

Migrants and Housing Investments: Theory and Evidence from Nigeria*

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I. Introduction

Migrants often maintain economic and social ties to their origin communities. An important body of research documents the role of transfers from migrants to their home families in risk-sharing, informal credit, and altruistic arrangements (Lucas and Stark 1985; Rosenzweig and Stark 1989; Ilahi and Jafarey 1999).¹ Remittances may also be used to acquire assets—housing, land, financial assets, and businesses in the community of origin. There is a growing interest in the extent to which migrants' remittances are channeled toward physical capital investments, especially land and housing.² However, very little is known about any specific investments that migrants make in their origin communities.

This article uses a unique data set from Nigeria to investigate migrants' housing investments in their communities of origin, a previously unexplored subject. The study of migrants' housing investments can inform a broad literature that seeks to understand the economic ties that migrants maintain with their origin communities. Under the standard investment explanation, migrants invest in housing assets in the origin community because these investments yield high rates of return relative to the return on other assets. It can also be argued that migrants' investment decisions are closely related to their return migration plans (Galor and Stark 1990, 1991). The goal of this article is to explore the benefits from investing in the community of origin prior to the event of return migration. It is important to note that if there were no immediate benefits to offset the costs associated with investments, the migrant could postpone investing in housing until return to the origin community.

The standard investment model is the starting point of the analysis in this article. In addition, I consider three alternative explanations for migrants' housing investment decisions. First, there may be family-related motives for migrants' housing investments. In the family investment model, migrants'

housing investments may provide direct benefits to their home families through housing services, as well as indirect benefits. In particular, a migrant's housing investment can supply information about the migrant's resources and commitment to the home family, which can improve the home family's access to formal and informal markets in the home town environment. Second, migrants' investment decisions may be motivated by the need to secure membership rights in the community of origin. By investing in housing during their period of residence abroad, migrants strengthen their membership rights in their communities of origin for the event of return. The third motivation for housing investments, which I term the "community-investment model," centers on altruism. Migrants care about the communities they left behind and invest in order to contribute directly to the development of the housing stock in their home towns. Residents of the home town can benefit from the employment opportunities and increased demand for local construction materials created by migrants' housing investments. It is possible that all three explanations operate together under one structural model. However, the empirical approach adopted here is designed to distinguish between the theoretical models and measure their relative importance in the data.

The empirical work presented here makes use of original data collected by the author. The data set is unique because it contains information about Nigerian emigrants and their home families. To my knowledge, this is the first economic study of a matched sample of emigrants and their home households. The U.S.-Nigeria migration survey was conducted during a year-long period of field research as part of an investigation of migrants' economic linkages to their origin communities.

Nearly half of the sample of Nigerian emigrants living in the United States has initiated substantial housing investments in their communities of origin in southeastern Nigeria. About 30% of Nigerian residences financed by migrants are reported to be vacant. In addition, half of the houses paid for by migrants are occupied by the migrants' home family in Nigeria, and no rental payments are made. Standard investment models, while of relevance, may have difficulty explaining housing investment patterns where houses remain unoccupied and in the presence of limited resale and rental opportunities for housing. However, there is evidence that migrants' housing investments are responsive to home town amenities and to changes in the macroeconomic environment in Nigeria, which may be suggestive of future returns to housing investments. Migrants may be especially well placed to take advantage of an improvement in home country investment conditions. Unlike foreign investors, migrants have developed institutions, notably family networks and home town associations, that serve as risk-reducing mechanisms.

The evidence presented here provides support for two explanations for migrants' housing investments. Migrants may invest in order to preserve and maintain membership rights in the home community. There is also evidence that these housing investments play an important role in signaling migrants' resources and support of their home family. There is less support for the

community investment explanation. The empirical results do not support the conclusion that migrants tend to invest in less-developed communities, as predicted by the community-investment model.

The dominance of housing may reflect limitations in the menu of investment choices available to migrants in the country of origin. In many developing countries, individuals face relatively few savings opportunities where productive assets (such as land, farm assets) are associated with high risks and/or low rates of return (Besley 1995). Housing investments offer unique advantages in that they are durable, highly visible, and associated with low risk and monitoring requirements. However, there are some important drawbacks associated with housing investments. In particular, where resale and rental markets for housing are not well developed, migrants' housing assets may be relatively illiquid and irreversible.

In the next section, I provide some background on general patterns of investment behavior among migrants. Here, the evidence on housing investments is discussed for a rich set of migrant sending and receiving countries. In Section III, I develop the conceptual framework for understanding migrants' housing investment decisions. Section IV provides a description of the data sources. Section V outlines the empirical strategy. In Section VI, I discuss the empirical findings. Section VII presents conclusions.

II. The Setting

There is substantial evidence that emigrants' savings in the host country are allocated toward asset accumulation in the home country, usually in the form of land and housing. The Italian American immigration experience of the late nineteenth and early twentieth centuries provides a rich source of case study material on housing investments (Foerster 1919; Sturino 1990; Wyman 1993). According to Sturino (1990, p. 69), a common Italian expression of this period was the following: "Whoever the ocean will cross, he will buy a house." A home was affordable and could be put to use by the migrant's home family while the emigrant was still across the Atlantic. During the period of work and residence abroad, migrants remained part of a larger decision-making unit, which included family members in the home country.

Adams (1991) emphasizes family-related motives for housing investments using data from international migration from rural Egypt. According to Adams, "When they enjoy temporary income flows from abroad, migrant households tend to tackle one of their most immediate concerns, namely, that of replacing their crowded and traditional mud-brick houses with modern red brick buildings" (Adams 1991, p. 720). The process of building a house involves a substantial managerial component that is often supplied by family members residing in the village or town of origin.

Interestingly, housing investments appear to be common even when family members do not enjoy direct housing benefits. Findlay and Samha (1986) observe that housing investments represent the most common use of remittances among current out-migrants in Amman, Jordan. However, migrants'

houses may be vacant during the period of out-migration. Lawless (1986) examines migrants' housing investments based on evidence from Algeria. For Algerian emigrants to France, housing investments are made in their villages of origin during the migrant's period of work and residence abroad (Lawless 1986, p. 225). Here, migrants' houses also remain unoccupied during the migrants' period of out-migration. In these cases, migrants' housing investments may be linked with future return migration plans and the need to maintain ties to the community of origin.

