The Role of Altruism in Sending and Spending Remittances

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Abstract

We investigate the role of altruism in sending and spending remittances. Previous studies on remittances have paid less attention to recipients' altruism towards migrants than to migrants' altruism towards recipients. We find that the more altruistic the migrant is towards the recipients, the larger are the remittances he sends, while remittances may also be zero if he is less altruistic. However, we also find that remittances are likely to be consumed rather than invested by recipients if they are very altruistic towards the migrant. Our result may partly explain why countries receiving large remittances from migrants do not necessarily make large investments, and also suggests that altruism among household members is not necessarily effective in attaining development and growth through remittances.

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1. Introduction

We investigate the role of migrants' altruism in sending remittances and recipients' altruism in spending remittances, assuming a simplified two-country economy, in which a household member working as a migrant in the host country sends remittances to other household members in the home country. We demonstrate that the migrant's altruism towards other household members increases the amount of remittances, whereas other household members' altruism towards the migrant is likely to induce them to spend remittances on consumption rather than on investment. We infer from our result that altruism among household members may hamper the home country's attempt to realise development and growth through remittances.

Migrants send remittances for many reasons, and several studies have been conducted to determine the incentives for sending remittances (Lucas and Stark 1985, Stark 1995, Rapoport and Deocquier 2006, Ruiz and Vargas-Silva 2009). These incentives include altruism, self-interest, coinsurance between migrants and other household members, and repayment of a loan. Of these, altruism is considered a major incentive.

However, altruism alone cannot explain why migrants send remittances; yet without it, remittances cannot be explained satisfactorily, especially in some countries where family ties are strong (Cai 2003). Although the results are mixed, many studies have been conducted to show the effects of altruism on remittances (Secondi 1997, Agarwal and Horowitz 2002, VanWey 2004).

Many developing countries aim to create development and growth. Remittances are considered a major external financial source for the attainment of these objectives,

although nowadays many developed countries have restrictions on accepting immigrants (Boeri and Brücker 2005, Facchini and Mayda 2008). Accordingly, the developing countries are trying to increase remittances, and to ensure that they are invested.

In response to this, a number of studies have been carried out to investigate whether remittances contribute to development and growth. Chami et al. (2005) found the negative correlation between remittances and GDP growth, and deduced that remittances do not act like a source of capital for development. According to Barajas et al. (2009), at best, workers' remittances have no impact on economic growth. They infer that this is partly because remittances do not serve as investments, but as social insurance that helps family members to finance the purchase of life's necessities. Their result is consistent with the findings by Adams and Page (2005), according to which, migration and remittances significantly reduces the degree of poverty in the developing countries.

On the other hand, de Haas (2005) argues that migrant households often tend to have a higher propensity of invest than do non-migrant households.[1]

It seems that altruism contributes to development and growth of labour sending countries, since migrants' altruism is likely to increase remittances. Shimada (2010a) demonstrated that, when there are no migration costs, a household member working in

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[1] See also Massy and Parrado (1994), Durand et al. (1996), Taylor (1999), Woodruff and Zenteno (2001), Koc and Onan (2004), Semyonov and Gorodzeisky (2008) for a discussion of this issue.

the host country, being more altruistic sends larger remittances to other household members in the home country.[2]

However, does altruism always have positive effects on development and growth through remittances? Whether remittances are beneficial in attaining these objectives will depend on both the amounts sent to other household members and how they are spent. Altruism seems to be related to both of these questions.

Previous studies on remittances have focused mostly on migrants' altruism. However, often all members of a household are altruistic towards each other.[3] In other words, if a household member working as a migrant is altruistic towards other household members, they, in turn, will also be altruistic towards him. It is possible that recipients' altruism also affects remittances, through its effects on the utilities of recipients and migrants.

In addition, previous studies on remittances seem to have implicitly assumed that

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[2] Remittances can be related to not only altruism but also remittance fees: the sending fee and the receiving fee, which are usually set by private companies. Shimada (2010b) showed that remittances can be maximised by transferring the sending fee from the migrant to other household members without manipulating the fees, and without affecting the interests of the agents involved.

