International Migration and Development: The Case of China*

Zai Liang and Hideki Morooka

Department of Sociology
University at Albany, State University of New York
Albany, NY 12222
Phone: 518-442-4676
Fax: 518-442-4936
E-mail: zliang@albany.edu

* This project is supported by grants from the National Institute of Child Health and Human Development (1 R01 HD39720-01), the National Science Foundation (SES-0138016), and the Ford Foundation (1025-1056). The Center for Social and Demographic Analysis of the University at Albany provided technical and administrative support through a grant from the National Institute of Child Health and Human Development (R24 HD044943-01A1). Doug Massey provided extremely helpful advice at the initial stage of the project. We are also grateful to Victor Nee who provided us with questionnaire used in his survey in Fujian Province. We thank Professors Zhuang Guotu and Guo Yucong, Siming Chen, and Violet Guo who were instrumental in facilitating the fieldwork in China and New York City.

Abstract

Recent years have witnessed a dramatic increase in emigration from China. In this paper, we examine remittance patterns in Fujian Province, the province that has sent the largest number of international migrants in recent decades. Our main theoretical argument is to suggest that researchers move beyond the simple dichotomy of production versus consumption in discussion of the use of remittances. We argue that another dimension of the use of remittances should be considered: remittances used for education and public projects. The educational infrastructure and public projects are an important part of the basic infrastructure that will likely keep the current and future population and stimulate innovations and entrepreneurial spirit. Using data from a survey done in Fujian Province, the empirical part of the paper examines three questions: who remitted, determinants of remittance amount, and how remittances are used. The role of overseas Chinese remittances in China's economic rise is discussed in the final part of the paper.

Introduction

The reciprocal relationship between international migration and development has long been a topic of research for students of international migration. On the one hand, the issue of how development affects international migration has been rather well established (Hatton and Williamson, 1998; Massey, 1988). On the other hand, the question of how international migration influences development in migrant-sending communities is still hotly debated. For a long time, the field seems to be dominated by a sense of pessimism as reflected in studies which find that remittances are mainly used in consumption, a very limited investment in production, and that remittances create a cycle of dependency that hinders development of the migrant-sending community. Taylor et al. (1996b) sum it up by stating, "prior investigators have also generally concluded that emigration undermines the prospects of economic growth (p.397)." Much of this line of research was based on studies using the case of Mexican migration to the United States. The debate began to shift in recent years mostly by scholars such as Edward Taylor, Douglas Massey and his associates. Through careful studies based on both Mexico and the United States, these scholars painted a rather positive picture of the impact of international migration on migrant-sending communities.

In this article, we join this debate by using data from a recent ethnosurvey of international migrants from China's Fujian Province to the United States. We focus on the issue of remittances such as money sent back by migrants abroad and how they are used. First, the remittances issue is important because of its recognized magnitude. In 2002, the International Organization for Migration reported the total amount of remittances reached $88 billion. During the same time period, the amount of official assistance to these developing countries was only half of that amount: $44 billion (IOM website, accessed Oct. 14, 2005). UN Secretary General Kofi Annan

reported $232 billion for 2005 (Annan, 2006). In migrant-sending communities in China, the size of the remittances is especially striking. According to the Bank of China in one of the migrant-sending regions, Changle with a population of 670,000 in 2000, the total amount of remittances received in 2003 was $460 million (Wang, 2004). This amount does not include money brought back by international migrants on their trips back to China. Such a large amount of remittances is likely to produce powerful direct or indirect impacts on the local economy.

Second, the case of China is also important from a comparative perspective. Much of the recent literature on international migration and development has focused on other countries. China presents an important case for comparison. China has a long history of emigration, not only to North America, but also to Europe and Southeast Asian countries. Thus, the issue of international migration and development can be examined in a long historical perspective. More recently, China's transition to a market oriented economy has given rise to another boom of international migration during the last two decades or so. Among all migrant-sending provinces in China, Fujian stands out as the most important migrant-sending province (Liang, 2001; Liang and Morooka, 2004). Although a casual observation of migrant communities in Fujian would give visitors the impression that the biggest change in migrant communities is the newly built mansions, the impact of emigration on these migrant-sending communities goes much beyond housing. In this paper, we use newly collected household and community-level data to undertake a systematic study of how emigration affects migrant-sending communities in Fujian. Following recent work in this area, we begin with analysis of the flow of remittances and examine the determinants of whether migrants remit and amount of remittances. Given the importance of understanding how remittances are used, we are particularly interested in how individual,

household, and community factors influence the decision to use remittances for different purposes: (1) business, (2) education and public projects, and (3) housing.

Background

The recent rise in international migration throughout the world has rekindled the research interest in how international migration affects migrant-sending communities. However, earlier literature in this area presents a very pessimistic view of how migration affects development. For example, after Durand, Parrado, and Massey (1996), reviewed 37 community studies, they stated that researchers were "remarkably unanimous in condemning international migration as a palliative that improves the material well-being of particular families but does not lead to sustained economic growth within sending communities (p.424)." As a significant departure from earlier studies of this relationship, recent scholarship has presented a more positive picture of how migration affected development in migrant-sending communities. The theoretical foundation of this new line of research rests on the new economics of labor migration (Stark, 1991). There are two main insights from the economics of labor migration, as succinctly stated by Taylor (1999): "(1) migration decisions are part of family strategies to raise income, obtain funds to invest in new activities, and insure against income and production risks; and (2) remittances, or in some cases simply the potential for remittances, consequently set in motion a development dynamic by loosening production and investment constraints faced by households in poor developing countries (p.64)."

One of the most important insights from this line of reasoning is that remittances have indirect effects on the local economy (Taylor et al., 1996b, Taylor, 1999). Scholars on both sides of the debate agree that a substantial portion of remittances has been used in consumption in

either the construction of new houses, home improvement, or supporting family members' living. However, consumption by migrant household members generates demand for garments (clothes, shoes, and etc), appliances (televisions, washing machines, electric fans, and air conditioners), restaurants, and karaoke bars for entertainment. New home construction financed by remittances generates the biggest indirect effect. Moreover, spending on housing generates demand for lumber, bricks, pipes, and other house related materials and tools. In a series of articles, Taylor and his associates (1996a; 1996b) have tried to measure precisely the indirect impact of remittances. For example, at the village level, Adelman, Taylor, and Vogel (1988) found that for each migrant-dollar raised the village income by $1.78 and increased its output by $1.88. Although unit change in output may seem small, we should note the magnitude of remittances in many parts of the world.

Perhaps the most important indirect effect of remittances in the Chinese context is a demand for house-building supplies. In all migrant-sending communities in Fujian Province, it is common to build three or four story houses and spend 800,000 or 1 million RMB (1US$=8.11 RMB Yuan) on a house. Consequently, such a building boom generates demand for products from locally-based brick and cement factories, and shops that specialize in construction and home improvement as well as remodeling materials. In Changle, for example, there are several streets where a variety of building supply shops concentrate. This process, of course, generates local employment opportunities and generally increases local household income.