In the contemporary period, Mexican migration to the United States is another important source of case study material on migrants and housing investments in the country of origin. The motives for savings vary with the life cycle and initial economic resources of the migrant. Massey et al. (1987) argue that migrants' savings are first channeled toward providing for the consumption needs of the home family, and once basic consumption needs are secured, then migrant families allocate their savings toward investment goals, which include the purchase of land or acquisition of a home or a small business in Mexico. In some cases, initial migration decisions may be closely linked to a target income or savings goal.

III. Conceptual Framework

The goal of this section is to examine the potential benefits that can accrue to the migrant from investing in the home community. Consider a migrant deciding at time t whether to invest in housing in the home town. The migrant's housing asset is valuable because it provides access to a stream of benefits. If there were no current benefits to offset the costs of investing today, then the migrant would have the incentive to postpone housing investments until the event of return migration.

A. The Standard Investment Model

Within this framework, the migrant's housing asset is valuable because it provides access to a stream of dividends, which offset the costs associated with migrants' housing investments. The stream of dividends includes an implicit rental payment earned, in that the migrant does not have to make a payment in order to consume a given amount of housing services and/or an investment return (which is realizable upon the sale or rental of the housing asset in the future). Since migrants work and reside in the host country, it is unlikely that they are able to realize significant direct consumption benefits in terms of housing services from home ownership in the country of origin. Furthermore, investment returns may be largely absent if resale and rental markets for housing are limited in scope. The standard investment model predicts that if the returns to housing investments in the origin community are low compared to other forms of savings in the home or host country environment, then few migrants would invest in housing investments prior to return migration.³

B. Alternative Models of Housing Investments

In this section, I consider alternative motivations for migrants' housing investments. There are important benefits that accrue from investing today if: (i) migrants' families enjoy direct or indirect services from migrants' housing investments, (ii) migrants gain membership rights from housing investments, and (iii) migrants derive utility from investing in their origin communities. These candidate explanations are explored below.

1. Direct housing benefits

The first candidate explanation is that migrants invest in housing in their home communities in order to provide direct housing benefits to their home families. Here, the relevant framework may be a joint family (rather than an individual) investment decision. The migrant-home family unit chooses the time at which housing investments are initiated in order to maximize the net benefits of investing.

The above model yields some testable predictions: First, migrants and home families are more likely to initiate housing investments when the returns to migrants' housing investments are high relative to the costs. In addition, if the returns to housing investments rise with the level of development (V) in the home town, then migrants' housing investments will take place in more developed communities. Finally, as costs associated with housing investments rise, migrants and their home families would be less likely to undertake housing investments.

2. Signaling and informal markets

The signaling model also emphasizes the role of the home family in the migrant's housing investment decision. By investing now, migrants can send a signal about their resources and commitment to the home family, which can improve the home family's access to formal and informal markets in the home town economy. Benefits that accrue to the home family may include access to formal and informal markets for credit and insurance markets.⁴ Thus, home families can benefit from migrants' housing investments even when they do not enjoy direct housing services.

Signals are useful in a wide variety of contexts where communication and information transfer are important. The goal of the signaling device is to affect subjective probabilistic beliefs concerning certain unobservable characteristics (Spence 1972; Leland and Pyle 1977).⁵ Within informal markets, economic transactions rely on the flow of good information about the resources and shocks experienced by members of the community. Migration may expand the resource constraint of the family by placing its members in locations where incomes are less likely to be correlated. However, home families may still require access to informal markets in the home community because migrants face some difficulty in transferring the funds to the home family at the time they are needed.⁶ While the locally generated resources of the home family are observed, there is limited information on the migrant's resources abroad

and the home family's access to these resources. Signals assume relevance in this environment because there are wide variations in the migrant's resources and the strength of the economic ties between migrants and their home families.

It is important to note that housing may be generally too costly to serve as a signaling device within credit markets.⁷ However, for migrants, investing in housing prior to return migration (and before the house is needed) is less costly but has the advantages of being highly visible and durable in nature. Both ongoing and completed investment projects can accomplish signaling ends by supplying information about the home family's access to the migrant's resources. The costs of signaling in this context can be measured in terms of forgone migrant saving, associated with investing in housing now rather than upon return migration.⁸

The main insight provided by the signaling model is that housing investments can provide useful information to informal markets in the home town environment.⁹ In credit markets, for example, lenders interpret housing investments as a signal that the home family has access to the migrant's resources and so offer lower interest rates to home families whose migrants have undertaken housing investments. The implication of the signaling model is that in equilibrium lenders' beliefs are confirmed. In particular, migrants who own housing in the home environment will have a stronger resource connection to their home families, and these home families will receive more remittances from their migrants in response to shocks.

3. Housing investments, membership rights and the option to return

Another candidate explanation is that migrants invest in housing in order to secure their membership rights within their home towns. Migrants care about membership rights because they wish to maintain the option to return to their community of origin. There is a wide consensus that membership rights in the home community are loosely based on descent and kinship ties, but that they are strengthened by social and economic investments in the community of origin (Barnes 1974).¹⁰ Housing investments in the home town attest to the migrant's permanence and signify local citizenship.

The value of the option to remain a member of the home community may change as the migrant receives new information about the benefits and costs associated with membership rights. An increase in home family assets, and home town development, measured as V_h , will tend to increase the value of the option to retain membership in the home community. Exogenous events (death or illness in the family, political instability, or civil unrest) can also affect the relative attractiveness of retaining membership rights in the home community and, thus, the decision to invest in housing. The migrant will invest in housing as long as the stream of benefits from membership rights is greater than or equal to the direct costs of housing investment plus the opportunity costs (both positive and negative) associated with the housing investment decision. Positive opportunity costs refer to the lost option value

of investing today, since investing now implies forgoing the opportunity to wait until new information arrives (Dixit and Pindyck 1994). However, in the presence of sunk benefits or negative opportunity costs, it may be more costly to reestablish membership in the future, and thus the migrant may benefit from investing now.

The membership rights framework yields some testable implications. In this model, home family wealth and the level of home town development have a positive impact on housing investments since both variables increase the value of the option to return to the home community. Adverse exogenous events in the home country (political instability or civil unrest) may have a negative effect on the value of the option to return and, hence, the decision to invest.

4. Housing and community investment

The final explanation for the observed patterns of housing investments is that migrants derive utility from investing in their community of origin.¹¹ Important insights emerge when migrants' housing investments are viewed as part of a broader community development effort. By investing in housing now, migrants can contribute to the development of housing stock in a community and to the general appearance of the home community. Here, home towns and their characteristics enter directly as arguments in the migrant's utility function, and the migrant chooses housing investments in order to maximize utility. The model yields the standard altruism result that less developed home towns (measured by V_i) will receive larger investments than more developed home towns, holding all other variables constant. This is because the marginal returns to investing in the home town tend to be high when the level of village development, V_i , is low.

