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Taking back migrants: A theoretical investigation on the low propensity of entrepreneurship in OFW-dependent households

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Introduction

In light of different Philippine economic issues, it can be said that this country is evolving and is constant at the same time. This evolution and consistency are present in the opportunity-seeking behavior of Filipino households. One aspect of change is the higher engagement of households in entrepreneurship as reported by GEM (2014a). Data on entrepreneurship presents the Philippines with an early-stage entrepreneurship (TEA) rate of 18.4%. GEM (2014b) stated that this rate is higher than the average start up rates of Asia and Oceania (13%); which implies that Filipino households, relative to their counterparts in these regions, are more active in self-employment. On the side of constancy, the propensity for members of Filipino households to migrate remains the same. The Philippine economy is characterized by very high migration rates. In fact, the Commission on Filipinos Overseas (CFO, 2013) estimated that over 10 million Filipinos - or some 10% of the Philippine population - were working abroad in 2013.

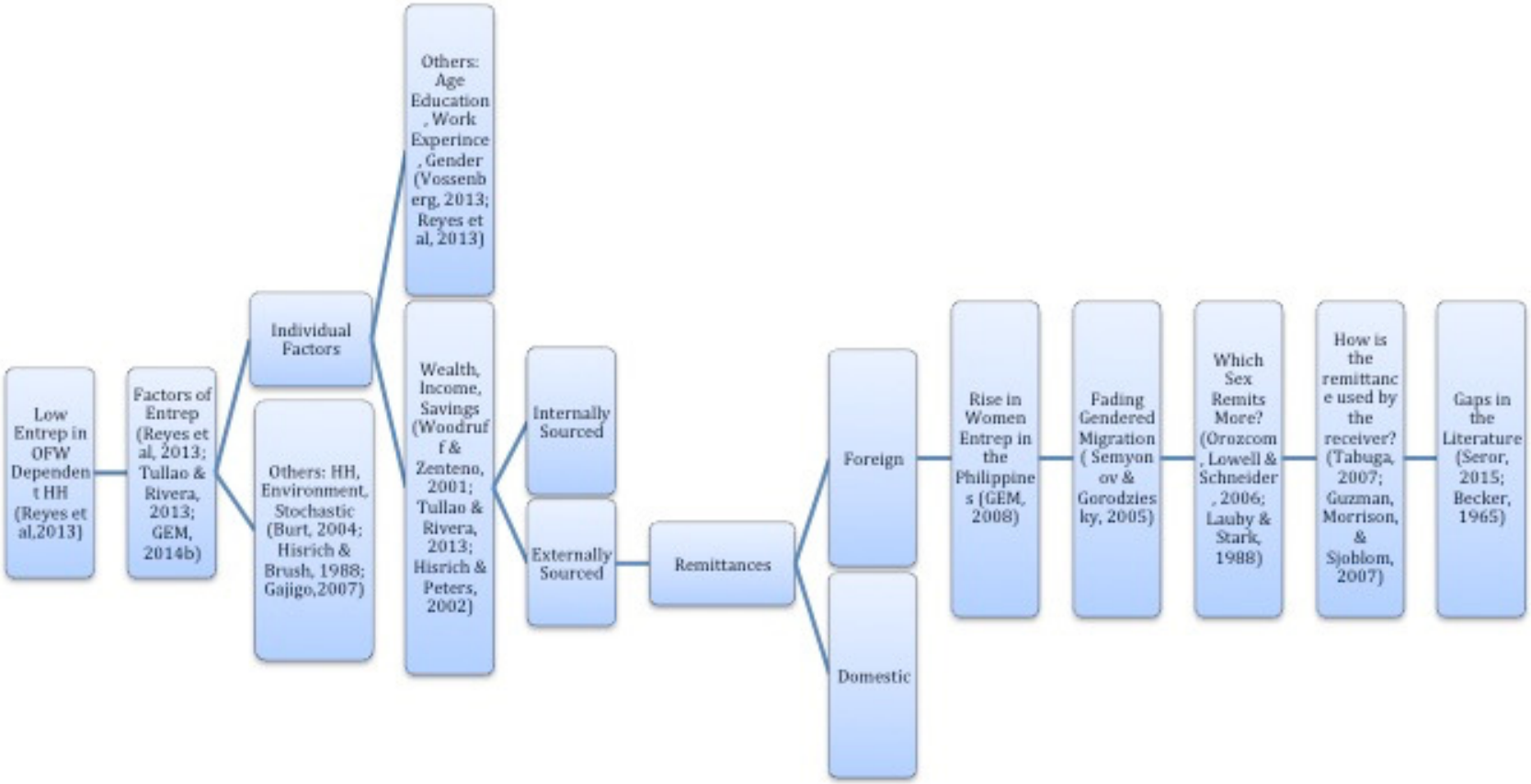
Entrepreneurship and migration are two seemingly unrelated issues. However, when the factor of remittances is considered, these two issues become closer. The World Bank (2015) reported that the Philippines received around 29.7 billion US dollars of remittances in 2015. GEM (2014b) stated that the major reason Filipinos do not participate in entrepreneurship is the lack of financial capital. The immense volume of overseas Filipino workers' (OFW) remittances can be a solution to this problem. Rivera and Reyes (2011) found that remittances have the ability to expand a household's wealth and allow them to engage in options other than consumption. Intuitively, these remittances can be used to fund local entrepreneurs. Theoretically, the inflow of remittances to a household could increase the propensity for self-employment (Yang, 2008). Empirically, however, data from Reyes et al (2013) showed a smaller percentage of OFW-dependent households, 59.3%, engaged in entrepreneurship, relative to households that do not receive remittances, 64.7%.

Accordingly, the research question this paper attempts to answer is "why do OFW-dependent households have a low propensity to engage in entrepreneurship?" Researches have concluded that remittances are used for consumption rather than investment in businesses

(Tabuga, 2007; Tullao & Rivera, 2013). However, these studies lack the theoretical bases for their empirical work. The contribution of this study, therefore, is the use of three theories that are applicable to migration, remittances, and entrepreneurship, namely: the principal-agent problem, the theory of the allocation of time, and the existence of subsistence entrepreneurship. Along with these theories, this paper also utilizes the propensity score matching method (PSM) to determine the average effect of remittances on the probability of a household engaging in entrepreneurship. The objective of using these three theories and PSM is to explain why OFW-dependent households are not as active in entrepreneurship relative to households that do not receive remittances.

The study could, then, help alleviate the dependence of Filipino households on migration and remittances by aiding policymakers in addressing the lack of entrepreneurship. Promoting the option of entrepreneurship in Filipino households could be a solution to the problem of excessive migration. If businesses can generate a stable income for OFW-dependent households, then maybe OFWs can return to the Philippines. Migration and remittances are supposed to be temporary responses to economic/financial concerns, but they have evolved into permanent solutions in the Filipino culture. Entrepreneurship is a better remedy to household and societal economic needs because of its potential to create more jobs; hence, the multiplier effect on the economy. Creating an economic environment that promotes entrepreneurship, therefore, may not only allow OFWs to come home, but also be a means of achieving the long-term goal of inclusive growth for the Philippine economy.

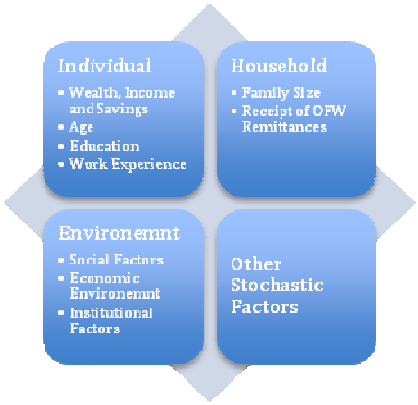
Literature map



Review of related literature

Identifying the determinants of entrepreneurship is the first step to begin the investigation on the lack of entrepreneurship in OFW-dependent households. The study of Tullao and Rivera (2013) compiled a list of factors that are involved in the decision to start and manage a business. Figure 1 presents all these factors.