Aside from the examination of indirect effects of remittances on the local economy, recent researchers have also studied determinants of remittances and how they were used. Using data from the Mexican Migration Project, Durand et al. (1996) carefully examined the remittance behavior among Mexican migrants to the United States. They examined individual and

household-level variables relating to the decision to remit. Remittance behavior depends on migrants' life cycle stage: age, marital status, and dependency ratio. The dependency ratio measures the consumption needs of the household. Thus, high consumption needs in households in migrant-sending communities would lead to high amounts of remittances. In addition to general consumption needs in migrant-sending households, we also pay attention to the location of children, specifically whether they are in the U.S. or in China. The rationale is simple: presence of left behind children in China will lead to a high likelihood of remittances.

We also expect that the characteristics of migration affect remittances behavior. In the case of migrants from Fujian Province, the migration process involves smuggling fees as high as $65,000. In some cases, the costs of migration were paid in the U.S. In other cases, the cost of migration is paid by family members through borrowing interest-bearing loans. We expect the higher the costs of migration, the more likely that migrants will send remittances. Given the fact that many of our study subjects do not have legal status in the United States, we want to explore whether legal status affects remittance patterns. We expect that migrants with permanent resident status would be less likely to remit than migrants without a green card.

Given the availability of community-level data for Fujian, we are especially interested in how community-level conditions affect the use of remittances. Several community-level variables have been identified by previous researchers as being important in channeling the productive use of remittances: self-employment, high degree of female participation in manufacturing, local infrastructure, and an agrarian-based economy.

Aside from following the current literature on using individual, household, and community-level variables to predict remittance behavior, we need to note that our approach in dealing with remittances differs from the existing literature in two important ways. First, most of

the existing studies tend to narrowly focus on a dichotomy: production vs. consumption (for example, housing). This may be appropriate in other countries such as Mexico, but it is not the best strategy for studying the Chinese case. In the Chinese case, some remittances are certainly used in business initiatives and housing, but a significant amount of remittances is used in supporting local education/schools and public projects. Support for education may come in the form of scholarships, building particular buildings (such as libraries) or equipment for schools. In some cases, emigrants from the same community often donate money to build local roads. Emigrants also donate money to build senior citizen centers. It is also common for emigrants to donate money to build a stone sculpture at the entrance to the village, and often the names of the donors are inscribed on the stone. In December 2004, the senior author visited a village in a migrant-sending township in Fujian Province, and the most impressive building in the village was a newly built entertainment theater (or auditorium), which cost about 4.7 million Yuan (RMB) to build. All of the money for building this theater came from donations by the Fujianese migrants in the United States, most of whom reside in the New York metropolitan area. The theater has over 400 seats with a central air conditioning system, and this is something very uncommon for a building in rural China. The villagers are very proud of this building, and they post names of the most important donors on a bulletin board outside of the building.

All of these initiatives, in our view, ought to be considered as "productive investment" rather than consumption. We are certainly not the first to realize that the concept of development itself needs to be broadly defined; in fact, Taylor (1999) clearly alluded to this. Donations to educational institutions for scholarships or funds directed to a particular building help improve the educational infrastructure and creates a positive environment for teaching and learning, ultimately helping to educate the village's future workforce. By the same token, building a road,

a village entrance sculpture, or a public theater can be viewed as investment strategies to promote the social well-being for the current and future generations.

In addition, we want to emphasize this strategy for the use of remittances appears to be much beyond the villages that we have studied. In fact, this notion of supporting education and public infrastructure had been in the minds of many earlier migrants. Stressing the value of education has been embedded in traditional culture dominated by Confucian thought. Emigrants' investment behavior on educational infrastructure reflects this Confucian value.

The second innovation of our paper is that we have more detailed information on remittances than earlier studies. Most studies report remittances during the most recent migration trip (Durand et al., 1996), but we have both remittances last year and remittances over the course of migration (i.e. cumulative remittances). [1] We note that the cumulative amount of remittances is the result of money sent over different years, and because of inflation and fluctuation in the exchange rate, the measure is admittedly not entirely accurate. Still, we believe it is useful in calculating the overall financial picture of an emigrant journey. Furthermore, this strategy would also allow us to get a sense of the total financial flow from emigrants to the migrant-sending community over the years, which has implications for development potential and the trajectory of the community.

The Case of Emigration from Fujian, China

Fujian Province is located in the southeastern coast of China, across the Taiwan Strait (see Map 1). The 2000 Chinese population census shows that Fujian had a population of 34 million (NBS, 2002). Fujian has a long legacy of emigration, especially to Southeast Asian

[1] Durand et al. (1996) did use cumulative remittances in their models. However, their cumulative remittances were derived from the respondent's report on average remittances on the most recent trip (trip duration in months times average remittance, see p.257). In our case, we asked the total cumulative remittance directly in the survey.

countries. However, the recent wave of emigration did not start until the mid-1980s. We focus on Fujian Province for our empirical studies for several reasons. First, emigration from Fujian Province has increased significantly, and it has actually become the top international migrant-sending province in China (Liang, 2001). Much of this emigration is clandestine in nature and is difficult to study through national surveys or census. The journeys of Fujian migrants also caught the attention of the mass media across the globe. Some migration journeys ended in tragedy (such as the ill-fated Golden Venture trip in 1993 and the death of 58 migrants in Dover, England in 2000). As recent as 2005, Fujianese migrants were caught in the fight in Iraq and were taken as hostages by mistake and subsequently released (Wong, 2005; World Journal, 2005). Media sensation is often not equivalent of systematic analysis; clearly more systematic social science analysis of causes and consequences of emigration from Fujian are needed.

One of the questions facing students of migration in the case of Fujian is given the size of recent emigration from Fujian, what are the consequences for the migrant-sending communities in China? Many scholars in China have written about the impact of emigration on the development of the local economy in China, and much of this line of work was carried out by Chinese historians and anthropologists who tend to rely on aggregate data and statistics. Our approach is to move the discussion to individual and household levels and to model the decision-making process using recently collected data both at individual, household, and community levels.

Data and Methods:

This project is modeled on the success of the Mexican Migration Project (MMP) and the Latin American Migration Project (LAMP) directed by Douglas Massey and Jorge Durand. From February to June 2002, we designed three questionnaires to be used in the ethnosurvey: the

household questionnaire used in China, the household questionnaire used in the United States, and the community-level questionnaire for migrant-sending communities in China. We used the questionnaires for MMP and LAMP as a model and naturally modified the questionnaires to take into account the Chinese context. The household-level questionnaire contains basic information on socio-demographic characteristics of each member of the household (including those who are abroad) and basic information on the internal and international migration history for all household members. In light of the importance of religion in immigrant lives (Guest, 2003), we include information on religion for each person. Unlike the case of Mexico, we also include question items on cadre status (ever been a cadre and year of that position) in order to test our hypothesis from the market transition theory. For household heads and spouses, we gathered marriage history, fertility history, labor history, and consumption patterns. At the household level, we have information on remittances in the year of the survey, and cumulative remittances, business formation, land ownership and other property ownership, housing conditions and tenure status.

