsidies and land title certificates are less likely to have a current emigrant. Agricultural subsidies, by relieving financial constraints on the household, seem to reduce the need to emigrate and find new sources of income. Moreover, households with land title certificates are more likely to have members planning to emigrate, although actual emigration rarely materialises.

The danger of the type of transition occurring in the Philippines – from an agricultural to a more diversified economy – is that food security is no longer tied to the rural economy, and is instead heavily dependent on the country's value chains and ability to import commodities. This was evident during the 2008 global rice crisis, where the price of rice, a staple food in the Philippines, increased to the point of becoming unaffordable for many households. Stakeholder interviews highlighted the fact that the agricultural sector is seen as one of subsistence living rather than one of business and investment opportunity. The main challenge for the Philippine government is therefore to make the agricultural sector more attractive to investors and to move from a standpoint where food security is not only about purchasing power but also about investment and production.

The Philippines' migration strategy should also integrate these dynamics so that migration can be a force for greater resilience in the agricultural sector; similarly, agricultural policies need to be crafted to ensure they influence people's migration decisions in a productive direction. Such steps will help to ensure that current farming households remain interested and invested in the agricultural sector and new one are drawn in. In tandem, policy makers should address rural and agricultural infrastructure, such as irrigation and farm-to-market roads, to make the sector more attractive for investment and employment. At present more productive and higher paying jobs are to be found elsewhere, and return migrants may be returning to urban areas instead of their rural households.

The recommendations deriving from the findings in this chapter are as follows:

- Adequate labour market institutions, such as job search centres, training programmes and contract enforcement mechanisms should be put in place in rural areas to ensure that agricultural households can easily replace labour lost to emigration, and to facilitate and accelerate the task of hiring labour in times of peak demand. Farming households in areas of high emigration should also be targeted with agricultural technical support (e.g. for the use of new resistant crops, fertiliser, irrigation techniques) to help deal with the loss of labour, as well as a possible channel for investing remittances.
- More should be done to channel remittances and return migration towards investment in the agricultural sector, such as improving basic infrastructure, training households on new techniques and investment skills and creating incentive programmes. Policy makers should help households and return migrants use their remittances to diversify their activities – both within and outside the sector – through incentives and training.
- Agricultural aid programmes, such as subsidies, should be provided ex-post, conditional on output and investment in the country. This will help to ensure that they continue to deter emigration as well as encourage more investment in the sector.

## Notes

1. Chapter 3 provides details on the various modules of the questionnaire.
2. This chapter focuses on households, unlike Chapter 4, which analyses data for individuals.
3. Questions related to farm labour were only asked to arable farming households.
4. Asis (2015) notes that 90% of Philippine households with current emigrants receive remittances.
5. This corresponded to 9 and 11 households, respectively.
6. Using the exchange rate as at 1 July 2014, the equivalent totals are USD 58 vs. USD 33.
7. Using the exchange rate as at 1 July 2014, the equivalent totals are USD 48 vs. USD 38.
8. Because of the small sample size in this section, a regional-level fixed effect is not included in the regression model.

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