[3] In Chapter One of Stark (1995), he assumed that the father and the son are altruistic towards each other when the father is faced with the problem of allocating the fixed amount of corn between them. However, he did not explicitly examine the effects of changes in the degree of son's altruism towards the father on the allocation.

altruism is related only to sending remittances. Although, as mentioned, many existing studies have attempted to determine whether recipients spend remittances on investment or on consumption, to our knowledge the possible effects of altruism on the spending of remittances have never been fully examined when exploring the use of remittances.[4] However, it is easy to envisage that recipients determine how they spend remittances in order to maximise their utility, and that this depends on their altruism towards migrants as well as on migrants' altruism towards recipients. This leads us to infer that altruism is related to both sending and spending remittances.

Therefore, we attempt to demonstrate the effects of recipients' altruism on spending remittances as well as those of migrants' altruism on sending remittances. In this way, we attempt to clarify whether altruism is always effective in attaining development and growth by utilizing remittances.

We derive the result that migrants' altruism is likely to have positive impacts on the amount of remittances, while recipients' altruism is likely to induce them to spend remittances on consumption rather than on investment. Accordingly, our result suggests that altruism among household members does not necessarily contribute to development and growth by sending and spending remittances.

The remainder of this paper proceeds as follows. Section 2 models a simplified

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[4] In his interesting theoretical study on the time pattern of remittances sent altruistically by migrants, Poirine (2006) specified the use of remittances. However, he assumed that recipients spend remittances only on consumption, and that there is no possibility of their being spent on investment.

two-country economy. Section 3 examines the effects of migrant's altruism on the amount of remittances. Section 4 examines the effects of other household members' altruism on the use of remittances. Section 5 presents concluding remarks.

2. The Model

We assume a two-country economy consisting of a home country and a host country, and we focus on a representative household in the home country. One member of the household has already moved to the host country, and is working there as a migrant, while other household members are working in the home country. We also assume that although the household members are altruistic with each other, the degree of the migrant's altruism towards other household members, and that of other household members' altruism towards the migrant differ. The migrant may send part of his income earned in the host country to other household members as remittances.

The income earned by the migrant in the host country is denoted by $\overline{W}_M$, which is given exogenously and is a positive constant, and remittances sent by him are denoted by R $(<\overline{W}_M)$. The amount of remittances is determined by the migrant to maximise his utility. He spends the rest of his income in the host country. Other household members' total income and spending is denoted by W_H. They spend these remittances either on investment or on consumption. In particular, we assume two cases where all remittances are spent on investment and where all remittances are spent on consumption.[5] In the former case, W_H is equal to income earned under investment,

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[5] This is a simplifying assumption. We can generalize the analysis by assuming that

and in the latter case W_H consists of remittances and income earned under no investment.

The migrant's direct utility stems from his spending which is equal to his income minus remittances, and is assumed to be $\ln(\overline{W}_M - R)$. Following Poirine (2006), we specify utility functions to obtain a practical solution. Since the migrant is altruistic towards other household members, his utility U_M depends on other household members' utility U_H, as well as on his own direct utility.

$$U_M = (1 - \beta_M)\ln(\overline{W}_M - R) + \beta_M U_H,$$

where β_M, $0 < \beta_M < 1$, measures the degree of migrant's altruism towards other household members. Similarly, other household members' utility depends on their own direct utility, which is assumed to be $\ln W_H$, and on the migrant's utility, since they are also altruistic towards the migrant.

$$U_H = (1 - \beta_H)\ln W_H + \beta_H U_M,$$

where $\beta_H(\neq \beta_M)$, $0 < \beta_H < 1$, measures the degree of other household members' altruism towards the migrant. These utility functions can be solved as,

$$U_M = (1 - \alpha_M)\ln(\overline{W}_M - R) + \alpha_M \ln W_H,$$

$$U_H = (1 - \alpha_H)\ln W_H + \alpha_H \ln(\overline{W}_M - R),$$

where $\alpha_M = \beta_M(1 - \beta_H)/(1 - \beta_M\beta_H)$, $\alpha_H = \beta_H(1 - \beta_M)/(1 - \beta_H\beta_M)$. The more altruistic

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the part of remittances is spent on investment and the rest is spent on consumption. Shimada (2010b) assumed that remittances are spent both on investment and on consumption, and provided exogenously the ratios of remittances spent on investment and spent on consumption by other household members staying in the home country.

the migrant is towards other household members, the larger is the weight that he attaches to other household members' direct utility $(\partial \alpha_M / \partial \beta_M > 0)$. Similarly, the more altruistic other household members are towards the migrant, the larger is the weight that they attach to the migrant's direct utility $(\partial \alpha_H / \partial \beta_H > 0)$.