C. Summary of Testable Implications: Motives for Housing Investments

Each of the models considered above emphasizes one class of variables as the main determinants of observed housing investment behavior. To conduct a formal test of the standard investment model, one would require data on the returns to housing assets as well as other savings opportunities in the home and host country. It may be difficult to estimate the rate of return on migrants' housing assets where housing markets (resale and rental) are less developed. However, the level of home town development is likely to have a positive effect on future returns to housing investments.

Alternative models yield the following testable predictions: in all the models considered above, housing investments are positively associated with migrants' resources, in keeping with the standard income effect on the consumption of normal goods. However, the models may have competing predictions for the role of home family housing assets in the migrant's investment decision. Within the membership rights model, the migrant's housing investments may be positively associated with home family housing assets. In contrast, both the community investment and family benefits (housing services)

model may predict a negative relationship between home family housing assets and the migrant's housing investments. The role of home family assets is ambiguous in the signaling model. The above models also yield testable predictions for the effect of home town amenities on housing investment decisions. The community investment model predicts that less-developed villages will receive more housing investments, other things being equal. However, the other models presented above suggest that housing investments are more likely to occur in more developed villages. These predictions are summarized below.

	<i>Model</i>	<i>Migrant's Income</i>	<i>Home Family Housing Assets</i>	<i>Origin Community Attributes</i>
1.1	Family benefits (housing services)	+	-	+
1.2	Family benefits model (signaling)	+	+/-	+
2	Membership rights model	+	+	+
3	Community investment	+	-	-

IV. Data

The models presented in Section III emphasize that a complete understanding of migrants' housing investments requires data on migrants and their home households, as well as their communities of origin. The limitations of existing data sources suggest an important role for field research. The U.S.-Nigeria migration survey was conducted in 1997 to investigate the economic linkages that exist between migrants and their communities of origin.

The data were collected in two stages. The first stage involved conducting surveys among the migrant sample in the United States. The migrant sample (or U.S. sample) is composed of 112 Nigerian migrant households in Chicago, Illinois.¹² The migrant sample contains detailed information on demographic variables, migration experience, remittances, and assets in the United States and Nigeria.

The second stage of fieldwork took place in Nigeria. During the second stage of data collection, I surveyed 61 home families in Nigeria using the names and addresses supplied by the initial U.S. sample.¹³ This matched sample presents a new opportunity to examine the impact of home household characteristics (demographic variables, remittances, assets, and shocks) on migrants' investment patterns. Most studies that deal with the migrant's economic ties in the home community rely on data on the migrant household or use data obtained solely from the household of origin, but not both.

To provide a complete picture of the environment where migrants' housing investment decisions are made, I also collected data on migrants' home towns in southeastern Nigeria, including population, distance to state capital, and number of postsecondary institutions. Information on access to a major road, electricity, and potable water are only available at the local government area (or district level). There are 71 home towns in this sample, which vary

TABLE 1
MIGRANTS AND HOUSING INVESTMENTS

Variable	Mean	SD
A. Housing indicators:		
Migrant owns completed house in home town	.39	
Migrant has initiated housing investments in home town (includes completed and ongoing investment projects)	.51	
Number of years between first migration to United States and year in which housing investment is initiated	7.73	6.36
Years to complete housing investments	4.38	4.19
Housing investment as a percentage of annual household income	.40	.83
Percent of housing investments occupied by home family	.53	
Percent of housing investments with no occupants	.28	
Percent of housing investments owned prior to migration to United States	.10	
B. Remittances:		
Household sent transfer in past year	.92	
Household sent housing related transfer in past year	.23	
Total housing transfer in past year (in US\$)	2,066.01	7,557.19
Total amount transferred in past year (in US\$)	5,965.72	11,256.25

SOURCE.—U.S. Nigeria Migration Survey, 1997.

NOTE.—Migrant sample $N = 112$.

in terms of land area, population, urbanization, and level of development. Fieldwork observations revealed that there are typically limited resale and rental markets for residential houses in most home towns in southeastern Nigeria.

A. Summary Statistics

Table 1 documents the prevalence of housing investments within the sample. Two housing indicators deserve close attention. The first housing indicator captures whether or not the migrant owns a completed house in the community of origin. About 40% of the sample owns a completed house in the home town. The second housing indicator is defined to include both completed houses and houses that are currently under construction. More than half of the migrant sample has initiated housing investments in the home town. The bulk of migrants' housing investments are financed through U.S. earnings. In my sample, only four migrants report owning a completed house in their home town before their migration to the United States. Most of the completed houses are occupied by home families or are vacant.

In table 2, migrant, home family, and home town characteristics are presented by home ownership status. Annual household income per capita and nonhousing remittances are higher among migrants who own completed houses in their community of origin.

TABLE 2
MIGRANT SAMPLE: CHARACTERISTICS BY HOUSING STATUS IN NIGERIA

Variable	All <i>N</i> = 112	Homeowners (Completed Houses Only) <i>N</i> = 44	Nonhomeowners <i>N</i> = 68	Difference (Owners minus Nonowners)
Migrant household's characteristics:				
Male	.92	.95	.89	.06 (.05)
Age at first migration to the United States	25.42 (7.40)	25.65 (5.59)	25.28 (7.43)	.37 (1.32)
Age (at the time of survey)	38.78 (7.33)	41.75 (7.10)	37.32 (5.56)	5.19*** (1.34)
Years of schooling	16.46 (1.49)	16.77 (2.00)	16.25 (1.51)	.51* (.29)
Occupation (skilled = 1)	.51	.60	.46	.15 (.10)
Per capita annual household income (in \$)	25,470.18 (32,045.32)	33,055.26 (45,538.85)	20,452.35 (35,082.90)	12,602.91** (6,209.34)
Cumulative U.S. experience (in weeks)	732.72 (371.42)	858.00 (418.34)	667.33 (338.79)	172.91** (70.99)
Inherited farmland in home town = 1	.13	.23	.07	.14** (.06)
No. of Nigerian trips since arrival in United States	4.64 (5.02)	6.59 (6.08)	3.38 (3.66)	3.31*** (.93)