Figure 1. Determinants of entrepreneurial activity



Source: Reyes et al (2013); Tullao and Rivera (2013)

The four main determinants in Figure 1 are individual factors, household characteristcs, environmental status, and stochastic events. As this study deals with potential entrepreneurs, it would focus on the individual factors.[1] There are many individual factors to consider, including, but are not limited to age, educadtion, work experience, and gender. Since the analysis would center on the inflow of remittances, the concentration of this literature review would be wealth, income, and savings factors.[2]

In terms of individual factors, savings play a large role in starting a business. Most entrepreneurs use savings and loans from family and friends (informal loans) as initial capital (Woodruff & Zenteno, 2001). Hisrich and Peters (2002) claimed that the entrepreneurs' personal savings are useful tools because they are the most accessible source of funds as well as bases for securing loans from external sources (wealth). In the Philippines, for instance, a household that

[1]For further information on the other determinants, please refer to Reyes et al (2013), Burt (2004), and Hisrich and Brush (1988).
[2]Additional materials on the other individual factors are found in Vossenberg (2013) and Tullao and Rivera (2013).

has large savings and wealth are more likely to engage in entrepreneurial activities (Tullao & Rivera, 2013).

Accordingly, as remittances alleviate budget constraints and make investments possible, ceteris paribus, OFW-dependent households should have higher propensities to engage in entrepreneurship. Rivera and Reyes (2011), in fact, determined that remittances raise the likelihood that a household would participate in entrepreneurship. Moreover, Yang (2008) established that exchange rate shocks that increase the value of remittances could also boost entrepreneurship participation rates, particularly in the following sectors: transportation, communication, and manufacturing.

Tullao and Rivera (2013), however, discovered that Filipino households do not use remittances to fund business ventures. They observed that remittances to Filipino households are mostly used for consumption-based goods. Instead of remittances, wealth and savings are relied on for micro-enterprises. Tabuga's (2007) study affirmed that remittances increased budget allocations for consumption-based goods. They are not used for entrepreneurship. In addition, Reyes et al (2013) ascertained that households involved in entrepreneurship used remittances as a source of business funds for as long the household is not spending on health or maintenance expenses; indicating that households need to have a certain level of income to consider engaging in entrepreneurship.

Furthermore, the literature shows that there is an increasing number of female entrepreneurs in the Philippines. GEM (2008), for instance, reported that while "the global trend shows that men are more likely to start a business, the Philippines has equal likelihood between genders" (p. 20). The data showed that females made up 69% of nascent business owners and 51% of new business owners. The women's active participation in owning and operating businesses is attributed to Philippine societal norms; particularly the woman's role in supplementing the family income and the perceived gender equality. As only a small number of single women in the country are business owners, providing for the family seems to spur women to pursue entrepreneurship. In addition, financial support from husbands is an important consideration for women who participate in entrepreneurial activities in the Philippines.

The equal likelihood for both genders to engage in the entrepreneurship is an interesting factor to consider because it implies that there is also an equal likelihood for remittance-receiving households to engage in entrepreneurship regardless of the gender of the household

head. Hence, whereas Ogbor's (2000) claim that "the concept of entrepreneurship seems to be discriminatory, gender biased, ethnocentrically determined and ideologically" (p. 629) may apply to most countries, it may not accurately describe the nature of entrepreneurship in the Philippines (GEM, 2014b).

The perceived gender equality in the Filipino households points to the significant role of women in the family. In 1975, for instance, 90% of the Philippine overseas workers were male; employed mostly in oil producing countries in the Middle East (Semyonov & Gorodziesky, 2005). After two decades, majority of the new hires for overseas jobs were women. Indeed, data presented by Semyonov and Gorodziesky (2005) showed that, in the 1990s, the number of households with male migrants was roughly equal to households with female migrants. The feminization of Philippine migration was attributed to low wages, high unemployment - especially for women, the increasing demand for female workers in personal service jobs, and the decline in the demand for male workers in industrial sectors (Semyonov & Gorodziesky, 2004).

Another reason for the increased migration of females was posited by Lauby and Stark (1988) with the discovery that Filipino households usually send daughters to work abroad. Anchored on the belief that daughters have closer ties with their families, female migrants would then remit more than male migrants (Stark, 2009). Empirically, Orozcom, Lowell, and Scheneider (2006) determined that "women remit more both overall and as a percentage of income than do men" (p. 6) – even if male migrants are more likely to generate higher incomes abroad – because women place more importance on the family than men (Rodenburg, 1993; Chant & Radcliffe, 1992). The trend of women giving more remittances than men is statistically true in countries such as Mexico and Thailand (Phongpaichi, 1993; De La Cruz, 1995).

However, in the Philippines, Semyonov and Gorodziesky (2005) established that men remit more than women because of the earning differentials abroad. Consequently, the notion that men are unreliable in terms of remittances in the Philippine setting lacks adequate empirical support. Semyonov and Gorodziesky (2005) concluded with this interesting argument:

> it is possible that the commitment level of daughters to the household is higher than the commitment of sons, we believe that the economic commitment of fathers to the households and to their children is no lower than the commitment of mothers (p.19).

Orozcom, Lowell, and Schneider (2006) reinforced the statement with the finding that men seemingly remit more to their wives, which implies that there may be a difference between the remitting behavior between single and married males.

The literature seems to show that, in the Philippines: 1) male and female migrants have a tendency to remit to their families; and 2) males tend to send more remittances. These could be the possible explanations for the higher entrepreneurship in female-led households. However, the analysis would not be complete unless the receiver of the remittance – usually the household head (or his/her replacement) – is taken into consideration given that he (or she) determines how the remittance would be used.

Guzman, Morrison, and Sjoblom (2007) summarized the literature and found common patterns for male and female households receiving remittances: 1) males tend to spend on consumer and durable goods, housing, and others; and 2) females use remittances for education and health. In Ghana, their results showed that remittances decreased the budget share for food and increased the share of other expenditure categories (i.e., education, health, durables, etc.) in female-headed households. The inflow of remittances, however, did not seem to affect the pattern of male-headed households' expenditures. According to Gobel (2012), whose research focused on spending patterns and household well-being of remittance-receiving households in Ecuador, "women seem to function as insurers for their families" (p. 3). He also concluded that both men and women spend less of their budgets on food and increase their expenditure on housing, health, and education.

Meanwhile, Tabuga's (2007) empirical study, which examined the influence of remittances on the Filipino households' budget allocation, determined that the budget allocation for every commodity group increased when a household received remittances (refer to Table 1). Consistent with Stark's (2009) findings, the results imply that the family uses remittances as a means of reducing precautionary savings (i.e., the reduction in budget allocation for food and the increase in the budget allocation for education). Table 1 also presents an increase in housing and durables expenditure, which may mean that Filipino households are using remittances as a status-enhancing device. Remittances, however, seem to have little to no effect on the household decision to invest in entrepreneurship.

Table 1. Influence of remittances on budget allocation

Food	Negative and significant
Education	Positive and significant
Medical Care	Positive and significant
Housing	Positive and significant
Vices	Mostly negative but insignificant
Consumer goods	Positive and significant
Leisure	Positive and significant
Gifts	Positive and significant
Transportation, communication, etc.	Positive and significant
Durables	Positive and significant
Others	Negative and significant

Source: Tabuga (2007)

By and large, the concept of entrepreneurship is not prevalent in households that receive remittances. Based on the studies, households tend to spend the remittances on health, education, and housing (Tabuga, 2007; Guzman, Morrison, & Sjoblom, 2007; Gobel, 2012; Tullao & Rivera, 2013). There is an overwhelming amount of evidence that remittances are mostly consumed rather than invested. There are three theories that may explain the remittance-receiving households' focus on consumption, namely: the principal-agent theory, the theory of the allocation of time, and subsistence entrepreneurship. The principal-agent theory (Guzman, Morrison, & Sjoblom, 2007) postulated that there is conflict between the remitter and the receiver of the remittances. Seror (2015) used the principal-agent theory to show how remittances are used for both productive uses and consumption. But, the problems caused by the absence of the remitter from the household gives an incentive for the receiver to deviate from the previously agreed allocations. The second theory, the theory of the allocation of time (Becker, 1965), states that leisure is part of the consumer's utility function; thus, investing in entrepreneurship may take up too much time and money. The recipient of the remittances may then view entrepreneurship as more of a burden rather than an opportunity. Lastly, the existence of subsistence and transformational business may explain why certain households engage in

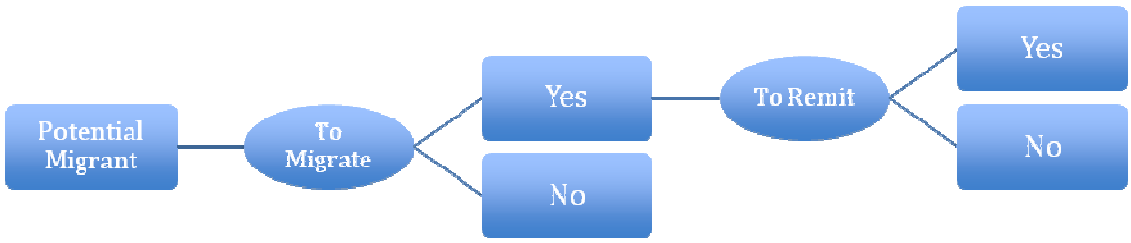
entrepreneurship while others do not (Margolis, 2014; Schoar, 2010). It may be the case that households without remittances need to engage in entrepreneurship to survive, which may not be true for remittance-receiving households.