We assume that production in the home country is conducted according to the following technology:

$$Y_H = A_H N_H, \quad A_H = \overline{W}_H + h I_H, \quad \overline{W}_H > 0,$$

where Y_H is the home country's output, A_H reflects the home country's labour productivity, N_H is the home country's employment, and I_H is the home country's investment. $\overline{W}_H$ and h are given exogenously and are constants. Investment raises the marginal productivity of labour and thereby increases wages (earned income for other household members), and this increase in wages is assumed to be larger than the amount of the investment, i.e. $h > 1$. Under this technology, other household members' income available for spending is determined to be $\overline{W}_H + h I_H$.

As assumed above, other household members spend all remittances for a single purpose. If they invest remittances, i.e. $I_H = R$, their earned income is $\overline{W}_H + hR$. In contrast, if they spend remittances on consumption, i.e. $I_H = 0$, their earned income is only $\overline{W}_H$, and W_H equals $\overline{W}_H + R$. On the assumption that $h > 1$, other household members' spending is always larger if they spend remittances on investment rather than on consumption. Moreover, larger values of h imply that investment is more profitable and that other household members' income available for spending is much larger than the income when remittances are spent on consumption.

However, as we will see in what follows, this does not necessarily suggest that other

household members always prefer to spend remittances on investment. They determine

how they spend remittances by comparing the utility derived from investment with that

derived from consumption.

   The migrant usually has incomplete information on how other household members

spend remittances. However, to avoid complicating the analysis, we make a

simplifying assumption that the migrant is fully aware of how the remittances will be

spent by the recipients. In particular, when other household members spend

remittances on investment (consumption), the migrant surely knows that they spend

remittances on investment (consumption). This partly reflects the fact that as the

migrant continues to send remittances, he increases his knowledge on the use of the

remittances by other household members.[6]

3. Sending Remittances

   In this section, we try to establish how the migrant's altruism towards other

household members affects the sending of remittances. For this purpose, we determine

the amount of remittances in both cases: where other household members spend

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[6] Certainly, actual economies are not simple. Information between the migrant and

other household members tends to be asymmetric. In other words, the migrant does not

know exactly how other household members behave, nor do other household members

know exactly how the migrant behaves. Chami et al. (2005) assumed an economy in

which the migrant cannot observe the recipient's effort level directly, which gives rise

to a moral hazard problem between the migrant and the recipient.

remittances on investment, and where they spend remittances on consumption. We explicitly specify the use of remittances when determining the amount of remittances.

If the migrant expects that remittances will be spent on investment, and other household members actually spend all of them for that purpose, then the migrant's utility function can be expressed as,

$$U_M = (1-\alpha_M)\ln(\overline{W}_M - R) + \alpha_M \ln(\overline{W}_H + hR) \ (\equiv U_{M_{inv}}). \tag{1}$$

Assuming that $\overline{W}_M = k\overline{W}_H$, where k is a constant and $k > 1$, that is, income earned in the host country is k times as large as income earned in the absence of investment in the home country, we differentiate Equation (1) with respect to remittances.

$$\frac{dU_{M_{inv}}}{dR} = \frac{h}{(k\overline{W}_H - R)(\overline{W}_H + hR)}\left\{-R + \left(\alpha_M k - \frac{1-\alpha_M}{h}\right)\overline{W}_H\right\}.$$

Accordingly, if $\alpha_M k - (1-\alpha_M)/h \le 0$, i.e. $\beta_M \le (1/h)(1/k)/\{1-\beta_H + (1/h)(1/k)\}$, then $dU_{M_{inv}}/dR < 0$. In this case, the migrant maximises his utility by not sending remittances, i.e.