Remittances:				
Total transfer sent in the past year (in US\$)	6,003.25 (11,300.26)	9,180.07 (16,725.16)	3,994.38 (4,870.65)	5,185.69** (16,725.16)
Nonhousing transfer sent in the past year (in US\$)	3,937.18 (5,259.45)	5,679.04 (6,817.20)	2,835.71 (3,619.85)	2,843.33** (992.75)
Home family characteristics:				
Migrant head's father alive (= 1)	.40	.27	.49	-.21** (.09)
No. of buildings owned by migrant's father	2.53 (3.30)	2.63 (3.95)	2.55 (2.83)	.11 (.66)
Head's dad occupation (farmer = 1)	.23	.25	.21	.04 (.08)
Home town characteristics:				
Population (1991 census estimates)	75,928.15 (104,803.6)	87,369.00 (126,075.00)	66,266.47 (84,805.53)	17,141.46 (20,631.31)
Distance from state capital (in km)	21.56 (15.01)	21.16 (13.40)	22.06 (15.89)	-.42 (2.96)
Home town has access to a major road	.79	.84	.75	.09 (.08)
No. of higher education institutions in home town	.44 (.83)	.41 (.76)	.47 (.87)	.05 (.16)

NOTE.—Standard errors are shown in parentheses. The term “Homeowners” refers to migrants with completed houses in the home town.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

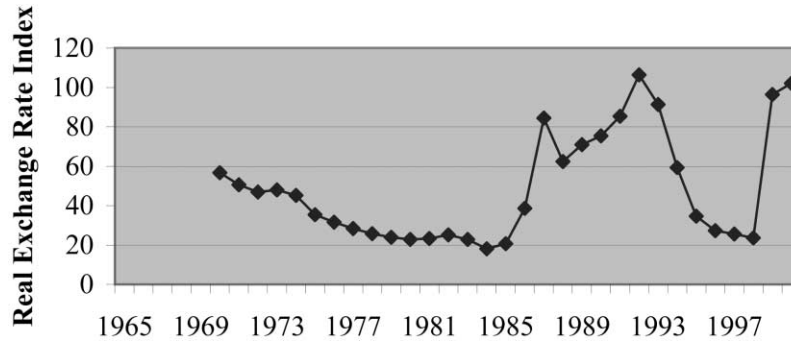


FIG. 1.—Real exchange rates in Nigeria (naira/US\$). Source: Economic Research Service of the U.S. Department of Agriculture.

B. Timing of Migrants' Housing Investments

Time-varying macro variables may affect the timing of migrants' investment decisions. To capture the impact of macrolevel shocks, data on real exchange rates, ratio of the parallel to official exchange rate, real interest rates, inflation, and political instability are introduced.¹⁴ Figure 1 summarizes real exchange rate movements in Nigeria. Exchange rate movements capture changes in the cost of housing investments in U.S. dollar terms. Annual data on real exchange rates are obtained from the Economic Research Service of the U.S. Department of Agriculture. The real exchange rate index is expressed in naira per U.S. dollar (with the year 2000 as its base) and uses the relative changes in the Consumer Price Index (CPI) to account for differences in the rate of inflation between Nigeria and the United States.

Information on the ratio of the parallel to official exchange rate, real interest rates, and inflation in a given year is obtained from the World Bank *Africa Database* (World Bank 2002) and the World Bank's *Global Development Network Growth* database (Easterly and Sewadeh 2002). Following existing literature, the method of principal components was used to determine the weights given to adverse political events in Nigeria. The following variables are used in the construction of the political instability index: number of coups, assassinations, and revolutions in a given year. The data on coups, assassinations, and revolutions are obtained from the World Bank's *Global Development Network Growth* database.

The first principal component is the linear combination that captures the largest amount of information that is common to all the variables. The loadings from this procedure are 0.5479 for revolutions, 0.5880 for coups, and 0.59450 for assassinations. This method overcomes the problem associated with assigning arbitrary weights to sociopolitical indicators in order to construct a political instability index.

V. Empirical Specification

The theoretical models suggest that the migrant's housing investment decision can be modeled as a function of migrant characteristics, home family, and home town variables. In particular, I construct the dependent variable, h_i , which captures whether the migrant has initiated housing investments in the origin community or not at time t . The variable h_i is equal to one when the underlying latent variable h_i^* , which measures the net benefits from investing in the home town, is positive. The net benefits can be defined as the expected present value of benefits less costs.¹⁵ To analyze the likelihood that a migrant has initiated housing investments, I use a probit specification.

The dependent variable, housing investments, can also be modeled as a continuous variable. Here, the measure of housing investments considered is the share of the migrant's annual household income (in U.S. dollars) that is devoted to housing investments in the home town. The variable, h , is only observed when the underlying latent variable h^* is positive. Since the dependent variable is censored at zero, I adopt a tobit maximum likelihood specification.

$$h_i^* = \mu_i + \delta_1 m_i + \delta_2 \theta_i + \delta_3 V_i + \varepsilon_i, \quad (1)$$

where m_i refers to migrant characteristics, and θ_i and V_i represent home family and origin community attributes, respectively. Variables used in estimation include migrant characteristics (age of household head, years of schooling, cumulative U.S. experience in months, number of Nigerian trips, per capita household annual income, and ownership of inherited land in home town), home family variables, and home town attributes.

A. Timing Issues

To investigate the timing issues associated with a migrant's housing investment decision, I use a duration model. The dependent variable here is the hazard rate. A migrant faces the risk of investing upon emigration to the United States, and thus the hazard spell starts at the year of emigration to the United States and ends in the year in which housing investments are initiated (if the migrant invests); otherwise the spell ends in the year of the survey. The hazard rate captures the probability, at time t that a migrant makes the transition from a state with no housing investments to the state with housing investments, which depends on migrant, family, community characteristics, and time elapsed. The parametric specification used here is a Weibull model.¹⁶

B. Testing the Implications of the Signaling Model: An Indirect Test

In the signaling framework, home households receive more favorable outcomes in informal markets, because the migrant's housing investments signal the migrant's resource commitment to the home family. Agents in informal markets use observed housing investments to form beliefs about the home family's access to migrant's resources (which is unobserved). The signaling

model also yields the indirect prediction that home households whose U.S. migrants have housing investments are more likely to receive larger remittances in response to shocks. It is possible to conduct only an indirect test of the signaling model because data on the home household's informal credit market transactions are not available.