Theoretical framework

Before presenting the theory that is used for analysis in this study, it is essential to look at the relevant decision trees of the two parties involved: the potential remitter and recipient of the remittances. For simplicity, the paper assumes that the migrant would only give remittances to the current household head. Figure 2 represents the potential remitter's relevant choices and Figure 3 shows the actions of the household head. Note that the rectangles in both figures represent the states of the world and the ovals pertain to decisions.

In Figure 2, when the opportunity to migrate arises, the potential remitter considers Lee's (1966) push and pull factors in weighing his options, which affect the probability of saying "yes" or "no" to the option of migration. The costs of migration also play a role in the decision (Pernia, Pernia, Ubias, & Pascual, 2014). If the potential remitter chooses to migrate, his destination would be affected by Ravenstein's (1885) laws and Lee's (1966) pull factors. Over time, he would have to determine whether or not to remit. Stark (2009) lists the possible motivations to send remittances to the migrant's family at home – including as a means of diversifying the migrant's income portfolio and altruism towards the family, among others.

Figure 2. Potential remitter's decision tree

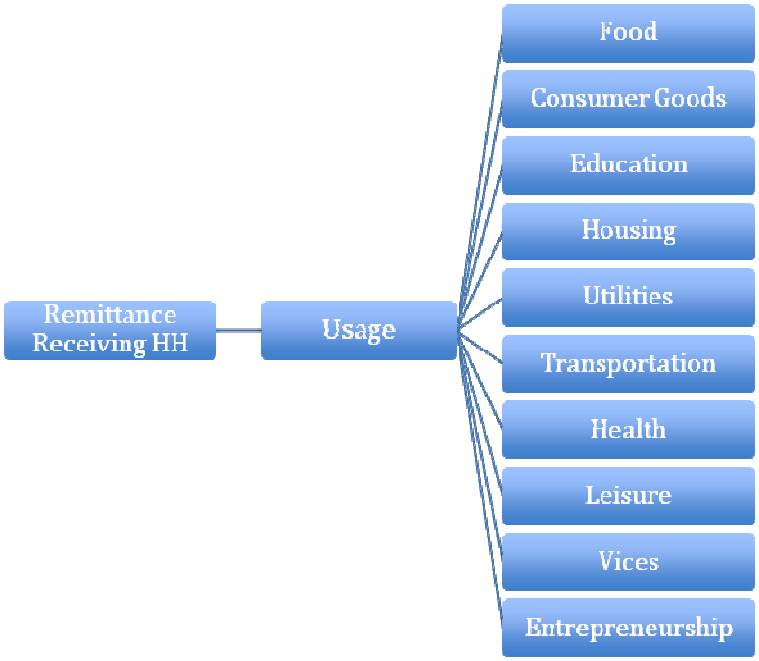


Source: Tullao and Cabuay (2011)

Figure 3 enumerates the spending options, based on Tabuga's (2007) study, for the recipient of the remittances. The responsibility of the recipient is to maximize the household's welfare, which is influenced by, among others, the current inflow of income, the presence of school age children, family size, and the personal characteristics of the household head.

The two decision trees present a potential problem for both the remitter and the receiver. The remitter most likely has a preference on how the money should be used. The receiver of the remittances, on the other hand, acts as the household head and, thus, has his own set of preferences; creating a conflict between the two in terms of how the remittances would be used. Guzman, Morrison, and Sjoblom (2007), thus, maintained that the absence of the remitter could cause principal-agent problems in household spending.

Figure 3. Decision tree of household head receiving remittances



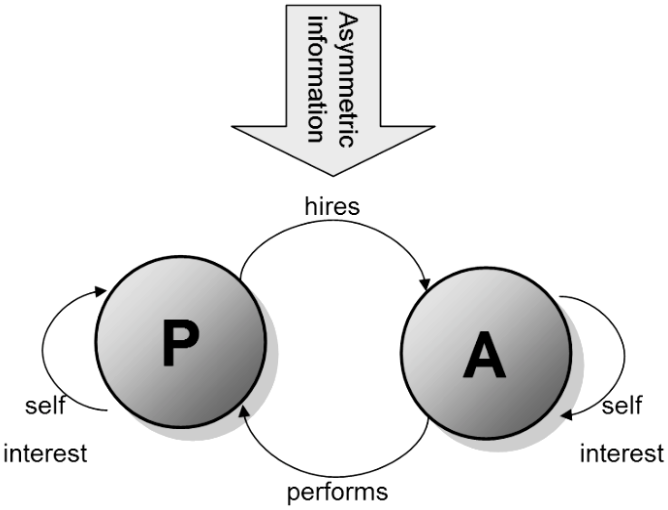
Source: Tabuga (2007)

Principal-agent problem

This paper uses the definition of the principal-agent problem or the theory of agency from Jensen and Meckling (1976) and Seror (2015). The principal asks an agent to perform a service because he cannot do it himself. The agent, therefore, gains some authority or influence over the principal. In the case of migration, the remitter is the principal and the household head is the agent. The remitter needs the services of the household head. These services require the household head to properly allocate the remittances and satisfy the household's needs.

Jensen and Meckling (1976) stated that "if both parties to the relationship are utility maximizers, then there is a good reason to believe that the agent will not always act in the best interest of the principal" (p. 5). In the migration and remittances example, the household head has the incentive to use the remittances for his selfish desires because of the absence of the remitter. He can take advantage of the information asymmetry to maximize his (individual) utility at the expense of the household utility (refer to Figure 4).

Figure 4: Principal-agent problem



Source: MisterX000 at the English language Wikipedia, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=11966226

To curb these problems, the principal shoulders agency costs. Jensen and Meckling (1976) define agency cost "as the sum of monitoring expenditures, bonding expenditures and residual loss" (p. 6). First, monitoring expenditures refer to the payments made by the principal

to monitor the actions of the agent. Second, bonding expenditures are payments to ensure that the agent would do no harm to the principal. Lastly, the residual loss is the "dollar equivalent of the reduction in welfare experienced by the principal as a result of this divergence" (Jensen & Meckling, 1976, p. 5).

Guzman, Morrison, and Sjoblom (2007) extended the principal-agent problem by proposing that the characteristics of the principal and agent (i.e., sex of the remitter and the household head and relationship between the remitter and receiver of the household) would affect the dynamics of the agreement.

For a mathematical representation of the principal-agent problem, this paper uses the model of Seror (2015). There are two players in the model: the migrant (***m***) and the household head who receives the remittances (***h***). The variable ***X*** refers to goods that are considered investments such as a refrigerator. For example, the refrigerator is primarily for the use of the family use but it could also be used in entrepreneurship. The variable ***Y***, on the other hand, is the bundle of private consumption goods only the household head enjoys.

General variables

$m = migrant = principal$

$h = HHH = agent$

$X = durables\ or\ productive\ assets$

$Y = the\ private\ consumption\ good$

Seror (2015) created a model for a household that does not receive remittances (autarky). The variable ω is the constant wage (or marginally changing) of the household head. The household head chooses the optimal consumption of ***X*** given his current wage, which has a corresponding optimal amount of ***Y***. However, the decision could be affected by negative income shocks (τ) (i.e., calamities, sudden sickness, sharing with neighbors, lack of self-control from the household head, etc.). The probability of the negative income shock occurring is represented by $(1-\pi)$.