Our community questionnaire (at the village level) covers a wide spectrum of information: demographic background (population figures for major census years, immigration history), agriculture sown, industrial infrastructure, educational infrastructure, public services, financial infrastructure, transportation infrastructure, and medical infrastructure.

After some modifications, we finalized the questionnaires in early July 2002. Within eastern Fujian Province, we decided to survey three major regions: the Mafu district (suburban district of Fuzhou city), Changxiao City, and Tujiang county (all fictional names). All three regions send large numbers of migrants to the United States, particularly the New York City region. For each of the three regions, we selected two towns/townships, and for each

town/township, we interviewed about 200 households. In choosing these particular towns for our survey, we first interviewed people from some of the major Fujianese immigrant organizations in New York City.[2] The idea was to find out what towns Fujianese immigrants in New York came from. Our design seeks to maximize the possibility that we can find enough immigrants who are from these towns in Fujian Province. Response rate was on average around 85%. The survey team conducted the survey from October 2002 to March 2003. This sample in Fujian Province is supplemented by a non-random sample of immigrants. For each of the six towns, we interviewed about 30-40 immigrants in NYC who are from one of these towns. Our sample size of immigrants in the destination communities is larger than what Massey and Durand did in their Mexican Migration Project. The main reason is that in the Chinese case, return migration is much more difficult than in the case of Mexico. In other words, our sample will contain a small number of actual immigrants if we follow exact sampling strategy as used by Massey and his collaborators. [3] The fieldwork in New York City was conducted in the summer months of June-August 2003.

Our analytic strategy in this paper follows closely the approach taken by Durand et al. (1996). Since we are interested in remittance, we select only households that have at least one member who went abroad. We begin with analysis of the decision to remit or not to remit taking into consideration the individual, household, and community-level characteristics. Then, we examine the determinants of the amount of remittances, followed by estimating a series of logistic regression models of how remittances are used: business, education and public projects, housing, and others. Our strategy differs from Durand et al. (1996) in one aspect, namely that

[2] It is usually the case that towns that send a lot of immigrants to the United States often establish their town-based hometown association once the number of immigrants reaches a certain level of threshold.
[3] For samples at destinations, Massey and his colleagues select about 10% of the corresponding community samples (Massey et al., 1994).

Durand et al. (1996) estimated the bivariate model of remittances and those who returned with savings. This makes sense in the Mexican migration context because a good number of Mexican migrants returned to Mexico. However, in the Chinese case, very few migrants actually returned at all, let alone with savings. Thus, we leave the choice of "returned with savings" out of the picture in our case.

Remittances: An Overview

Table 1 presents information on remittances aggregated at the village level. The first column lists the name of each community/village, followed by the number of households sampled. Our targeted sample size for each village is about 50-60 households. In some cases, we did more, and in other cases we did less. For villages with a sample size less than twenty, we decided not to collect village-level information. The third and fourth columns list the proportion among emigrants who sent money last year and those who ever sent money. In most cases, over 90% of emigrants sent money back home. This is in sharp contrast to the Mexican case in which the proportion that sent money back was about 73% for the community samples (Massey and Parrado, 1994). We suggest that this difference between the case of China and Mexico might be due to the high cost of smuggling fees in the Chinese case. Payment of such high fees usually involves borrowing money with repayment over a period of time. In the Mexican case, since the coyote fees are a lot less costly, they can usually be settled as a one-time payment. The lowest proportion remitting in our case was found in two communities where slightly over 70% of migrants remitted.

The last two columns show the total amount of remittances for the last twelve months and the cumulative amount of remittances over the course of migration. The total amount of remittances in the twelve months prior to the survey was $11.6 million, and the total amount of

remittances over the course of migration was $75.6 million. This final amount is about 607 million Yuan, an amazing amount of financial resources for these primarily rural communities. However, this high level of remittances should be placed in the context of emigration from these communities. Most of these migrants paid high smuggling fees to come to the United States. As Table 2 indicates, the average emigration cost is about $33,768, and the average cumulative amount of remittances is about $52,617. Thus, even if we take into account the high costs of migration, the average net amount of remittances per immigrant is still around $19k.

Duration of stay in the host country has been shown to be an important variable in migrant behaviors in many previous studies. We examine duration of stay in relation to an amount of remittances in the year prior to the survey and a cumulative amount of remittances over the course of migration. In Figure 1 and Figure 2, we show how remittances are related to the duration of residence in the host country. Figure 1 shows how an amount of remittances in the year prior to the survey varies by the duration of stay. The figure shows that within the first four years, the amount of remittances tends to rise and reach its peak in year two. The main financial burden for these immigrants in these years is that they have to make sure the cost of migration is paid off. After seven years of stay in the host country, the amount of remittances declines from $8-9,000 per year to about $6,000 per year, and eventually to $4,000 per year. The spike for the last group of immigrants probably reflects the fact that there are a small number of immigrants who have spent more than twenty-one years in the United States.

Figure 2 shows the cumulative amount of remittances by duration of stay in the U.S. It reveals a very clear pattern of a steady increase up to fourteen years. The big fluctuation after fourteen years is somewhat difficult to interpret. Some of it may be caused by perhaps a new

business initiative that involves a lot of investment, and it is also possible that the results are not very stable because of the small number of cases in these categories.

Who Remitted?

Table 2 also compares the characteristics of emigrants who remitted and those who did not. In calculating these numbers, we take into account the fact that there are households that contain more than one emigrant abroad. Since our survey question surrounds the total amount of remittances each household received, we should consider using information on the characteristics of all emigrants from the same household. Thus, in cases where there are more than one emigrant in the household, we use averaged characteristics (i.e. averaged years of schooling) to approximate the characteristics of all migrants abroad. We note that a very small number of immigrants, sixty, have never remitted.

A comparison of socio-demographic profiles of emigrants who remitted (and didn't remit) suggests that among those who remitted, 78% of them are married (compared to 67% for people who did not remit) and the people who remitted seem to have more years of schooling than the people who did not. Likewise, the people who own homes in China are also more likely to remit than otherwise. In trying to understand why some people did not remit, our initial hypothesis was that perhaps some people simply have not spent enough time aboard. That is clearly not the case here. Surprisingly, the average duration of stay abroad is roughly the same for the emigrants who remitted and the emigrants who did not. Emigrants who did not remit seem to have paid less money for smuggling fess than the emigrants who did remit, suggesting the possibility that part of the purpose of remittances was to pay debt due to cost of migration.

We also compare community-level characteristics for emigrants who remit and emigrants who did not. The results are consistent with our expectations. Emigrants who remitted are more likely to come from communities with a higher proportion of women in industry. Likewise, village infrastructure also seems to be very important. The shorter the distance from the community to a national highway, the more likely emigrants are to remit. The similar finding is revealed for whether there is a Bank of China branch, which handles foreign currency transactions.