To test this prediction, the dependent variable used in estimation is *remittances received* in the past year (in U.S. dollars) by the home household, excluding housing transfers. The estimated remittance equation is a function of housing indicators, h_i , shocks, migrant, and home household characteristics.

$$r_i = \alpha + B_1 h_i + B_2 \text{SHOCK} + B_3 (h_i^* \text{SHOCK}) \\ + B_4 \text{migrant characteristics}_i \\ + B_5 \text{home household characteristics}_i + \varepsilon_i. \quad (2)$$

I expect to find that remittances are positively associated with housing investments, other things being equal. In addition, the signaling model predicts a positive sign on B_3 , the coefficient on the interaction term between housing investments and shocks experienced by the home household ($h_i^* \text{SHOCK}$). Equation (2) includes controls for migrants' characteristics (age at the time of survey, income, years of schooling, number of trips to Nigeria since first arrival, migration experience, ownership of inherited farmland in the home town) and home family variables (years of schooling of the head, relationship to the migrant, and home household wealth).

VI. Results

The goal in this section is to explore distinctions between the theoretical models presented in Section III. Table 3 presents empirical results on the probit specification (col. 1), which captures the likelihood that the migrant has initiated housing investments in the community of origin. In the Tobit specification (col. 2), the dependent variable is the share of migrants' annual income (based on the survey year) that is devoted to housing investments in the home town.

From table 3 one can see that migrants' characteristics play an important role in the housing investment decision. Older migrants (at the time of the survey) are more likely to invest in housing in the home town. An additional year in the migrant's age increases the likelihood of undertaking housing investments by about 3 percentage points (col. 1). Furthermore, older migrants invest a larger share of household income in their housing investments (col. 2). The importance of age may lend support to the membership rights model. Older migrants (who are closer to return migration) may place a higher value on the option to return. The migrant's ties to the home community, measured by number of trips to the country of origin, are positively and significantly associated with the probability of investing, as well as with the share of income invested in housing in the home community. Ownership of an inherited farm

TABLE 3
DETERMINANTS OF MIGRANTS' HOUSING INVESTMENTS PROBIT AND TOBIT MAXIMUM
LIKELIHOOD ESTIMATES

VARIABLE	PROBIT MODEL		TOBIT MODEL (2)
	Marginal Effect	Coefficient (1)	
Migrant's characteristics:			
Age at the time of survey	.029	.074*** (.030)	.058** (.027)
Per capita annual household income (in \$) ($\times 10^3$)	.003	.008*** (.004)	.068** (.026)
Years of schooling	-.001	-.003 (.084)	.214 (.126)
Number of Nigerian trips	.040	.104*** (.037)	.068*** (.026)
Cumulative U.S. experience (in weeks)	.000	-.0002** (.001)	.001 (.001)
Own inherited farmland = 1	.209	.529 (.419)	1.039*** (.358)
Home family characteristics:			
Head's dad farmer (= 1)	.103	.266 (.403)	.024 (.330)
No. of buildings owned by head's father	.013	.035 (.034)	.065** (.035)
Home town characteristics:			
Log population (1991 census)	.085	.218* (.117)	.200 (1.250)
Distance from state capital (in km)	-.002	-.004 (.009)	-.019** (.009)
Constant		-1.995 (2.54)	-5.888*** (2.28)
No. of observations		103	103
Pseudo R^2		.35	.16
Log likelihood		-46.258939	-105.07051

NOTE.—Dependent variables are ownership of completed house in home town (col. 1) and the share of annual household income that is devoted to housing (col. 2). Standard errors are shown in parentheses. Marginal effects are evaluated at the sample means for continuous variables.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

in the home town is positively and significantly associated with the share of income invested in housing in the home community. Migrant resources have a positive and significant impact on the probability of investing and the share of income invested. At the mean, a 10% increase in migrants' income increases the probability of investing by 3 percentage points.

The inclusion of home family variables adds some important insights. The coefficient on number of buildings owned by the migrant's father is positive in both the probit and Tobit specifications and statistically significant in column 2 of table 3. Thus, migrants whose families own more housing assets are more likely to invest in housing. This result on home family housing

assets appears to cast doubt on the direct housing benefits model, in which the migrant invests in housing in order to provide housing services to the family. In fact, the positive impact of housing assets of the home family on the migrant's investment decision may be more consistent with the membership rights model, where home family assets enhance the value of the option to return.

The main prediction of the community-investment model is that less-developed home towns should receive more housing investments, other things being equal. The results on home town characteristics do not provide support for this prediction. First, home towns with larger populations are positively associated with both the incidence and the levels of housing investments across probit and Tobit specifications. In addition, the population measure (log of home town population) is statistically significant in column 1. Second, there is a negative association between the distance variable (defined as the road distance between the migrant's home town and the state capital in kilometers) and the likelihood that a migrant will invest in housing in the home town. This negative relationship is statistically significant in the Tobit specification (col. 2). Thus, migrants tend to invest a higher share of their savings in home towns that are located closer to the state capital, other things being equal.

There is a need for some caution in interpreting the findings above. One could argue that population and the distance from the capital do not capture important aspects of home town development. To deal with this concern, I also examine the impact of additional indicators of home town development, including the number of higher education institutions, access to a major road, electrification, and potable water (appendix table A1). Both population and distance to the state capital are significantly correlated with the additional indicators of the level of home town development. Based on these results, there is little support for the community investment model in that migrants appear less likely to invest in home towns with lower levels of development (although not all home town variables are statistically significant).¹⁷

The results from the community investment model can inform current policy debates. If housing investment flows are less likely to flow to less-developed communities, holding other variables constant, this may suggest a reduced role for remittances in increasing the flow of resources available to less developed areas of remittance-receiving countries. From table 3, it can be seen that home family housing assets have a positive impact on the probability and level of housing investments, which casts doubt on the direct housing benefits model. Thus, results from table 3 may be more consistent with the membership rights model of housing investment. From the results, the ownership of inherited farmland in the home town, home family assets, and home town amenities have a positive impact on the probability and level of housing investments. It is important to note that the findings on the positive relationship between home town amenities and migrants' housing investments are also consistent with the standard investment model, although this model

cannot be tested directly due to the absence of well-developed markets for rental and resale of housing in most home towns in this sample.

A. Hazard Rate of Migrants' Investments

Table 4 presents results from the Weibull specification of the hazard of investing. The coefficients on migrants' characteristics, home family and community of origin variables, and exogenous shocks are reported.¹⁸ Independent covariates have a regression-like interpretation within the Weibull specification. Variables that enter the Weibull regression with a positive sign have a positive impact on the hazard of investing.