Autarky variables

$\omega = constant\ or\ marginally\ changing\ wages$

$\tau = negative\ income\ shock (0 \leq \tau \leq 1)$

$X^*(\omega) = optimal\ consumption\ of\ X\ given\ \omega$

$\pi = probability\ of\ \tau\ not\ happening$

$1 - \pi = probability\ of\ \tau\ happening$

Seror (2015) derives the utility function (1a) and budget constraint (1b) of the household. Equation 1a is the welfare function of ***h*** in autarky. The functions ***u*** and ***v*** are concave and twice differentiable functions. The function of ***u*** refers to utility gained from consuming a bundle of ***Y*** and ***v*** represents the utility earned from consuming ***X***. Equation 1b is the budget constraint of the household that considers the prices of the goods and the negative income shock. The left-hand side of the budget constraint shows that the negative income shocks take a proportion of the wage.

h's problem in autarky

$$\max W^h = u^h(Y) + v^h(X) \quad (1a)$$

$$s.t\ \omega(1 - \tau) = p_x X + p_y Y \quad (1b)$$

However, when the optimal amount of ***X*** in autarky is not enough to satisfy the needs of the family, then ***h*** and ***m*** would come to an agreement for ***m*** to go abroad and send remittances. Seror (2015) stated that in migration ***X*** becomes a public good because it is financed by ***m*** and ***h***. The absence of ***m*** from the household also creates an opportunity for ***h*** to deviate from the agreed level of X. However, assuming ***h*** does not deviate, the optimal level of ***X*** should be $X^{*m} = X_{hh}$. The recipient of the remittances (***h***) has to convince ***m*** that this is the case by reporting a level of X ($\widehat{X_{hh}}$), which is assumed to be costless. The migrant (***m***) could confirm this by spending on an imperfect monitoring technology (***Q***), which could be carried out after sending the remittances (***t***). The belief function of ***m*** is represented by $\alpha(.)$. Assuming that ***h*** did deviate from the agreed allocation, the probability of ***m*** finding out is ***q***; whereas, ***1-q*** is the

probability of ***m*** not finding out ***h*** deviated from the agreement. The probability of ***q*** is affected by how much ***m*** invested in ***Q***. Note that the model is assumed to have no false positives, which means that ***m*** would never exact a sanction on ***h*** when $X_{hh} = X^{*m}$. If ***m***, however, discovers that ***h*** deviated from the optimal level of ***X***, then a sanction of ***F*** (fixed utility cost) would be imposed.

Migration variables

$t = remittances$

$p_t = how\ much\ sending\ 1\ unit\ of\ t\ costs$

$\Omega = m's\ earnings$

$X^{*m} = m's\ target\ of\ X$

$X_{hh} = X^{*}(\omega) + \frac{t}{p_x} = level\ of\ X\ chosen\ by\ h$

$\widehat{X_{hh}} = reported\ message\ to\ m$

$Q = monitoring\ cost$

$l(Q) = monitoring\ function$

$\alpha(q(.)) = belief\ function$

$\alpha(.) = 1\ with\ probability\ q\ and\ 0\ with\ proability\ 1-q$

$F = utility\ cost\ or\ penalty\ (fixed)$

$u^i\ and\ v^i\ where\ i = m,h\ are\ concave\ and\ twice\ differentiable\ utility\ fxn$

The problem of ***h*** and ***m*** is to maximize utility but there are different dimensions to each problem. For ***h***, the problem is to maximize his utility through the consumption of private goods and productive assets. These productive assets play a role in maximizing the household's and ***h***'s utility. The migrant (***m***), on the other hand, has the objective of maximizing his utility while sending remittances to ***h***. The remittances sent has a role in maximizing both ***m***'s and ***h***'s utility. Seror (2015) represents these concepts through equations 2a, 2b, 3a, and 3b. Equation 2a is similar to Equation 1a with the exception of the possible utility cost from the sanction of ***m***.

Equation 2b includes the remittances from ***m*** in the left-hand side of the equation. On the other hand, ***m***'s welfare function is a bit different from ***h***'s. The variable ***c*** represents the private consumption of ***m***. The other choice variables for this problem are the remittances and the monitoring costs. The latter part of Equation 3a shows how ***m*** considers the possibility of negative income shocks harming the local household. The total utility gained from the consumption of ***X*** is a weighted average of the two states of the world. Equation 3b is the earnings equation of ***m*** where he considers his own consumption, monitoring costs, and the price of sending one unit of ***t***.

h's problem in migration

$$\max W^h = u^h(Y) + v^h(X) - F\alpha(q(X^{*m} - X; Q^*)) \quad (2a)$$

$$s.t\ \omega(1-\tau) + t^* = p_x X + p_y Y \quad (2b)$$

m's problem in migration

$$\max W^m = u^m(c) + \pi v^m(X^*(\omega + t; Q)) + (1-\pi)v^m(X^*(\omega(1-\tau) + t; Q)) \quad (3a)$$

$$s.t.\Omega = c + p_t t + l(Q) \quad (3b)$$

To solve the model, ***m***'s utility must be maximized with respect to remittances and monitoring costs.[3] This model assumes $l'(Q)$ is positive, which means that the marginal cost of monitoring ***h*** is increasing and, it is, thus, costly to invest in monitoring technology. The marginal cost of monitoring also increases with environmental characteristics such as geographical distance. The right-hand side of the equation is positive, which means that the left-hand side is also positive. This shows that there is a positive covariance between ***t*** and ***Q*** and that if ***m*** remits more to ***h***, then there would be a higher incentive for ***h*** to deviate from the contract. Hence, ***Q*** has to increase as well to monitor the actions of ***h***.

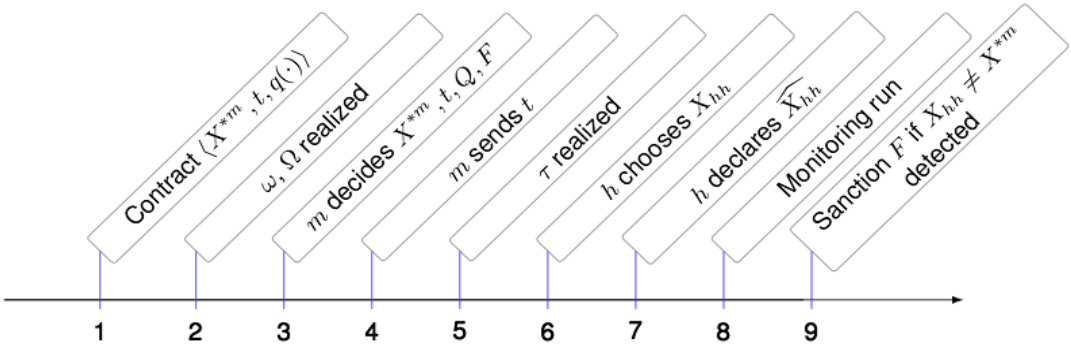
Welfare maximizing condition of ***m***

$$\frac{\partial t}{\partial Q} = \frac{l'(Q)}{p_t} \quad (4)$$

[3] Please refer to Appendix D of Seror (2015) for the derivations of the maximization condition or see Equation 4.

Overall, the model shows that ***h*** has tendency to deviate owing to the possibility of negative income shocks and the imperfect monitoring of ***m***. Since ***h*** wants to maximize his welfare, then taking advantage of the fungibility (can be spent anywhere) of ***t*** is the optimal decision. As the increasing marginal cost of monitoring reduces the probability of ***m*** finding out the truth, ***h*** has an additional incentive to deviate from the contract. Lastly, the positive covariance between ***t*** and ***Q*** implies that when a large amount of remittances is sent, the monitoring expenditure has to increase as well because ***h***'s incentive to deviate becomes greater. Figure 5 provides a graphical (with a timeline) and simpler representation of the model.