How the Money was Spent

Table 3 shows descriptive findings of how the remittances were spent. Essentially, during the survey we gave respondents nine choices to indicate if the remittances were used for any of these purposes. These categories are not mutually exclusive. In other words, respondents who checked "yes" for "paying for family living" can also check "yes" for "supporting local education or public projects".

In general, the top four reasons for the spending of remittances were: paying for family living (84.3% said "yes"), paying debt (44%), supporting elderly (37.3%), and spending on the house (26.7%). This is consistent with other studies that documented a general pattern of consumption for remittances. However, we should not overlook the fact that 11.4% of respondents reported that remittances were used in supporting local education and other public projects. This finding is significant because the more years that immigrants spend in the United States, the propensity to support local education and public project increases. By the tenth year of duration in the United States, 17% of the respondents reported that they sent remittances for the purpose of supporting local education and public projects.

There are also other patterns of the use of remittances that vary over time. The proportion that reported making remittances for paying for family living and supporting the elderly all increased over time. One of the things that has received a lot of media attention is the fact that a large number of Fujianese immigrants send their young children (born in the United States) home to be cared for by relatives for a substantial period of time. Our data are consistent with this story as 19% of respondents reported remittances being used for raising children born in the United States. The use of remittances for supporting U.S.-born children increased by the duration of residence in the United States until after ten years, perhaps a time when immigrants decide to bring their children to the United States for public school education. The proportion of those who reported paying off debt declined gradually. This is in part because immigrants had to pay smuggler fees. They usually borrowed the money (with interest) and paid the money back over a period of time. However, it is surprising that for some immigrant households, even after ten years in the United States, that they still have some debt to pay. This indicates that debt is a significant burden for some immigrant households in Fujian.

A Decision to Repatriate Money

In Tables 4 and 5, we estimated statistical models of the decision to remit and the amount of remittances in the previous year of the survey. In both cases, we include variables at individual, household, and community levels. In a model that contains only individual and household-level variables, we see that married immigrants are more likely to remit than non-married immigrants. Dependency ratio is statistically significant at the .10 level. Characteristics of migration are also important: the longer that immigrants stay in the United States, the more likely they are to remit. It is consistent with our expectation that higher costs of emigration lead

to a higher probability of remittances. We have tried different combinations of community-level variables in the model, but the results are not statistically significant.

In Table 5, we model the amount (logged) of remittances in previous twelve months prior to the survey. Model 5 in Table 5 includes individual, household, and community-level variables. Only two individual-level variables show significant effects: duration of stay abroad in the United States and emigration cost. As we expected, the higher the emigration cost, the more likely immigrants are to remit. Recent arrived immigrants are more likely than other immigrants to remit large amounts in the last twelve months before the survey. This is mainly because recently arrived immigrants have the large burden of emigration costs (also see Figure 1 on this point). One variable that measures infrastructure (distance to the nearest highway) is important in predicting an amount of remittances: the closer the community to the nearest highway, the larger the amount of remittances in the last 12 months. [4]

In Tables 6 through Table 8, we estimate models of how remittances were used to see if they were used for business, local education and public projects, housing, and others. We note at the outset that the proportion of those who report using remittances for business initiatives is very small (2.3%), which probably explains the fact that the model does not produce significant results (see Table 6). In Table 7, we present results from models that predict the use of remittances for education and public projects. There are three individual-level factors that should be mentioned. One is the duration of stay in the United States; in other words, the longer that immigrants stay in the United States, the more likely they are to send money for education and public projects. This is a very encouraging item of news, because it shows that the long-term

[4] We also estimated a Heckman selection equation in which we take into account selection into the group of individuals who remitted when estimating the amount of remittances (Heckman, 1979). We used variables that are statistically significant in Table 4 for the selection equation. The selection effect is not statistically significant. These results are available from the authors upon request.

prospects of development due to emigration are very promising even if the current support for education or public projects may be modest, and even if immigrants may decide to stay permanently in the United States. We also note that the use of remittances for education and public projects declines if the cost of emigration is high. In households where the dependency ratio is higher, immigrants are less likely to spend remittances on local education and public projects, probably because the money has to be used to maintain basic household living.

In Table 8, we estimate models of whether remittances were used for housing versus other choices. Again, the duration of stay in the United States is one of the most important predictors. Across all three tables (Table 6-8), only one community-level variable marginally shows statistical significance at .10: agrarian population density (proportion of local population employed in agriculture). The results suggest quite consistently that people in these close-knit rural communities tend to have a strong sense of community identity, such that they are willing to start businesses, contribute to local education and public projects, and build houses using remittances. The case is similar to a recent study by Fussell and Massey (2004) who found that Mexicans from rural areas are more likely to rely on migration networks than Mexicans from urban areas. Our results suggest that rural and urban individuals not only have a different degree of using migration networks, but also differ in remittance patterns.

Summary and Conclusion

Since the late 1970s, emigration from China has been on the rise. Fujian Province is currently the most important province in shaping the trend of emigration from China. So far, the main destinations among Fujianese emigrants are the United States, Japan, Taiwan, and Europe. United States is by far the most favorite country of destination. The primary aim of this paper is

to provide a systematic assessment of how international migration in roughly the last 20 years has influenced development in Fujian Province. In particular, we focus on remittances and examine how individual, household, and community-level characteristics affect remittance behavior such as the amount remitted and how remittances are used.

Three main findings from this study are worth noting. One is that the total amount of remittances is especially large, both in terms of the amount of remittances in the year prior to the survey and the cumulative amount of remittances. For example, the cumulative amount of remittances reached $75 million from a total of less than 1,500 households in Fujian. The large size of remittances is corroborated by reports from local government officials who monitor remittances wired to local Bank of China branches. Although the absolute size of the remittance is important in itself, what is even more important is the potential indirect effect this will create for the local economy. The most important indirect effect on the local economy is the demand for labor for home construction (mansions in some cases) and demand for building supplies. This has a ripple effect on local entrepreneurial activities in establishing different kinds of shops (some by emigrant households, others by non-emigrant households, and still others by internal migrants from other provinces).

We also examined how remittances were used. Admittedly, our data do not show a large portion of remittances that was used directly in business activities. However, our fieldwork in Fujian Province suggests that the relatively small proportion of spending on business does not tell the whole story. In talking with emigrants and local officials, we find that some of the emigrant households join forces with other emigrant households to invest in business initiatives outside of the local community. For example, some members from emigrant households, seeing a construction boom for office and residential buildings in Chinese cities, saw a demand for steel.

Subsequently, they ended up investing in steel mills in other provinces. There are also households who run brick factories in Zhejiang Province on a China's coastal region. Still, there are households who invest in the real estate market in nearby cities such as Fuzhou city. These households may be in small numbers and the direct impact on the local economy may not be significant, but their contribution to the development of China as a whole should not be overlooked.