The effect of migrant and home family characteristics appears similar to earlier results shown in table 3. Age of the head (at migration), per capita household annual income, and ownership of inherited farmland in the home town have a positive effect on the hazard of investing. The importance of age at migration and inherited farmland may provide support for the membership rights model. In addition, the number of housing assets owned by the migrant head's father is positively associated with the hazard of investing. As in table 3, the results on home family housing assets provide evidence against the provision of direct housing benefits as a dominant explanation for migrants' investment decisions. Results on home town variables are not consistent with the predictions of the community investment model. Both population and distance measures have the opposite signs from the predictions of the community investment model (although both measures are statistically insignificant). I also include additional home town variables: number of postsecondary institutions, access to a major road, electrification, and access to potable water (results are not shown). Here, most of these variables are statistically insignificant. These results do not provide support for a negative relationship between housing investments and the level of home town development.

Taken together, the results in table 4 also provide evidence that migrants' investment decisions are responsive to changes in macrolevel conditions. A real appreciation in the U.S. dollar (relative to the naira) leads to lower construction costs of housing investments in Nigeria, holding other variables constant. From column 1, an appreciation in the real exchange rate (naira/U.S. dollar) is positively associated with the hazard of investing and statistically significant. From column 2, the coefficient on the political instability index is negative but not statistically significant. From column 3, an increase in the Consumer Price Index is negatively associated with the hazard of investing, while an increase in real interest rates is positively associated with the hazard of investing (col. 4). The ratio of the parallel to official exchange rate has a statistically insignificant effect on the hazard of investing (col. 5). The Weibull regression also yields estimates of the shape parameter, p . Across all specifications in table 4, p is greater than one. This result suggests that the hazard of investing is increasing with time. Thus, migrants who have been in the United States longer are at a greater risk of initiating housing investments in their home towns.

TABLE 4

ESTIMATING THE HAZARD OF INVESTING FOR MIGRANTS (Dependent Variable: Time Horizon to Initiate Investment [in Years])

Variable	(1) Coeff	(2) Coeff	(3) Coeff	(4) Coeff	(5) Coeff
Migrant's characteristics:					
Age at first migration	.09*** (.03)	.09*** (.03)	.09*** (.03)	.10*** (.03)	.09*** (.03)
Per capita annual household income (in \$) ($\times 10^3$)	.01** (.01)	.01*** (.005)	.01 (.01)	.01** (.01)	.01** (.005)
Inherited farmland = 1	.54 (.39)	.58 (.41)	.06 (.43)	.49 (.41)	.54 (.42)
Home family characteristics:					
Head's dad farmer = 1	.14 (.41)	.02 (.40)	.16 (.43)	.04 (.42)	.02 (.41)
No. of buildings owned by head's father	.12** (.06)	.12** (.05)	.18*** (.06)	.12* (.07)	.12** (.05)
Home town characteristics:					
Log population (1991 census estimate)	.17 (.13)	.15 (.13)	.18 (.14)	.18 (.13)	.15 (.13)
Distance from state capital (in km)	-.01 (.01)	-.006 (.01)	-.003 (.01)	-.01 (.01)	-.01 (.01)

Macrolevel shocks:					
% change in real exchange rate (N/\$) from previous year	3.82** (1.68)				
Political instability index		-.004 (.02)			
Consumer Price Index			-.03*** (.01)		
% change in real interest rate (from previous year)				.08*** (.01)	
Ratio of parallel market to official exchange rate					-.02 (.53)
Constant	-9.82*** (3.37)	-9.28 (1.97)	-8.78** (2.02)	-10.30*** (3.40)	-9.20*** (2.38)
No. of observations	94	95	95	94	94
<i>p</i>	1.75	1.66	1.69	1.94	1.73
Log likelihood	-82.11	-84.69	-77.91	-74.61	-84.72
χ^2 statistic	23.81	18.67	32.93	38.83	18.60

NOTE.—Mean of the dependent variable = 10.93; SD = 6.72. Standard errors are shown in parentheses. Real interest rates are measured for commercial bank deposits in Nigeria.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

B. Remittances, Housing Investments, and Signaling

The results presented thus far provide some evidence in favor of the membership rights model, with less support for the direct housing benefits (to home families) and community investment motives for housing investments. In this section, the signaling motive for housing investments is explored. As stated earlier, an indirect test of the signaling role of migrants' housing investments would be to investigate whether home families with migrant housing investments received more remittances in response to shocks. Results from estimated remittance equations with housing indicators are reported in table 5.¹⁹ Here, the dependent variable used is *remittances received* by the home household in the survey year. Economic shocks are defined to include significant events that have occurred in the home household, including burial ceremonies and expenses related to serious illness, job loss, and crop or business failure. The most common shocks are those associated with burials and illness within the home household.

From column 1, remittances received by the home household rise in the presence of migrants' completed housing investments in the home town. The coefficient on the completed house dummy variable is positive and statistically significant.²⁰ The effect of housing on remittances received is substantial. In the presence of a completed house, remittances received by the home household increase by \$1,500 (86 naira = \$1 for the survey period). This increase represents about 40% of average annual income for home households in my sample. A dummy variable for shocks experienced by the home household is included in column 2. This shock variable captures whether or not the home household experienced a shock in the survey period. The shock indicator has a positive effect on remittances received by the home household but is not statistically significantly different from zero.

The role assigned to housing investments within the signaling framework suggests particular attention to the interaction between housing investments and shocks. In column 3, the effect of the interaction between the presence of a completed house and the shock variable on remittances is explored. This interaction term captures the combined effect of the presence of housing investments and shocks. I find that the coefficient for the interaction term is positive and statistically significant. The effect of the interaction term is larger than the effect of housing investments alone. A one-unit change in the interaction term (housing*SHOCKS) increases remittances received by \$1,650 (86 naira = \$1 for the survey period). In the fourth column of table 5, I include the house and shock indicators, along with the interaction term between housing and shocks. Now, all of the housing and shock variables are positive, but none are statistically significant.

The estimation strategy also includes controls for migrant and home household characteristics, including the migrant's age, annual per capita household income, years of education, and number of Nigerian trips since first arrival in the United States, home family nonmigrant wealth,²¹ years of education completed by the head, and migrant-home family relationship. A

dummy variable captures the relationship between the migrant and the head of the home household. When the head of the U.S. migrant household is the head's child, remittances received are larger, other things being equal. This result can also be interpreted as support for a model of altruism between migrants and their home families.