Figure 5: Sequence of the model



Source: Seror (2015)

Theory of the allocation of time

Another way to view the low entrepreneurship in OFW-dependent households is to examine its microeconomic foundations. However, there is a need for the model to include leisure because it is suspected that remittances induce idleness in households. Becker (1965) modified the standard utility function subject to a monetary constraint to include time for consumption (leisure) and working (refer to Equation 5a and Equation 5b).

$$U = U(y_1, y_2, \ldots, y_n) = standard\ utility\ function \quad (5a)$$

$$y_i = goods\ purchased\ in\ market\ where\ i = 1,2,\ldots,n$$

$$\sum p_i' y_i = I = W + V = resource\ constraint \quad (5b)$$

$p_i' = prices\ of\ goods$

$I = money\ income$

$W = earnings$

$V = other\ income$

Becker's (1965) modification added a temporal dimension in the consumption of a commodity. For example, watching a basketball game at home requires two inputs: a television and time to watch the whole game. He also proposed that the household is a consumer and producer of these commodities.

$$Z_i = f_i(x_i, T_i) = production\ function\ of\ HH \quad (6)$$

$Z_i = commodities\ that\ require\ time\ and\ market\ goods$

$x_i = market\ goods$

$T_i = time\ inputs$

g(.)= expenditure function

The adjustment to the good being consumed changes the utility function and resource constraint of the household (refer to Equation 7a and Equation 7b).

$$U = U(Z_1, \ldots, Z_m) = U(f_1, \ldots, f_m) = U(x_1, \ldots x_m; T_1, \ldots, T_m) \quad (7a)$$

$$s.t.\ g(Z_1, \ldots, Z_m) = Z \quad (7b)$$

Becker (1965) stated that the goal of his study is to have an empirical measurement Equation 7b. The variables of interest here are the expenditure function ***(g(.))*** and ***Z***, which is the resource bound. He assumed that the household maximizes Equation 4a and is subject to goods and time constraints.

$$\sum_{1}^{m} p_i x_i = V + T_w \bar{\omega} = goods\ constraint \quad (8)$$

$p_i = unit\ prices\ of\ x_i$

$T_w = hours\ spent\ at\ work$

$\bar{\omega} = earnings\ per\ unit\ of\ T_w$

$$\sum_{1}^{m} T_i = T_s = T - T_w = time\ constraint \tag{9}$$

$T_s = total\ time\ spent\ at\ consumption$

$T = total\ time\ available$

Note that: $T_i \equiv t_i Z_i$ where $t_i = input\ of\ time\ per\ unit\ of\ Z_i$

$x_i \equiv b_i Z_i$ where $b_i = input\ of\ goods\ per\ unit\ of\ Z_i$

By substituting T_w to Equation 8, the constraints could be combined.

$$\sum (p_i b_i + t_i \bar{\omega}) Z_i = V + T\bar{\omega} \tag{10}$$

The left-hand side of Equation 10 is the full price (in terms of goods and time) of 1 unit of ***Z***. The right-hand side of equation is the full income if all time were focused on work. However, Becker (1965) aimed to show the trade off between work and leisure. He thus formulated a loss function.

$$L(Z_1, \ldots, Z_m) \equiv S - I(Z_1, \ldots, Z_m) \tag{11}$$

The functions of ***L*** and ***I*** are affected by the amount of ***Z*** the household consumes. The variable ***S*** is the full income of the household if he decides to work all the time. Becker (1965) derived Equation 12 by inserting Equation 11 to the general constraint (equation 10).

$$\sum p_i b_i Z_i + L(Z_1, .., Z_m) = S \quad \text{where} \quad L = \bar{\omega} T_s = \bar{\omega} \sum t_i Z_i \tag{12}$$

However, examining Equation 12, it is determined that the end results are the same as Equation 10. With the modified constraint, the utility gained for a certain commodity could be derived (refer to Equation 13).

$$U_i = T(p_i b_i + L_i) \tag{13}$$

Becker (1965) stated the loss function could be expressed in terms of partial derivatives to further simplify the analysis.

$$L = \frac{\partial L}{\partial T_i}\frac{\partial T_i}{\partial Z_i} + \frac{\partial L}{\partial x_i}\frac{\partial x_i}{\partial z_i} = l_i t_i + c_i b_i \quad (14)$$

$l_i = marginal\ foregone\ income\ for\ an\ additional\ unit\ of\ time\ in\ consumption$

$c_i = marignal\ foregone\ income\ for\ an\ additional\ unit\ of\ good\ in\ consumption$

Becker (1965) plugged in Equation 14 into Equation 13 and the result is an overall representation of the costs of increasing utility by consuming one unit of ***Z*** (refer to Equation 15).

$$U_i = T(b_i(p_i + c_i) + l_i t_i) \quad (15)$$

The expression $b_i(p_i + c_i)$ in Equation 15 represents the marginal goods cost of producing Z and $l_i t_i$ is the marginal time cost of producing Z. This model also assumes $c_i = 0$, which means that there is no indirect cost of consumption.

Overall, including the inflow of remittances to the household's decision, the model presents changes in time allocation. Equation 10, or the constraint of the household, increases in variable ***V***, which is other income. Assuming that prices are unaffected by the inflow of remittances, the budget constraint shifts to the right that allows the household to spend more on commodities and, thus, increase the consumption of ***Z***. The increase in ***Z***, however, raises the consumption of time. Per Equation 9, or the time constraint, more time spent on consumption reduces the time for working. Therefore, the inflow of remittances increases the consumption of the household while decreasing the time at work. In terms of entrepreneurship, the inflow of remittance may reduce the likelihood of engaging in entrepreneurship. This happens because the satisfaction gained from remittances reduces the incentive to work. Nevertheless, if the amount of remittances received was not optimal, then the household would opt to invest in entrepreneurship to reach optimal utility.

Subsistence entrepreneurship

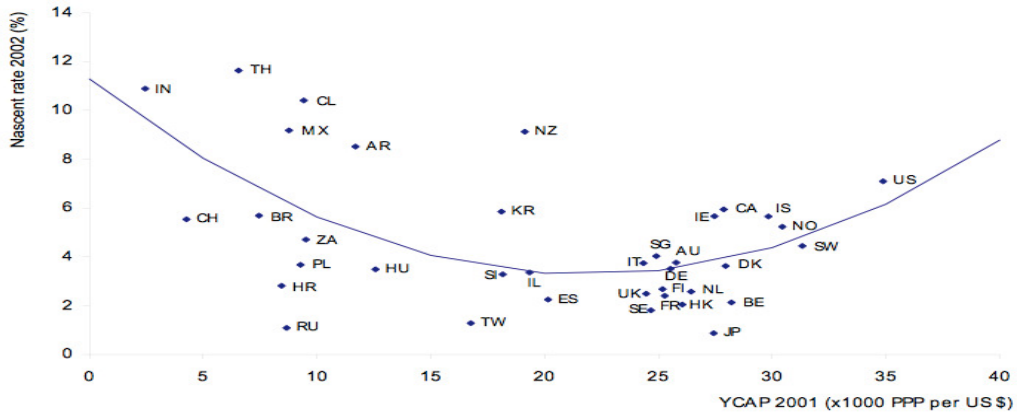
Lastly, the existence of subsistence and transformational entrepreneurship may explain the importance of engaging in self-employment in households that do not receive remittances. Ahmad and Seymour (n.d.) define subsistence entrepreneurship as a microbusiness or self-employed. Per Margolis (2014), these ventures are characterized by low productivity and low contribution. An example of this concept is a fruit vendor with a small cart. He is able to sell

enough to provide for his daily needs but his savings is not sufficient to grow and expand his business. On the other hand, Schoar (2010) defines transformational entrepreneurship as business that is geared towards growth, which suggests that the value created and contributed by these businesses are more significant.

Margolis (2014) stated that "over half of all workers in the developing world are self-employed" (p. 6). Based on his statistics, roughly two-thirds of households that engage in self-employment had no other choice but to start their own businesses because of to the lack of job opportunities in developing countries. However, if a country's economic conditions improve, then there would be a shift from self-employment to formal employment. The rise in formal employment may then be viewed as a by-product of remittances. In turn, the inflow of remittances may reduce the incentive to engage in entrepreneurship.

Wennekers, Stel, Carree, and Thurik (2010) proposed a U-shaped relationship between entrepreneurship and the level of economic development, which suggests that there is a higher likelihood for entrepreneurship at very low and high levels of income (refer to Figure 6). Households with average incomes have the lowest propensity for self-employment. Consequently, households with remittances have a lower propensity to engage in entrepreneurship. Nonetheless, if the household's needs are fulfilled or a certain level of income is achieved, then remittances could start promoting the choice of entrepreneurship. A threshold income/expenditure that is correlated with the minimum probability of engaging in entrepreneurship could, therefore, exist.