$$R_{inv}\big|_{\beta_M \le (1/h)(1/k)/\{1-\beta_H + (1/h)(1/k)\}} = 0. \tag{2}$$

In contrast, if $\alpha_M k - (1-\alpha_M)/h > 0$, i.e. $\beta_M > (1/h)(1/k)/\{1-\beta_H + (1/h)(1/k)\}$, then the migrant sends a positive amount of remittances, i.e.

$$R_{inv}\big|_{\beta_M > (1/h)(1/k)/\{1-\beta_H + (1/h)(1/k)\}} = \left(\alpha_M k - \frac{1-\alpha_M}{h}\right)\overline{W}_H. \tag{3}$$

Equation (2) suggests that the migrant may not send any remittances to other household members if he is less altruistic towards them. However, even if the migrant is less altruistic, he will send remittances if investment is profitable, that is, if h is

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large, since $\partial[(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}]/\partial h<0$ suggests that $\beta_M>(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}$ is more likely, or if the income difference between host and home countries is large, that is, if k is large, since $\partial[(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}]/\partial k<0$ suggests that $\beta_M>(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}$ is more likely. In other words, even if the migrant is less altruistic, he is likely to send remittances when other household members in the home country can earn larger income by investing remittances, or when he can earn a relatively larger income in the host country.

Equation (3) suggests that a more altruistic migrant sends a larger amount of remittances $(\partial R_{inv}|_{\beta_M>(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}}/\partial \beta_M>0)$. In addition, for any given degree of his altruism, the migrant sends larger remittances if investment is more profitable $(\partial R_{inv}|_{\beta_M>(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}}/\partial h>0)$, or if the income difference is larger $(\partial R_{inv}|_{\beta_M>(1/h)(1/k)/\{1-\beta_H+(1/h)(1/k)\}}/\partial k>0)$.

We now move on to another case in which the migrant expects remittances to be spent on consumption, and other household members actually spend all of them for that purpose.

The migrant's utility function can be expressed as,

$$U_M=(1-\alpha_M)\ln(\overline{W}_M-R)+\alpha_M\ln(\overline{W}_H+R)\ (\equiv U_{M_{con}}). \tag{4}$$

By differentiating Equation (4) with respect to remittances,

$$\frac{dU_{M_{con}}}{dR}=\frac{1}{(k\overline{W}_H-R)(\overline{W}_H+R)}[-R+\{\alpha_M k-(1-\alpha_M)\}\overline{W}_H],$$

we find that, if $\alpha_M k-(1-\alpha_M)\le 0$, i.e. $\beta_M\le(1/k)/(1-\beta_H+1/k)$, then $dU_{M_{con}}/dR<0$. In this case, the migrant maximises his utility by not sending remittances, i.e.

$$R_{con}\big|_{\beta_M \le (1/k)/(1-\beta_H +1/k)} = 0.\qquad(5)$$

In contrast, if $\alpha_M k-(1-\alpha_M)>0$, i.e. $\beta_M >(1/k)/(1-\beta_H +1/k)$, then the migrant sends a positive amount of remittances, i.e.

$$R_{con}\big|_{\beta_M >(1/k)/(1-\beta_H +1/k)} = \{\alpha_M k-(1-\alpha_M)\}\overline{W}_H.\qquad(6)$$

Similarly to the case of investment, Equation (5) suggests that a less altruistic migrant may not send remittances. However, even such a migrant will send remittances if the income difference is large. Equation (6) suggests that remittances to be spent on consumption also increase with the degree of the migrant's altruism towards other household members, and that the income difference has positive effects on remittances for any given degree of migrant's altruism.

By comparing Equations (2) and (5), we find that a migrant is more likely to send remittances when they are spent on investment than when they are spent on consumption, since $(1/h)(1/k)/\{1-\beta_H +(1/h)(1/k)\} < (1/k)/(1-\beta_H +1/k)$. Moreover, a comparison of Equations (3) and (6) reveals that when a migrant is altruistic enough to send remittances in either case, i.e. $\beta_M >(1/k)/(1-\beta_H +1/k)$, remittances for any given degree of migrant's altruism are larger when they are spent on investment than when they are spent on consumption.