C. Alternative Interpretations of Remittance Results

In the results above, the positive association between transfers sent to the home family, shocks, and the ownership of completed housing in the migrant's home town is interpreted as indirect support for the signaling model of housing investments. However, it can be argued that a positive correlation between transfers, shocks, and housing investments captures payments to the home family either for past or current services rendered during the construction and maintenance of the migrant's investment project. Thus, family members who serve as the migrant's agent in the community of origin receive larger remittances in exchange for services provided. While this explanation does not rule out the signaling motive for housing investments, it does suggest an alternative hypothesis for the observed link between remittances and housing investments. To test this hypothesis, I construct a dummy variable that captures the length of time that has elapsed since housing construction was completed. This dummy variable takes on the value of one if the migrant has completed a house in the home town in the past 5 years or is currently building a house in the home town, and zero otherwise. Under this hypothesis, remittances to the home family would be positively correlated with recent and ongoing housing construction. This is because transfers would tend to decline with time since construction if remittances are sent to compensate the home family for services rendered during housing construction. From column 5 in table 5, the coefficient on the time dummy variable is positive, but not statistically significant. Thus, these results do not support this alternative interpretation of the remittance results.

Finally, the migrant's decision to invest in housing may be endogenous with respect to the remittance decision. In particular, omitted variables such as the probability of return migration and home household characteristics may affect both the migrant's housing and remittance decisions, leading to biased estimates of the ordinary least squares coefficient on housing. For example, the omission of the migrant's return migration probability may lead to an upward bias in the relationship between housing investments and remittances. An upward bias will occur if the probability of return migration is positively associated with remittances to the home household and there is a positive correlation between the likelihood of return migration and housing investments. Thus, the estimated impact of housing will include the direct effect of housing on remittances as well as any indirect effects due to omitted variables.

In summary, there is some evidence that housing investments affect the remittances that home households receive in response to shocks. Given the positive association between housing investments and remittances received,

TABLE 5
 TESTING THE IMPLICATIONS OF THE SIGNALING MODEL (Dependent Variable: Remittances Received by Home Household from U.S. Migrant
 [in U.S. Dollars] in the Past Year)

Variable	(1)	(2)	(3)	(4)	(5)
Migrant characteristics:					
Current age at the time of the survey	36.36 (53.66)	33.37 (54.60)	39.77 (53.74)	31.37 (54.99)	36.36 (53.66)
Per capita annual household income (\$)	.06*** (.01)	.06*** (.01)	.06*** (.01)	.06*** (.01)	.06*** (.01)
Years of education completed	597.36* (329.71)	579.02** (335.47)	659.74** (333.50)	610.45** (340.53)	597.36* (329.71)
No. of Nigerian trips since first arrival	-88.43 (80.14)	-87.39 (80.85)	-97.86 (83.48)	-101.48 (83.93)	-88.43 (80.14)
Home family characteristics:					
Nonmigrant wealth	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)
Relationship of migrant to home family (own child = 1)	2,499.20*** (741.73)	2,530.32*** (751.81)	2,481.79*** (750.80)	2,528.66*** (756.01)	2,499.20*** (741.73)
Years of education completed by head	187.67*** (67.93)	188.13*** (68.51)	173.15** (69.16)	179.92** (69.95)	187.67*** (67.93)

Signaling: housing investments and shocks:					
Owns completed house in home town	1,464.14*	1,481.40*		936.41	1,464.14*
	(854.64)	(862.86)		(1,184.13)	(854.64)
Shock		390.82	47.25	214.53	
		(951.78)	(965.42)	(991.95)	
House*shock			1,650.43*	919.12	
			(991.98)	(1,358.97)	
Recent housing construction = 1					785.66
					(915.84)
Intercept	-13,929.36**	-13,871.27**	-14,744.55***	-13,986.26**	-13,929.36**
	(5,409.16)	(5,456.54)	(5,384.54)	(5,489.63)	(5,409.16)
No. of observations	59	59	59	59	59
R ²	.69	.69	.69	.69	.69

NOTE.—The home family's nonmigrant wealth variable is the sum of the market value of all assets owned by the home family. However, it excludes all assets acquired by the home family since the U.S. migrant's year of migration to the United States. This makes it possible to exclude the effect of the migrants' past transfers on the home household's current asset holdings.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

it is likely that housing investments can function as a signal of the home family's access to migrant's resources. An interesting issue for future research concerns the availability of alternative signals that can provide the same type of information as housing investments within informal markets in the home environment. There may be more efficient mechanisms through which migrants can signal their resource commitment to their home families.²²

VII. Conclusions

This article extends the theoretical framework for migrants' savings and remittance decisions. The central question here deals with the migrant's decision to invest in housing in the community of origin during the period of work and residence abroad. I develop and test the following theoretical models for migrants' housing investment choices: direct home family benefits, signaling, membership rights, and community investment. I also consider the implications of a standard investment model, although the absence of well-developed rental and resale markets for housing in many home towns limits the direct investigation of this motive for migrants' housing investments.

The empirical results suggest that membership rights and possibly signaling may be important explanations for the migrants' investment decisions. However, empirical results may also be consistent with investment motives for migrants' housing in their origin communities. Results also show that the timing of migrants' housing investments is responsive to some home town amenities and macroeconomic shocks that may alter the future returns to housing investments. The evidence presented here may be less consistent with the direct home family benefits and the community investment framework.

The flow of migrants' savings across international borders to finance housing investments suggests a considerable investment role for migrants' remittances. It is important to recognize that housing investments may be the first stage of a broader investment relationship between migrants and their countries of origin. Institutional knowledge gained through housing investments in their community of origin may be applied toward a wide set of investment objectives, particularly where home family and home town association networks mitigate some of the risks associated with investing in the home community. The impact of migrants' investment decisions on the community of origin in other parts of the developing world is an important area for future research.