Figure 6: U-shaped curve of income and entrepreneurship



Source: Wennekers et al (2010)

Empirical methodology

Owing to its simplicity and intuitiveness (Katchova, 2013), propensity score matching (PSM) is used as this paper's empirical methodology.[4] PSM is a treatment evaluation, which computes the difference of outcomes between treated and control groups by measuring the average effect of a program on an outcome of interest (Katchova, 2013). For this paper, the goal of PSM is to find the average treatment effect of remittances on the target outcome of a household engaging in entrepreneurship.

In practice, the treatment is represented by a binary variable where a value of one (1) is assigned to treated observations and 0 represents control observations. PSM starts with the estimation of the probability of being treated given certain characteristics through a logit/probit model. In the case of remittances and entrepreneurship, the logit/probit model gathers the characteristics of households (i.e., age, gender, income, etc.) to determine the likelihood of receiving remittances. This likelihood is called the propensity score. After obtaining the probability of being treated, the program selects the observations with very similar characteristics from the control and treatment group (referred to as the "matching process"). For simplicity, this paper utilizes the nearest neighbor matching or matching the control observations to treated observations with propensity scores that have the smallest distance. Lastly, PSM computes the treatment effects to compare the outcomes between the two groups (Katchova, 2013). This paper uses the indicator of average treatment effect on the treated (ATET), which Katchova (2013) argued is unbiased unlike average treatment effect on the population (ATE) in observational studies.[5]

Results

Variables

Table 2 shows the variables that are used in the analysis. Note that ***eavar*** was derived from variable ***eainc***. Variable ***eainc*** represents the income a household receives from entrepreneurial activity (self employment). If the household has a positive ***eainc*** value, then

[4] For more in depth analysis on PSM, please see Rosenbaum and Rubin (1982).
[5] See Katchova (2013) for the formulas of ATET and ATE.

eavar equals 1 or indicates that the household engages in entrepreneurship. An ***eainc*** value that is equal to zero means that ***eavar*** is zero as well, which signifies that the household has no business. The same logic applies to ***remitvar***. The variable ***remitvar*** is derived from the variable ***cash_abroad*** that indicates the amount of remittances a household receives from foreign sources.

Table 2. Variables

Variables	Definition
eavar	Binary variable that indicates whether or not a household is entrepreneurial
remitvar	Binary variable that indicates whether or not a household receives remittances
gender	Binary variable that indicates the sex of the household head
toinc	Total income
t_totex	Total expenditure

Descriptive statistics

This paper uses the Family Income and Expenditure Survey (FIES) 2012 with a total of 40,171 relevant households. These summary statistics would help determine if the theories proposed in theoretical framework are applicable in explaining the low entrepreneurship in the OFW-dependent households.

General household characteristics

Table 3. Proportion of household head by gender

Category	Absolute	Relative
Male households	31,575	78.6%
Female households	8,596	21.4%
Total HH	**40,171**	**100%**

Source: Philippine Statistics Agency (2012)

Table 4. Proportion of remittance receiving households

Category	Absolute	Relative
Remittance received	10,286	25.61%
No remittance	29,885	74.39%
Total HH	**40,171**	**100%**

Source: Philippine Statistics Agency (2012)

Table 5. Proportion of households with entrepreneurship

Category	Absolute	Relative
Entrepreneurial activity	26,415	65.76%
No entrepreneurship	13,756	34.24%
Total HH	**40,171**	**100%**

Source: Philippine Statistics Agency (2012)

Table 3 shows that there are significantly more male-headed households than female-headed households; an important input to analyses that focus on gender dimensions. Table 4 confirms that majority of the households do not receive remittances; whereas Table 5 establishes that majority of the households engage in entrepreneurial activity.

Furthermore, Table 6 verifies that majority of households of both sexes engage in entrepreneurship. Males are more likely to participate in entrepreneurial activities. However, the relative statistics present that females are almost as likely to have their own entrepreneurial ventures as well.

Table 6. Proportion of males and females HHH engaged in entrepreneurship

Category	Absolute	Relative to total HH with same sex
Male households w/ entrep	21,602	68% (31,575)
Female households w/entrep	4,813	56% (8,596)
Total HH w/entrep	**26,415**	**66%(40,171)**

Source: Philippine Statistics Agency (2012)

Principal-agent problem

This section analyzes how the gender of the household head affects a number of factors. Owing to data limitations only one side of the principle agent problem, the household side (***h***) could be analyzed. The data also fails to give information on monitoring costs and possible sanctions by the migrants. This section follows the logic of Guzman, Morrison, and Sjoblom (2007), which hypothesized that the gender of the household head is a crucial factor in the principal agent problem. For example, the volume of remittances received by the spouses (household head) may differ among families depending on whether the migrant is the husband or the wife, which, in turn, could affect the household heads' decisions for utility maximization.

Table 7. Proportion of males and females HHH who receive remittances

Category	Absolute	Relative to total HH with the same sex
Male HH w/ remittances	7,018	22% (31,575)
Female HH w/remittances	3,268	38% (8,596)
Total HH w/ remit	**10,286**	**26% (40,171)**

Source: Philippine Statistics Agency (2012)

In terms of absolute numbers, there is a larger number of male-headed households that receive remittances; but a larger percentage of female-headed households receive remittances (refer to Table 7).

Table 8. Average remittances received by male and female Households

Category	Average remittances
Male head of OFW HH	66,512.46
Female head of OFW HH	141,526.3
All HH w/ remittances	**90,345.37**

Source: Philippine Statistics Agency (2012)

Female-headed households significantly get more remittances from abroad than male-headed households, which may be a consequence of the income differences abroad (refer to Table 8). Assuming, that the wife (husband) is sending the remittances to the male-headed (female-headed) household, then there are obvious income disparities based from the averages. A significantly higher average remittances are received by female-headed households may support the notion that males receive higher incomes abroad relative to females. Another explanation is that the children and husband have deeper affections for their mothers and wives, which manifest in higher remittances.

The large disparity in remittances received between male- and female-headed households could affect the decision making of the household. Females, in this case, are more likely to achieve a higher level of utility than males because of the inflow of remittances. These remittances enable female household heads to consume more private consumption goods (***X***) and productive assets (***Y***); thus higher welfare for the family (***W***). This means that the incentive to engage in entrepreneurship is lower for female-headed households that receive remittances because they may have already reached the optimal level of utility. In other words, female-headed households do not need additional income because the remittances they receive satisfy the needs of the family. On the other hand, male-headed households that receive a significantly lower amount of remittances are probably not as economically/financially comfortable as the female-headed households. The incentive to engage in entrepreneurship, therefore, may be higher for male household heads that require additional sources of income to reach their preferred level of utility.

Along with gender, another characteristic that a remitter may consider is the presence of entrepreneurship in the household. The existence of entrepreneurship in a household may affect the migrant's decision to remit and how much to remit. The tables below investigate this dimension

Majority of the OFW-dependent households engage in entrepreneurship, but there are still many households that receive remittances that do not (refer to Table 9). Overall, if the whole sample is examined, it seems that households that receive remittances and have their own businesses only take up 15%.

Table 9. Proportion of OFW-dependent households with entrepreneurship

Category	Absolute	Relative
OFW HH w/ entrep	6,185	15%
OFW HH w/o entrep	4,101	10%
Total OFW HH	**10,286**	**26%**

Source: Philippine Statistics Agency (2012)

Table 10: Average remittances received by OFW-dependent HH with entrepreneurship

Category	Average remittances
OFW HH w/ entrep	76,952.61
OFW HH w/o entrep	110,543.9
All HH with remittances	**90,345.37**

Source: Philippine Statistics Agency (2012)

Households with entrepreneurship tend to receive lower sums of remittances (refer to Table 10). A possible reason for this is that the presence of a business affects the remitter's decision on how much to give to the household. Since entrepreneurship is an income augmenting activity, the remitter sends a smaller amount of money because the household appear to be financially stable and is not that heavily dependent on remittances.