Third, it should be noted that we went beyond the narrow definition of business activities as the only yardstick of contribution to development to include other possibilities: contribution to local education and public projects. Contributions/donations to educational initiatives have a long tradition in China's migrant-sending communities (qiao-xiang) (Huang and Zhang, 2003; Lin, 1992, Zhuang, 2001). Some of the contributions consist of scholarships and equipment such as computers. There are schools built solely by using money from donations by emigrant households (Huang and Zhang, 2003). These educational initiatives help local educational institutions train the future workforce. Other public projects include building local roads/bridges, local temples for worship, and senior citizen centers. A recent report from Fujianese migrant communities in New York tells a story of immigrants in New York City who are collecting donations to help purchase a fire-truck for their hometown villages (Cao, 2005). Their plan is to buy the most advanced fire-truck in the United States and then donate it to their hometown village. The same story also highlights the new reality of transnational communities in the case of Fujian: lives in Fujian Province and a migrant community New York City are increasingly connected. Overall, these initiatives help make these migrant-sending communities more attractive places to live, thereby retaining people who might migrate otherwise.

Remittance patterns are clearly constrained by the high cost of migration in the case of Fujianese immigrants. Thus, undocumented migrants remit more (in order to pay off the debt) in general than migrants with a green card. The cost of the migration journey limits the ability for migrants to remit money for productive uses before the debt is paid off. In addition, the location of children also affects remittance patterns. The higher the proportion of children residing in China, the more likely migrants remit.[5]

Prior work suggests that local infrastructure is important in affecting the emigrant's decision to repatriate. We find some support for this. The distance to the nearest highway is an important predictor of remittance behavior (an amount of remittances). We also find that in agricultural-dominated villages, immigrant households are more likely to use the money for business, local education and public projects than in other types of communities. We suggest that these rural communities tend to have a strong sense of community identity and therefore, immigrant households are more likely to invest in business, as well as local education and public projects.

To further examine the linkage between international migration and development, we move away from Fujian Province to examine broadly how international migration has affected China's national development. It is well-known by now that for the past 25 years or so, China has enjoyed the most phenomenal economic growth that the world has ever seen (a consistent growth rate of 9-10%). Although factors beneath this economic record are complicated, we argue that the initial investment from overseas Chinese played a crucial role at least in the initial years of China's economic take-off. In some ways, this is by policy design of the Chinese government. The first four Special Economic Zones in China to attract foreign investment are strategically located in Shenzhen, Zhuhai, Shantou, and Xiamen. The first three of them are in Guangdong

[5] The detailed results are available from the authors on request.

Province and the fourth one, Xiamen, is in Fujian Province. Both Guangdong and Fujian are historically the provinces that sent a large number of international migrants to North America, Europe, and Southeast Asian countries. In his 1992 speech, Deng Xiaoping made this point explicitly "when we set up four Special Economics Zones back then, we took consideration of the geography, Shenzhen is near Hong Kong, Zhuhai is close to Macau, there are lots of people from Shantou who went to Southeast Asian countries, and there are many business people abroad who are from Southern Fujian (quoted in Zhuang, 2001, p.374)." The strategy clearly worked. For the period of 1979-1991, foreign investment in China reached $26.8 billion and overseas Chinese investment accounted for 66% of the total foreign investment. The initial investment and success for overseas Chinese created a fundamental confidence for investing in China among international companies, and these over time have helped to sustain a healthy investment psychology in China among all investors, big or small, foreign or domestic.

Finally, what can we say about the policy implications of our study? First, given the enormous potential of indirect effects of remittances on the local economy, it would seem natural for the local government to make it easier for people to borrow money to stimulate local entrepreneurial activities. This is particularly important for households with no migrants abroad who usually do not have enough money to start a business. For emigrant households with the intention of starting new business initiatives either in the local area or other provinces, it would be helpful for the local government to provide support. This can take the form of a special tax policy, which could be more generous initially than China's general tax law for foreign investment. Workshops on new investment opportunities and assessment of the benefits and risks seem necessary for some emigrants who have been away for many years. This could be done both in the local community when emigrants return and in emigrant concentrated cities abroad.

The second policy recommendation is an investment in pubic infrastructure. We are certainly not the first ones who proposed this idea (Taylor et al., 1996), but there is evidence that it has worked in migrant-sending communities in China. Although investments in infrastructure cost money, in the long-term they will pay off. The third policy-relevant finding we learn from this paper is that we need to be patient. It takes time for emigration to exert an impact on the migrant-sending community. One needs to look no further than Southern Fujian (min-nan), the place that sent thousands of emigrants in the late 19th and early 20th centuries. Today, Southern Fujian is one of the most dynamic economic centers in China that specializes in shoes and apparel industries. On a recent trip to China, the senior author went to towns in Southern Fujian where shops and business are everywhere and everyone is doing a business of some sort. Business is booming as Chinese business people with different dialects are making deals with local businessmen. Foreign trade of different scales is likewise on the rise. Trade connections with counties in Middle Eastern countries are especially active because of historical trade traditions and linkages. The question is whether, in the long-run, this will be replicated in other parts of migrant-sending communities in Fujian Province. We argue that conditions are very favorable for this to happen at least in Eastern Fujian Province, the location of our current study because of the large amount of remittances and overall economic climate in China as a whole.

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Table 1. Village-Level Remittance Amount (Previous and Cumulative Years)