On the other hand, the effects of migrant's altruism on remittances are smaller when they are spent on investment than when they are spent on consumption, i.e. $\partial R_{inv}\big|_{\beta_M >(1/h)(1/k)/\{1-\beta_H +(1/h)(1/k)\}} \big/ \partial\beta_M < \partial R_{con}\big|_{\beta_M >(1/k)/(1-\beta_H +1/k)} \big/ \partial\beta_M$. In other words, the migrant's altruism is not so effective in increasing remittances when they are spent on investment than when they are spent on consumption.

To summarise the results derived in this section, the migrant does not necessarily

send remittances, and the amount of remittances and the effects of migrant's altruism

on remittances both differ, depending on whether other household members spend

them on investment or on consumption. However, the migrant's altruism towards other

household members encourages him to send more remittances in either case.

4. Spending Remittances

In this section, we try to establish how other household members' altruism towards

the migrant affects the spending of remittances. We first calculate other household

members' utility in both cases: where remittances are spent on investment, and where

they are spent on consumption. We then compare the utilities to determine for which

purpose the other household members will actually spend remittances.

Throughout this section, we assume that the migrant is always altruistic enough to

send remittances to other household members, i.e. $\beta_M > (1/k)/(1-\beta_H + 1/k)$.

Other household members' utility function when they spend remittances on

investment can be expressed as,

$$U_H = (1-\alpha_H)\ln(\overline{W}_H + hR_{inv}) + \alpha_H \ln(\overline{W}_M - R_{inv})(\equiv U_{H_{inv}}). \tag{7}$$

Substituting Equation (3) into Equation (7), other household members' utility is

determined as follows:

$$U_{H_{inv}} = \ln\overline{W}_H + (1-\alpha_H)\ln\alpha_M + \alpha_H \ln(1-\alpha_M) + \ln(1+kh) + \alpha_H \ln(1/h). \tag{8}$$

In contrast, when other household members spend remittances on consumption, their

utility function takes the following form:

$$U_H = (1-\alpha_H)\ln(\overline{W}_H + R_{con}) + \alpha_H \ln(\overline{W}_M - R_{con})(\equiv U_{H_{con}}). \tag{9}$$

Substituting Equation (6) into Equation (9), other household members' utility is

determined as follows:

$$U_{H_{con}} = \ln \overline{W}_H + (1 - \alpha_H) \ln \alpha_M + \alpha_H \ln(1 - \alpha_M) + \ln(1 + k). \tag{10}$$

From Equations (8) and (10), we observe that other household members' utility in the two cases differs by,

$$U_{H_{inv}} - U_{H_{con}} = \ln(1 + kh) - \ln(1 + k) + \alpha_H \ln(1/h). \tag{11}$$

The first two terms on the right-hand side of Equation (11) are positive, but the third term is negative; therefore, the sign of the right-hand side cannot be determined generally. In other words, other household members do not always spend remittances on investment, nor do they always spend remittances on consumption.

However, we also observe that,

$$\lim_{\beta_H \to 0} (U_{H_{inv}} - U_{H_{con}}) = \ln(1 + kh) - \ln(1 + k) > 0,$$

$$\lim_{\beta_H \to 1} (U_{H_{inv}} - U_{H_{con}}) = \ln(1/h + k) - \ln(1 + k) < 0 \quad \text{and}$$

$$\partial(U_{H_{inv}} - U_{H_{con}})/\partial \beta_H < 0,$$

suggesting that there exists β_H, which makes $U_{H_{inv}} - U_{H_{con}}$ equal to zero.[7] Let us denote such β_H by $\hat{\beta}_H$, $0 < \hat{\beta}_H < 1$.

Accordingly, in the case where $0 < \beta_H < \hat{\beta}_H$, other household members attain higher utility by spending remittances on investment, and will thus spend remittances on investment.

In contrast, in the case where $\hat{\beta}_H < \beta_H < 1$, other household members attain higher utility by spending remittances on consumption, and will thus spend remittances on

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[7] Notice that $\lim_{\beta_H \to 0} \alpha_H = 0$ and $\lim_{\beta_H \to 1} \alpha_H = 1$.

consumption.[8] This is not because investment is less profitable; this result holds even when h takes larger values.