Table 11. Proportion of male and female HHH who receive remittances and engage in entrepreneurship

Category	Absolute	Relative to total HH with same sex
Male households w/ entrep and remit	4,595	15%(31,575)
Female households w/entrep and remit	1,590	19% (8,596)
Total HH w/entrep and remit	**6,185**	**15% (40,171)**

Source: Philippine Statistics Agency (2012)

Males from OFW-dependent households dominate entrepreneurship (refer to Table 11). However, the trend in remittance-receiving households in this sample is that a slightly larger percentage of female households that receive remittances are engaged in entrepreneurship. The difference in the percentage of those in entrepreneurship is not that large; thus the finding of GEM (2008) that stated that male and females are equally likely to engage in entrepreneurship in the Philippines is applicable to this sample.

Table 12. Average remittances received by male and female heads of OFW-dependent HH with entrepreneurship

Category	Average remittances
Male head of OFW HH w/ entrep	61,674.86
Female head OFW HH w/ entrep	121,104.4
Male head of OFW HH w/o entrep	75,686.55
Female head OFW HH w/o entrep	160,877.3
All HH with remittances	**90,345.37**

Source: Philippine Statistics Agency (2012)

The statistics show that – relative to the rest of the sample – a male household head with a business is likely to receive the smallest amount of remittances. In contrast, a female household head without a business receives the most remittances on average (refer to Table 12).

The results of the tables are showing potential endogeneity between remittances and entrepreneurship. There are two possible situations that can explain the behavior of remittance inflows to households with entrepreneurs: 1) the migrant is aware of the business managed by the household and, thus, sends less remittances because of the supposed additional income stream; or 2) it can be hypothesized that the remittances may not be enough to cover the household's requirements; thus the need for the household head had to engage in entrepreneurship. Table 12 also implies that the gender of the household determines the amount of remittances sent; wherein female household heads receive significantly larger amounts of remittances relative to male household heads.

Theory of the time allocation

Becker (1965) suggested that households aim for a certain level of expenditure given their incomes. If this level is not reached, then the household would invest in more hours at work. Thus, a household with a low income and expenditure would theoretically look for more income augmenting activities such as entrepreneurship. Once the optimal level of income is achieved, however, the hours of work would decrease to invest more time in consumption. The presence of time and goods in the production of commodities creates situations of trade offs for the households.

The households that earn more than they spend are capable of accumulating savings. Table 13 shows that the average income and average expenditure of households with entrepreneurship are below the average of the entire sample. The averages of OFW households, on the other hand, are much higher than that of the average of the sample. Accordingly, the data imply that households with entrepreneurship usually have lower consumption rates than OFW households.

Table 13. Average income and expenditure of sample

Category	Average of the sample	Average of entrep HH	Average of OFW HH
Income	217,618.7	205,019.6	309,460
Expenditure	177,171.9	164,195.5	246,517.8

Source: Philippine Statistics Agency (2012)

Table 14. Average income and expenditure in terms of gender

Category	Average Income	Average Expenditure
Male	211,647	173,208.2
Female	239,553.9	191,731.7

Source: Philippine Statistics Agency (2012)

Female headed households have higher average income and average expenditure, which may be attributed to the massive inflow of remittances that augment their income. Thus, remittances enable female heads of households to spend more for their families relative to their

male counterparts (refer to Table 14). The income differences abroad between males and females may be a significant factor in the inflow of remittances.

When there are no remittances and there are no entrepreneurial activities in the household, male household heads tend to have larger incomes and expenditures. Female household heads have slightly lower incomes than men when there is the presence of entrepreneurship (refer to Table 15), which could mean that entrepreneurship is an equalizer between genders.

Table 15. Average income and expenditure in terms of gender and household type

Category	Income	Expenditure
Male HH w/o remit and entrep	210,497	177,877.2
Female HH w/o remit and entrep	187,500	156,720.7
Male HH w/ remit and w/o entrep	310,055.2	261,176.6
Female HH w/ remit and w/o entrep	352,302	282,627.4
Male HH w/o remit and w/ entrep	177,424.4	144,552.2
Female HH w/o remit and w/ entrep	172,962.8	139,690.5
Male HH w/ remit and with entrep	288,309.7	225,211.1
Female HH w/ remit and entrep	324,462.8	247,646.2

Source: Philippine Statistics Agency (2012)

Table 16 lists the categories for expenditure in the FIES database. Households with entrepreneurship have expenditure values that are below average, which suggests that entrepreneurship is a means of increasing income as well as the ability spend more on necessities.

Meanwhile, remittance-receiving households have significantly above average expenditures. The inflow of remittances must be very large to incur these increases in averages. Similarly, notice the increases in health and education in the OFW-dependent HH – relative to the average expenditure on health and education are higher by, 86.8% and 80.7%, respectively. Health and education are seemingly prioritized in most of remittance-receiving households.

Table 16. Breakdown of expenditures of sample

Category	Average expenditures	Average expenditures of entrep HH	Average expenditures of OFW HH
Food	78,070.5	75,822.69	95,670.53
Education	7,256.78	6,749.37	13,109.24
Health	6,445.11	5,882.96	12,039.49
Housing (utilities)	35,401.94	31,471.17	53,517.04
Housing (durables)	4,779.63	4,284.89	7,537.216
Communication	4,573.36	3,979.21	7,648.98
Transport	12,926.80	11,834.94	18,453.44

Source: Philippine Statistics Agency (2012)

Table 17. Expenditure of entrepreneurship HH vs non-entrep HH

Category	Average expenditures of entrep HH	Average expenditures of non-entrep HH
Food	75,822.69	82,386.86
Education	6,749.37	8,231.15
Health	5,882.96	7,524.60
Housing (utilities)	31,471.17	42,950.01
Housing (durables)	4,284.89	5,729.65
Communication	3,979.21	5,714.27
Transport	11,834.94	15,023.45

Source: Philippine Statistics Agency (2012)

Table 17 confirms that households that do not engage in entrepreneurship have higher expenditures in all aspects, which further proves that entrepreneurship is a means of augmenting incomes. Hence, households that do not engage in entrepreneurship may be at a level of income that is satisfactory to them. This satisfaction comes from the ability to consume goods and services that are in their demand preference and may, thus, lessen the incentive to engage in entrepreneurship.

Subsistence entrepreneurship

Table 18. Entrepreneurship within income deciles

National income decile	Entrepreneurship HH (Absolute)	Entrepreneurship HH (Relative to decile)
1st Decile	3,043	69%
2nd Decile	3,215	71%
3rd Decile	3,187	71%
4th Decile	3,027	70%
5th Decile	2,720	66%
6th Decile	2,573	66%
7th Decile	2,405	65%
8th Decile	2,185	60%
9th Decile	2,086	58%
10th Decile	1,974	56%

Source: Philippine Statistics Agency (2012)

The data in Table 18 shows that the deciles with the highest number of entrepreneurs in absolute and relative terms are the 1st to 4th deciles. Within higher deciles, the number of entrepreneurs tends to decrease. In this sample there seems to be an inverse relationship between income and engaging in entrepreneurship, which is a representation of subsistence entrepreneurship. In lower levels of income, entrepreneurship may be the only choice for some households to be able to fulfill their demands. However, in higher income deciles, households may have the necessary funds to financially support themselves or have access to jobs in private firms that then reduce the incentive to engage in subsistence entrepreneurship. Hence, the U-

shaped relationship between income and entrepreneurship of Wennekers et al (2010) does not seem to apply to the Philippine setting.

Table 19 shows that the deciles with the least remittance-receiving households are in the 1st to 4th deciles. The number of remittance-receiving households significantly increases at the 5th decile and beyond, which is in line with the previous table wherein entrepreneurship decreases with income. This may show that the presence of remittances decreases the propensity for entrepreneurship. The reason for this is that remittances provide the household with sufficient funds to satisfy the households' basic needs and, thus, diminish the incentive for entrepreneurship or additional income. Accordingly, this is may be one of the reasons why entrepreneurship in higher deciles of income decreases.

Table 19. Remittances within income deciles

National income decile	Remittance receiving HH (Absolute)	Remittance receiving HH (Relative to decile)
1st Decile	**300**	**7%**
2nd Decile	**469**	**10%**
3rd Decile	**612**	**14%**
4th Decile	**744**	**17%**
5th Decile	**990**	**24%**
6th Decile	**1,086**	**28%**
7th Decile	**1,316**	**35%**
8th Decile	**1,437**	**40%**
9th Decile	**1,578**	**44%**
10th Decile	**1,754**	**50%**

Source: Philippine Statistics Agency (2012)

When OFW households with entrepreneurship are considered (refer to Table 20), there seems to be an increasing trend throughout the deciles. This implies that households that receive remittances and engage in entrepreneurship increase with income. Going further, when OFW HHs with entrepreneurship are examined relative to the population with entrepreneurship at each decile, it is seen that remittance-receiving households are still the minority in entrepreneurship.