		Prop. Senders	Prop. Senders	Average		Total	
Village	Emigrants	Previous Year	Cumulative	Previous Year	Cumulative	Previous Year	Cumulative
Mafu							
1	55	0.945	0.982	$4,986.60	$42,687.44	$259,302.96	$2,347,809.15
2	60	0.983	0.983	$7,407.86	$53,116.40	$437,063.69	$3,186,984.13
3	54	0.981	0.981	$6,617.21	$39,476.98	$350,712.09	$2,131,757.13
4	58	0.897	0.914	$8,992.36	$41,856.41	$467,602.56	$2,427,671.61
5	35	0.971	0.971	$10,346.64	$42,301.15	$351,785.71	$1,480,540.27
6	37	0.919	0.946	$11,227.85	$43,781.14	$381,746.74	$1,619,902.08
7	10	1.000	1.000	$10,339.77	$43,833.12	$103,397.69	$438,331.21
8	45	0.844	0.933	$10,003.87	$33,885.83	$380,147.06	$1,524,862.18
9	9	0.889	0.889	$16,150.21	$61,886.84	$129,201.68	$556,981.52
10	11	1.000	1.000	$7,438.88	$51,504.16	$81,827.73	$566,545.74
11	21	0.905	0.952	$21,093.23	$52,839.01	$400,771.32	$1,109,619.30
12	8	1.000	1.000	$7,155.99	$28,619.10	$57,247.90	$228,952.77
13	7	0.857	0.857	$3,302.33	$9,753.59	$19,813.95	$68,275.15
14	11	1.000	1.000	$13,404.45	$56,347.15	$147,448.99	$619,818.69
15	3	1.000	1.000	$15,056.02	$39,356.61	$45,168.07	$118,069.82
16	9	1.000	1.000	$7,837.28	$35,986.07	$70,535.54	$323,874.63
17	4	0.750	1.000	$12,955.18	$98,562.63	$38,865.55	$394,250.51
18	8	1.000	1.000	$17,331.93	$66,735.11	$138,655.46	$533,880.90
Changxiao							
1	21	1.000	1.000	$5,633.70	$51,978.36	$118,307.61	$1,091,545.61
2	42	0.857	0.952	$5,001.16	$34,140.80	$180,041.66	$1,433,913.59
3	82	0.902	0.951	$4,996.68	$59,623.30	$369,754.32	$4,889,110.43
4	44	0.909	0.955	$5,042.02	$42,786.85	$201,680.67	$1,882,621.48
5	51	0.902	0.980	$6,281.29	$43,762.90	$288,939.40	$2,231,908.14
6	42	0.905	0.976	$7,318.04	$72,567.34	$278,085.46	$3,047,828.14
7	40	0.875	0.975	$15,750.84	$98,883.61	$551,279.50	$3,955,344.46
8	26	0.731	0.769	$8,157.77	$47,832.55	$154,997.70	$1,243,646.41
9	42	0.857	0.929	$10,220.59	$49,468.66	$367,941.33	$2,077,683.59
10	17	0.706	0.765	$10,150.70	$68,110.98	$121,808.44	$1,157,886.65
11	66	0.985	1.000	$9,102.31	$58,121.89	$591,649.85	$3,836,044.93
12	61	0.918	0.951	$10,771.84	$46,874.80	$603,223.16	$2,859,363.07
13	64	0.875	0.938	$9,770.87	$51,475.55	$547,168.61	$3,294,435.01
14	65	0.923	0.969	$6,320.18	$48,044.97	$379,210.99	$3,122,923.33
15	55	0.891	0.927	$9,274.48	$51,944.66	$454,449.34	$2,856,956.06
16	57	0.807	0.930	$16,802.69	$72,771.89	$772,923.75	$4,147,997.67
Tujiang							
1	36	1.000	1.000	$4,386.29	$27,965.44	$157,906.49	$1,006,756.00
2	32	0.969	1.000	$8,328.82	$44,484.35	$258,193.28	$1,423,499.16
3	68	0.985	1.000	$5,101.66	$49,173.57	$341,811.14	$3,343,802.59
4	62	0.935	0.984	$5,694.00	$51,048.41	$330,252.10	$3,165,001.38
5	48	0.958	1.000	$7,089.19	$50,571.35	$326,102.94	$2,427,425.03
6	31	0.935	0.968	$11,056.58	$46,390.70	$320,640.76	$1,438,111.71
Total	1497	0.918	0.960	$8,426.25	$50,492.02	$11,577,663.19	$75,611,931.23

Table 2. Characteristics of Emigrants who Have Remitted and who Have Never Remitted

Independent Variables	Remitted	Never Remitted
Socio-Demographic Characteristics		
Average age	33.41	33.62
Married	78.4%	66.7%
Average years of schooling	8.64	6.75
Household Characteristics		
Average dependency ratio	0.15	0.18
Homeownership	93.5%	88.1%
Migration-Economic Characteristics		
Average duration of stay overseas	6.57	6.75
Average emigration cost	$33,768.84	$26,631.58
Average previous year remittances	$8,153.28	---
Average cumulative years remittances	$52,617.91	---
Village Economic Context		
Average proportion of females in industry	0.04	0.03
Village Infrastructure		
Average distance to national highway (km)	8.46	10.18
Bank of China branch	23.8%	17.4%
Village Agrarian Context		
Average agrarian population density	318.31	435.88
Average proportion of agrarian land	0.19	0.19
Number of emigrants	1,437	60

Table 3. Spending Patterns of Overseas Remittances by Duration of Stay Overseas

		Duration of Stay Overseas				
Remittances were spent on:	Overall	< 1year	1-2 years	3-5 years	6-9 years	10+ years
Paying for family's living	84.3%	77.2%	66.5%	83.2%	89.0%	89.4%
Paying off emigration cost	43.8%	50.0%	67.0%	55.4%	36.5%	24.0%
Supporting the elderly	37.3%	27.8%	21.4%	32.0%	41.9%	47.7%
Building or purchasing housing	26.7%	16.7%	7.7%	19.1%	33.4%	39.2%
Helping to raise children born overseas but sent back to China	19.6%	11.1%	9.9%	15.9%	26.8%	18.7%
Supporting local education and other public project	11.4%	5.6%	6.0%	9.7%	11.8%	17.0%
Other purposes	4.7%	5.6%	3.3%	3.7%	5.0%	5.0%
Building ancestry grave	3.6%	0.0%	2.2%	1.8%	4.3%	6.4%
Doing business	2.4%	11.1%	2.2%	2.1%	1.9%	3.2%
Total number of cases	1,436	18	182	435	518	283

Table 4. Logistic Regression Models Predicting whether an Emigrant Has Ever Remitted

	Model 1		Model 2		Model 3		Model 4	
Independent Variables	b	SE	b	SE	b	SE	b	SE
Socio-Demographic Characteristics								
Age	-0.020	0.022	-0.051	0.041	-0.022	0.029	-0.032	0.027
Married	1.135**	0.375	1.709*	0.683	1.530**	0.477	1.466**	0.490
Years of schooling	-0.015	0.062	0.062	0.106	-0.005	0.082	0.027	0.088
Household Characteristics								
Dependency ratio	-1.665†	0.902	-1.699	1.565	-2.296*	1.116	-1.467	1.250
Homeownership	0.711	0.460	0.484	0.821	1.128*	0.536	0.783	0.674
Migration-Economic Characteristics								
Duration of stay overseas	0.089*	0.045	0.304**	0.099	0.057	0.056	0.117†	0.062
Emigration cost	0.037**	0.009	0.050**	0.014	0.047**	0.012	0.036	0.012
Village Economic Context								
Proportion of females in industry			1.564	3.389				
Village Infrastructure								
Distance to national highway					-0.038	0.026		
Bank of China branch					0.780	0.558		
Village Agrarian Context								
Agrarian population density							-0.045	0.035
Proportion of agrarian land							-0.237	1.077
Intercept	1.070	1.138	-0.009	1.819	0.750	1.450	1.120	1.605
Number of emigrants	1,397		606		889		878	

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

Table 5. OLS Regression Models Predicting Remittances Amount in Previous Year

	Model 1		Model 2		Model 3		Model 4		Model 5	
Independent Variables	b	SE	b	SE	b	SE	b	SE	b	SE
Socio-Demographic Characteristics										
Age	0.0001	0.005	0.004	0.008	-0.002	0.006	0.006	0.006	0.002	0.010
Married	-0.087	0.083	-0.135	0.136	-0.093	0.104	-0.046	0.105	-0.220	0.158
Years of schooling	0.010	0.014	-0.007	0.022	0.017	0.017	0.013	0.017	-0.019	0.026
Household Characteristics										
Dependency ratio	-0.364 †	0.191	-0.582 †	0.316	-0.009	0.239	-0.366	0.240	-0.452	0.371
Homeownership	0.288 *	0.116	0.199	0.187	0.182	0.141	0.262 †	0.158	0.359	0.236
Migration-Economic Characteristics										
Duration of stay overseas	-0.010	0.010	-0.023	0.017	-0.014	0.013	-0.011	0.012	-0.042 †	0.022
Emigration cost	0.008 **	0.002	0.005	0.003	0.007 **	0.002	0.007 **	0.002	0.009 *	0.004
Village Economic Context										
Proportion of females in industry			-0.791	0.580					-0.340	3.413
Village Infrastructure										
Distance to national highway					-0.005	0.005			-0.017 †	0.010
Bank of China branch					-0.146	0.101				
Village Agrarian Context										
Agrarian population density							0.016 *	0.008	0.014	0.021
Proportion of agrarian land							0.489 *	0.203	-0.218	0.317
Intercept	8.054 **	0.260	8.534 **	0.402	8.249 **	0.323	7.682 **	0.334	8.734 **	0.517
Number of emigrants	1,282		559		811		812		410	