Appendix

TABLE A1

DETERMINANTS OF MIGRANTS' HOUSING INVESTMENTS: THE ROLE OF HOME TOWN AMENITIES PROBIT AND TOBIT MAXIMUM LIKELIHOOD ESTIMATES

HOME TOWN INDICATOR	PROBIT MODEL				TOBIT MODEL			
	1	2	3	4	5	6	7	8
No. of higher education institutions	.027 (.166)				.351** (.154)			
Lacks access to major road		-.378 (.348)				-.424 (.346)		
Log (% of population that lack access to potable water)			-.087 (.160)				-.165 (.154)	
Log (% of population that lack electricity)				-.008 (.226)				-.083 (.224)
No. of observations	105	104	104	104	105	105	104	104
χ^2 statistic	29.23	37.42	36.76	38.99	40.24	33.68	35.17	34.19
Pseudo R^2	.21	.27	.27	.26	.16	.13	.14	.14
Log likelihood	-55.53	-51.3	-50.86	-51.26	-105.35662	-108.63	-106.62	-107.11

NOTE.—Regressions in cols. 1–6 also include migrant's age at the time of the survey, per capita annual household income, years of schooling, number of trips, cumulative U.S. experience, ownership of inherited farmland, head's father's occupation (farmer = 1), number of buildings owned by head's parents. Standard errors are shown in parentheses.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

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Notes

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1. Across international borders, Martin (2001) estimates that remittances may exceed \$100 billion, with about 60% of this total going to developing countries.

2. A recent *Chicago Tribune* article documents the Mexican government's policy initiatives to attract savings of its citizens abroad toward for-profit ventures (Avila 2001, p. 1). For Ghana, see Ibrahim (2001) and Berger (2002).

3. This assumption best describes the housing market in many rural and semi-urban areas of developing countries. In contrast, using U.S. data from the Panel Study for Income Dynamics between 1968 and 1992, Flavin and Yamashita (2002) calculate that the after-tax real return on owner-occupied U.S. housing is 6.6% compared to an after-tax real return on stocks of 8.2%. For a discussion of financial markets in developing countries, see Besley (1995). Between 1970 and 1992, the average real interest rate for commercial bank deposits in Nigeria was -8.9% (the standard deviation was 10.18). Average real GDP per capita growth for Nigeria during this period was 0.72% (the standard deviation was 9.03) (World Bank 2002).

4. Benefits that accrue to the home family may also extend beyond credit and insurance to include other markets, such as the marriage market. The very act of building a house can generate "good will" for the migrant and/or the home family within the home community (see Hill 1963).

5. In a working paper, which is available upon request, I illustrate more formally the importance of housing investments in a signaling game of asymmetric information using a simple credit market model in the home town economy.

6. In the absence of well-developed formal mechanisms to ensure the safe trans-

mission of resources to home families, there are often difficulties associated with the transfer of funds between the host and home communities in a timely manner.

7. Spence (1972) argues that home ownership is costly and will not be used as a signal in credit markets, even where lenders and credit institutions respond to this signal. This is because the costs of signaling by assuming home ownership far outweigh any benefits from signaling.

8. To illustrate this point, the cost of signaling would be measured as follows: suppose the total cost of constructing a house in the country of origin is \$35,000. The cost associated with the signaling motive is the forgone interest income incurred by the migrant by investing in housing prior to return migration, which can be measured as $35,000 [(1 + r)^{(T-t)} - 1]$, where r is the interest rate, and $(T - t)$ is the number of years until return migration. Thus, at the margin, the migrant will invest in housing only if the benefits associated with signaling exceed these interest income losses.

9. Udry (1994) provides a model of informal credit markets in a developing country. I have assumed that there are few good collateral substitutes and that most loans do not involve collateral. Migrants' housing investments may also signal a family commitment to stay in the home town, which could reduce the risk of lending to the home family.

10. The literature on urban-rural migration in Africa provides support for this theory. Barnes (1974) describes home town investments as a "residential insurance policy" allowing migrants to maintain ties with their rural place of origin should a need arise to move away from the urban area.

11. Home town affiliation is an important feature of life for migrants. About 78% of my sample report membership in home town associations. Migrants' resources may be mobilized through home town associations in the United States toward the development projects of their communities of origin.

12. The first stage of field research required obtaining a random sample of emigrant households. To obtain a random sample of Nigerian emigrants, I used Chicago area telephone listings. I searched the phone listings by surnames and first names and selected distinctly Igbo names. The Igbo of southeastern Nigeria compose a significant portion of the recent out-migration from Nigeria. I restricted my U.S. sample to the Igbo of southeastern Nigeria, the third largest ethnic group in Nigeria, in order to facilitate the location of and interviews with the home families of the initial survey respondents in the United States.

13. The modest yield (55%) from the initial sample can be explained by the difficulties associated with locating home families, given the information provided by the migrant, and the availability of the home respondent at the time of the interview.

14. The average number of years to complete a house is 4.5, so it is likely that migrants are concerned about investment conditions over a length of time. I define the exogenous shocks (exchange rate shocks, political instability) as follows. For migrants with housing investments, the shock variable is defined as the average shock over the investment spell. Among migrants without housing investments, the relevant shock measure is given as the average shock over the migrant's duration of stay in the United States. The political instability index was constructed following the principal components methodology described in Gyimah-Brempong and Traynor (1996).

15. In general, net benefits from the migrant's housing investments may include implicit rental return and capital gains/investment return associated with housing, less construction and maintenance costs, depreciation, and the forgone interest income associated with housing investment.

16. The hazard model allows for the specification of the conditional probability that a migrant undertakes a housing investment, given that that migrant has not invested up until that period.

17. Data on home town population are available through the National Population Council *Population Estimates* (1991). Electrification and access to potable water are

measured at the local government area (or district level) rather than at the home town level due to data limitations available in the Federal Office of Statistics of Nigeria (1993–94). Based on raw correlations, home town population is negatively and significantly correlated with low levels of development measured by lack of electrification (-0.454), lack of access to potable water (-0.231), and lack of access to a major road (-0.422), but positively correlated with literacy (0.32). Similarly, towns located further away from the state capital tend to have lower electrification, access to potable water, and lower literacy levels. I am grateful to an anonymous referee for suggesting these additional measures.

18. Marginal effects are available upon request from the author.

19. As table 5 is based on the matched sample only, sample selection bias is a potential concern. However, Osili (2002) finds that migrant and home household characteristics for the migrant and matched sample appear to be comparable.

20. Both home ownership (completed houses only) and housing investments (which includes both completed and uncompleted houses) are associated with larger remittances for the home household. These results appear robust across the various types of shocks that are observed in the data. Results are available from the author.

21. The nonmigrant wealth variable excludes all assets acquired since the U.S. migrant's year of migration to the United States. This makes it possible to exclude the effect of the migrant's past transfers on the home household's asset holdings.

22. According to a recent *Wall Street Journal* article, banks in Mexico, El Salvador, and Turkey now offer "remittance bonds," or loans backed by cash, which migrants abroad can deposit in banks for their relatives (Frank 2001).