However, the proportion of OFW HHs with entrepreneurship relative to total entrepreneurship within the deciles increases with income. This suggests that majority of OFW households with entrepreneurship are in the higher income deciles. Lastly, the percentage of OFW HHs with entrepreneurship compared to the population of OFW HHs within the decile has a somewhat quadratic pattern. It seems that in very low and high income deciles entrepreneurship in OFW HHs is lower. Overall, it seems that majority of the households that receive remittances engage in entrepreneurship in all deciles.

Table 20. OFW HH w/entrepreneurship within income deciles

National income decile	OFW HH w/entrep (Absolute)	OFW HH w/ entrep (Relative in decile)	OFW HH w/entrep (Relative to total entrep HH in decile)	OFW HH w/entrep (Relative to total OFW HH in decile)
1st Decile	177	4%	6%	59%
2nd Decile	313	7%	10%	67%
3rd Decile	406	9%	13%	66%
4th Decile	496	11%	16%	67%
5th Decile	618	15%	23%	62%
6th Decile	695	17%	27%	64%
7th Decile	812	22%	34%	62%
8th Decile	839	23%	38%	58%
9th Decile	864	24%	41%	55%
10th Decile	965	27%	49%	55%

Source: Philippine Statistics Agency (2012)

Summary of results from descriptive statistics

The principal-agent theory helped reveal certain nuances about remitting behavior: 1) female household heads receive more remittances, which could be explained by the income differences abroad between males and females. Males may have higher incomes abroad and, thus, have the ability to send more remittances; 2) most OFW-dependent households engage in

entrepreneurship but they generally receive a smaller amount of remittances, which may indicate that the remitter considers the home business as an additional income source. The incentive to remit large amounts of money is, therefore, minimized; and 3) being a male household head with entrepreneurial activity is associated with the lowest level of remittances; whereas a female household head that is not self-employed is more likely to get the large amounts of remittances.

The theory of time allocation presents that households with entrepreneurial activity usually have income and expenditures that are below average. A possible explanation for this is that these households have to engage in entrepreneurship to reach a certain level of consumption. But, once this consumption level has been reached the incentive to engage in entrepreneurship is lower. The argument above is corroborated by the higher income and expenditure of non-entrepreneurial households. Lastly, female-headed households tend to have higher average incomes and average expenditures relative to male-headed households. The inflow of remittances received by the portion of the population accounted for by female-headed households is large enough to increase the overall average income and overall average expenditure. However, female-headed households without entrepreneurship and remittances have lower incomes and expenditures vis-a-vis their male-headed household counterparts. Entrepreneurship is also shown to be an equalizer between males and females in terms of income and spending.

The concept of subsistence entrepreneurship led the research to use the income deciles variable. The analysis showed that majority of entrepreneurs belong to the lower income deciles, which implies that subsistence entrepreneurship is present or entrepreneurship is a necessity to survive in the Philippine economy. Also, majority of the households that receive remittances are in the higher income deciles. These two facts go together because the lower entrepreneurship in higher income deciles may be due to the presence of remittances. Remittances may reduce the incentive to engage in entrepreneurship. However, when OFW households with entrepreneurship are examined, the results confirm that, within the higher income deciles, remittance-receiving households have higher participation rates in entrepreneurship. Nonetheless, OFW households are still a minority in entrepreneurial population. Lastly, the data suggest that majority of the OFW households are engaged in entrepreneurship, particularly those that belong to the 2^{nd} to 7^{th} income deciles.

Inferential statistics

The result of the propensity score matching technique is presented in Table 21. The outcome variable is the indicator of household participation in entrepreneurial activities. The treatment variable is indicates if the household receives remittances. In this method, the treatment independent variables are gender, total income, total expenditure, and age of the household head.

Table 21. ATET of remittances

Variable	ATET	Z	P > |z|	95% CI	
Remittances	-.0481237	-6.06	0.000	-.0636774 to	-.0325699

Table 21 shows that the presence of remittances decreases the propensity of entrepreneurship in Filipino households. The effect is small but significant. Hence, a household that receives remittances has a smaller incentive to engage in entrepreneurship. However, the choice to participate in self-employment is not completely eliminated as some theories suggest.

This result is consistent with Becker (1965) wherein a positive shift in other income (remittances) increases expenditures and reduces the time at work. Remittances are classified under other income because the amount received by the household is not dependent on how much time is spent in work. The negative coefficient of the ATET supports this finding. Furthermore, the small coefficient implies that the reduction in entrepreneurship caused by remittances is low. The reason for this could be because of the prevalence of subsistence entrepreneurs in the sample. There are households that may still be dependent on entrepreneurship even if remittances are sent. The negative and small coefficient of the ATET shows remittances reduce the propensity of entrepreneurship in OFW-dependent households by a small degree.

Conclusion

To conclude, majority of the OFW-dependent households participate in entrepreneurial activities; but a large number of remittance-receiving households still do not have their own business (around 40%). There are three guiding theories that this study uses to analyze the relationship between entrepreneurship and remittances: principal-agent problem, theory of

allocation of time, and subsistence entrepreneurship. The principal-agent theory for migration and remittances asserts that the characteristics of the household can affect the amount of remittances it receives and how the funds are used. The characteristics this paper highlighted are gender and if the household is engaged in self-employment. The data show that women and households without businesses receive more remittances than men and households with entrepreneurship. The disparity in the amount of remittances receive has implications on income and expenditure. Becker's (1965) theory posits that remittances is a positive other income shock, which increases overall expenditure and decreases time spent at work. This implies that OFW-dependent households have a smaller incentive to engage in entrepreneurship because their preferred consumption level has already been reached. Another implication from the theory of time allocation is that households only consider entrepreneurship as an income augmenting activity rather than a social enhancing activity, which suggests that households engage in entrepreneurship to earn extra income and to allow them to consume at their preferred expenditure level. The data show that majority of entrepreneurs come from the lower income deciles of the sample; hence the presence of a number of subsistence entrepreneurs. The data also suggest a lack of transformational or Schumpeterian entrepreneurs because entrepreneurship in the higher income deciles tends to decrease. The households in higher income deciles have the ability to make a change but would rather be incorporated in private firms. This usually applies to OFW-dependent households where remittances reduce the incentive for entrepreneurship.

Using PSM, the results confirmed the implications of the three theories: 1) the inflow of remittances to a household decreases the probability of entrepreneurship, which is intuitive and consistent with theory. However, the ATET coefficient is small (4% decrease in entrepreneurship) and negative; implying that the effect of remittances on the probability of a household engaging entrepreneurship is small. The could be explained by need for subsistence entrepreneurship, which is prominent in the sample; and 2) as it can be seen from the data, male household heads that receive remittances are more likely - relative to female household heads - to engage in entrepreneurship. Male-headed households may receive a smaller amount of remittances and, thus, compel the household to engage in entrepreneurship to generate more income. The prominence of these male subsistence entrepreneurs may be the reason why the negative effect of remittance is small.

Due to the convergence of theory and empirics, this paper definitely concludes that the presence of remittances in a household decreases the propensity of entrepreneurship. Among OFW households, the low propensity for entrepreneurship is attributed to the satisfaction (i.e., higher household expenditure levels) the households receive from remittances, which lessens the need for entrepreneurship.

The results imply that entrepreneurship is still considered as an income augmenting activity rather than a social one. In terms of policy recommendations, there may be a need for the Philippine education systems to show the additional benefits – other than income – of entrepreneurship. There is also the persistent need for Philippine education to improve human capital and, thus, raise an individual's success rate in business ventures. Along with the education system, the government has to provide incentives for entrepreneurship (i.e., special tax rules, easier processes, etc.). The government must also invest in human and social capital (i.e., holding more trade fairs, exhibits, etc.) to facilitate the creation of linkages and connections that may help in the growth of joint ventures and partnerships and to raise business success rates. But, it is of utmost importance that the Philippine government enhances and highlights the motivations and benefits of entrepreneurship to achieve the goal of inclusive economic growth.

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