We can intuitively understand these results as follows: Other household members' direct utility is larger when remittances are spent on investment than when they are spent on consumption, since $R_{inv} > R_{con}$. When other household members are less altruistic towards the migrant, other household members' direct utility is dominant in their utility. As a result, other household members' utility is larger if remittances are spent on investment.

On the other hand, the migrant's direct utility is larger when remittances are spent on consumption than when they are spent on investment. When other household members are very altruistic towards the migrant, the migrant's direct utility is dominant in other household members' utility. As a result, other household members' utility is larger if remittances are spent on consumption.

When investment is more profitable, i.e. h is larger, R_{inv} is larger. In such a case, the migrant's direct utility is much smaller than that when remittances are spent on consumption. Accordingly, other household members are much more likely to spend remittances on consumption rather than on investment if they are very altruistic towards the migrant.

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[8] The conditions that the migrant sends remittances and that other household members spend remittances on consumption are not always consistent. However, there exist cases where the migrant sends remittances and other household members spend them on consumption.

Comparison of other household members' utility in two cases reveals that other household members are likely to spend remittances on investment when they are less altruistic towards the migrant, and that they are likely to spend remittances on consumption when they are very altruistic towards the migrant.

Therefore, how other household members spend remittances depends on how altruistic they are towards the migrant, and other household members' altruism is likely to induce them to spend remittances on consumption. We derived this result without invoking insufficiency of profitable investment opportunities in the home country.

We can infer from our results that if all the members of a household, including those who work abroad as migrants, are very altruistic towards each other, it is likely that migrants will send large remittances, but these monies will be spent on consumption by other household members in the home country.[9] Therefore, altruism will not necessarily enhance the development and growth of the home country by sending and spending remittances. This result may partly explain why countries that receive large remittances do not always achieve development and growth through remittances.[10]

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[9] Since $\partial \alpha_M / \partial \beta_H < 0$, as other household members are more altruistic towards the migrant, the amount of remittances is smaller in both cases, i.e. $\partial R_{inv}|_{\beta_M > (1/h)(1/k)/\{1-\beta_H +(1/h)(1/k)\}} / \partial \beta_H < 0$, $\partial R_{con}|_{\beta_M > (1/k)/(1-\beta_H +1/k)} / \partial \beta_H < 0$ (see Equations 3 and 5). However, this does not necessarily imply that remittances are smaller if other household members spend remittances on consumption. This is because, as mentioned, for remittances to be spent on consumption, β_H has only to be larger than $\hat{\beta}_H$.

[10] India was the world number one remittance-receiving country (US$27 billion) in

To summarise the results derived in this section, how remittances received by other household members are spent depends on their altruism towards the migrant. If they are very altruistic, they are likely to spend remittances on consumption rather than on investment. This suggests that altruism is not necessarily conducive to development and growth.

5. Concluding Remarks

Altruism is one of the major incentives for sending remittances, and many researchers have studied the effects of migrants' altruism on the amount of remittances. Although the results are not conclusive, we cannot explain remittances independently of migrants' altruism. On the other hand, until now, unfortunately the effects of recipients' altruism on remittances have escaped our attention: In particular, there have been almost no studies on the effects of recipients' altruism on the use of remittances. This has been rather strange because other household members determine the use of remittances to maximise their utility, and their utility depends on how they are altruistic towards migrants.

We found that the migrant's altruism increases remittances in both cases, i.e. where they are invested, and where they are consumed. Our study differs from previous ones in that we specified the use of remittances to examine the effects of the migrant's altruism on the amount of remittances. We also found that other household members'

2007, but the poverty headcount ratio at national poverty line in 2004 was 34.3% (World Bank, 2008).

altruism is likely to induce them to spend remittances on consumption rather than on investment. Even if investing remittances raises other household members' income substantially, they will spend the remittances on consumption when they are very altruistic towards the migrant.

Many developing countries are trying to increase remittances to realise development and growth, and we found that the migrant's altruism has positive impacts on the amount of remittances. However, our results also suggest that altruism among all household members does not necessarily bring about development and growth in the labour sending economy through remittances.

Accordingly, the government, whose people are very altruistic within their families, must implement policies that channel remittances into growth-enhancing activities.

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