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

Table 6. Logistic Regression Models Predicting whether Remittances were Spent on Business

	Model 1		Model 2		Model 3		Model 4	
Independent Variables	b	SE	b	SE	b	SE	b	SE
Socio-Demographic Characteristics								
Age	0.017	0.030	0.106 *	0.044	0.004	0.041	0.029	0.035
Married	0.023	0.553	-1.712 †	0.901	-0.259	0.682	-0.341	0.673
Years of schooling	0.090	0.083	0.016	0.123	0.062	0.105	0.065	0.101
Household Characteristics								
Dependency ratio	-0.369	1.214	1.710	1.699	0.282	1.498	0.440	1.433
Homeownership	-0.762	0.549	-1.178	0.840	-0.590	0.770	-1.119 †	0.656
Migration-Economic Characteristics								
Duration of stay overseas	0.039	0.057	0.096	0.097	0.043	0.071	0.029	0.067
Emigration cost	-0.005	0.013	0.020	0.024	-0.016	0.016	0.002	0.016
Village Economic Context								
Proportion of females in industry			-9.131	9.799				
Village Infrastructure								
Distance to national highway					0.028	0.033		
Bank of China branch					-0.299	0.639		
Village Agrarian Context								
Agrarian population density							0.073 *	0.036
Proportion of agrarian land							-3.253	1.997
Intercept	-4.407 *	1.539	-6.885 **	2.455	-3.690 †	1.995	-4.040 *	1.943
Number of emigrants	1,330		581		848		841	

† p < 0.10; * p < 0.05; ** p < 0.01

Table 7. Logistic Regression Models Predicting whether Remittances were Spent on Local Education or Public Projects

	Model 1		Model 2		Model 3		Model 4		Model 5	
Independent Variables	b	SE	b	SE	b	SE	b	SE	b	SE
Socio-Demographic Characteristics										
Age	-0.007	0.016	-0.001	0.025	-0.027	0.022	-0.025	0.021	-0.006	0.031
Married	0.221	0.274	-0.208	0.451	0.289	0.345	0.456	0.359	0.034	0.495
Years of schooling	0.039	0.042	0.031	0.066	0.042	0.052	0.019	0.053	-0.015	0.080
Household Characteristics										
Dependency ratio	-1.934**	0.638	-3.348**	1.166	-2.654**	0.875	-2.615**	0.832	-4.912**	1.503
Homeownership	1.027*	0.523	0.022	0.569	0.911	0.613	0.423	0.548	0.151	0.684
Migration-Economic Characteristics										
Duration of stay overseas	0.098**	0.029	0.170**	0.051	0.114**	0.039	0.149**	0.037	0.174**	0.060
Emigration cost	-0.014*	0.006	-0.026*	0.011	-0.019*	0.008	-0.016	0.008	-0.023†	0.012
Village Economic Context										
Proportion of females in industry			-0.646	1.999					12.170	10.371
Village Infrastructure										
Distance to national highway					-0.004	0.017			-0.050	0.039
Bank of China branch					-0.104	0.326				
Village Agrarian Context										
Agrarian population density							0.041†	0.022	0.111†	0.060
Proportion of agrarian land							0.897	0.660	0.124	1.183
Intercept	-3.298**	0.900	-2.305†	1.232	-2.487*	1.111	-2.737	1.081	-2.142	1.587
Number of emigrants	1,330		581		848		841		431	

† p < 0.10; * p < 0.05; ** p < 0.01

Table 8. Logistic Regression Models Predicting Remittances were Spent on Housing

	Model 1		Model 2		Model 3		Model 4		Model 5	
Independent Variables	b	SE	b	SE	b	SE	b	SE	b	SE
Socio-Demographic Characteristics										
Age	0.005	0.011	-0.006	0.017	0.012	0.015	0.018	0.014	0.007	0.022
Married	0.153	0.203	0.110	0.307	0.081	0.253	0.088	0.250	0.073	0.358
Years of schooling	0.028	0.031	0.025	0.048	0.024	0.038	0.036	0.038	0.057	0.058
Household Characteristics										
Dependency ratio	-0.812 †	0.437	-1.692 *	0.707	-1.175 *	0.561	-1.475 **	0.546	-2.046 *	0.858
Homeownership	-0.172	0.256	-0.165	0.393	-0.143	0.323	0.186	0.362	0.954	0.651
Migration-Economic Characteristics										
Duration of stay overseas	0.114 **	0.022	0.179 **	0.037	0.087 **	0.028	0.104 **	0.027	0.125 **	0.044
Emigration cost	-0.016 **	0.005	-0.008	0.007	-0.013 *	0.006	-0.012 *	0.006	-0.009	0.009
Village Economic Context										
Proportion of females in industry			1.544	1.236					4.377	7.933
Village Infrastructure										
Distance to national highway					0.023 †	0.012			0.026	0.022
Bank of China branch					-0.120	0.228				
Village Agrarian Context										
Agrarian population density							0.000	0.017	0.077 †	0.046
Proportion of agrarian land							-0.139 **	0.518	0.072	0.758
Intercept	-1.563 **	0.587	-1.774 *	0.868	-1.831 *	0.747	-1.991 **	0.755	-3.686 **	1.235
Number of emigrants	1,330		581		848		841		431	

† p < 0.10; * p < 0.05; ** p < 0.01

Fig. 1 Average amount of remittances in previous year by duration of stay

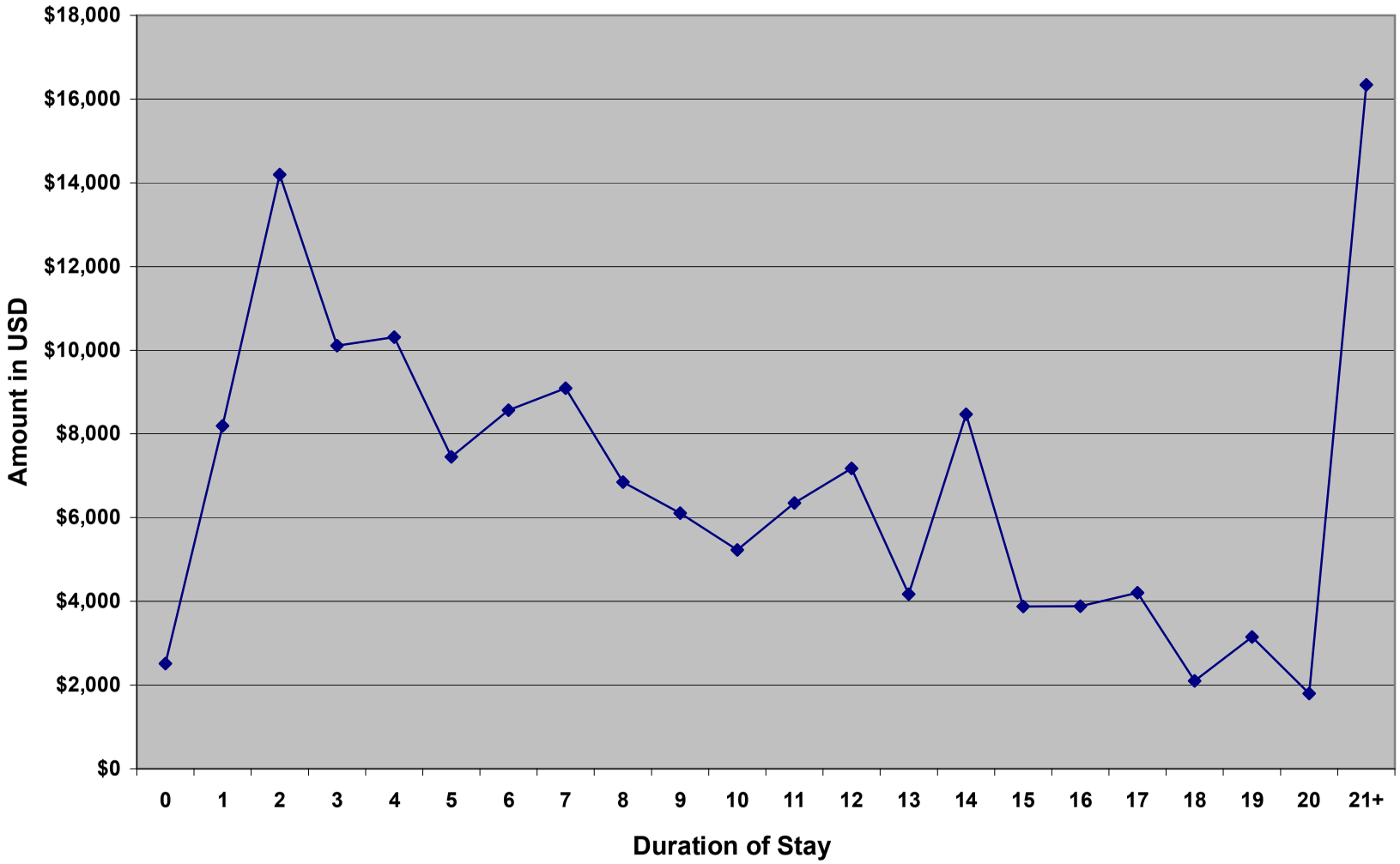
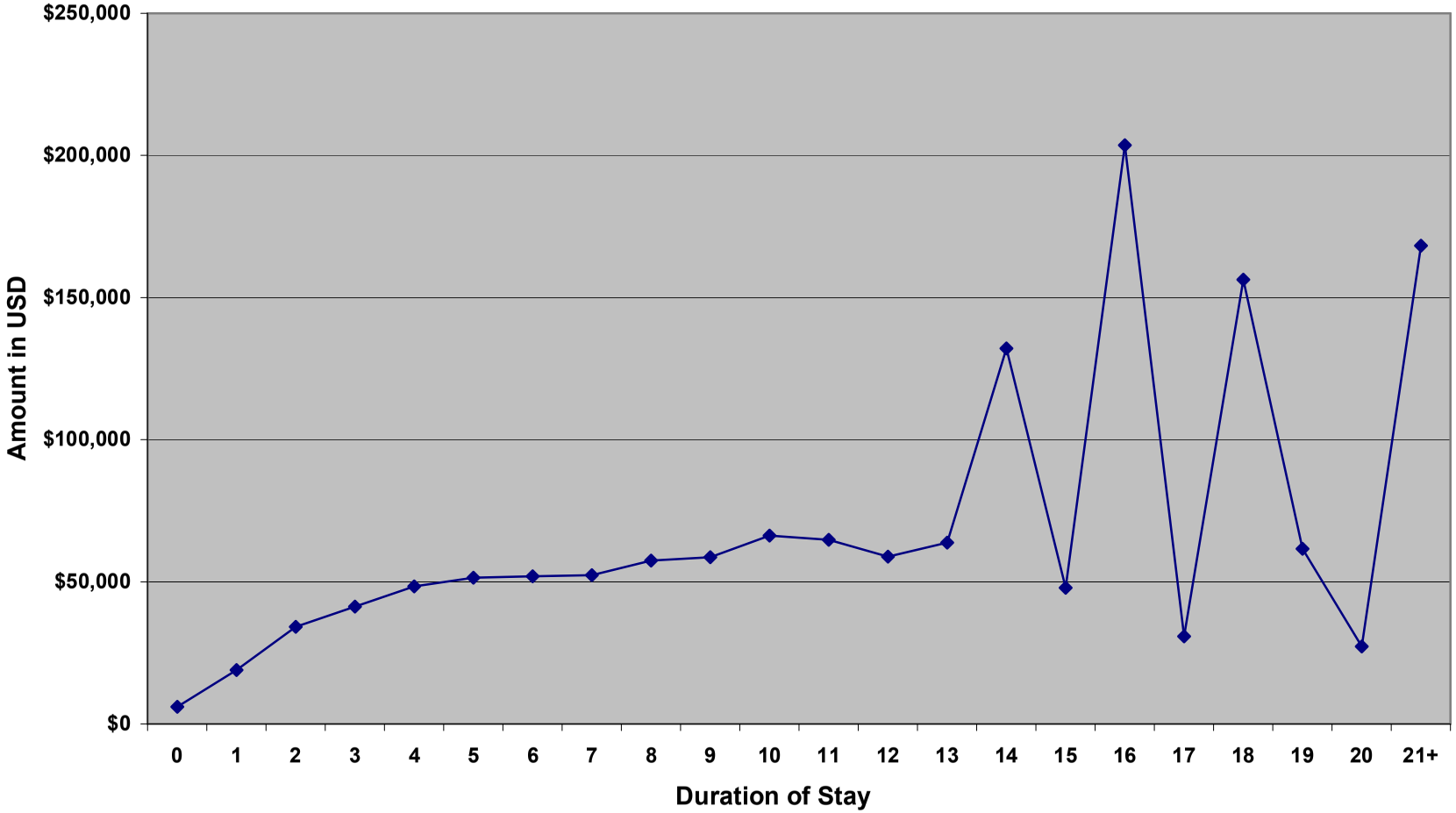


Fig. 2 Cumulative amount of remittances by duration of stay



Map 1. Location of Fujian Province in China