Working Paper
T14

Tackling Poverty-Migration Linkages:
Evidence from Ghana and Egypt

RACHEL SABATES-WHEELER (*IDS*),
RICARDO SABATES (*Institute of Education*) and
ADRIANA CASTALDO (*Sussex Centre for Migration Research*)

October 2005

C O N T E N T S

ABSTRACT

A range of qualitative evidence indicates that the very poorest in a community are unlikely to migrate due to the high transaction costs associated with migration, and therefore migration is not a viable strategy to enable these households to move out of poverty. This paper explores this finding quantitatively. First, we describe the main challenges in the empirical literature and introduce a conceptual model to explore the links between migration and poverty. Using a bivariate probit model, our results show that poverty is a positive and significant determinant of migration. Furthermore, migration can have a significant impact on helping poor people move out of poverty. In accordance with dominant literature on migration, migration choice is determined, among other things, by age, gender, marital status, regional effects and education level. By far the largest determinant of current poverty status for all groups is their past poverty status which highlights the path dependent nature of poverty and the problematic of poverty traps. The fact that the analysis here is able to use a two-period model is an improvement on many existing analyses of migration. Controlling for past poverty status in a sequential model indicates that migration effects that are typically evident in one-period models, are significantly reduced. We also investigate the selectivity of migrants and find evidence of selectivity with respect to human capital for Egyptians in Italy who moved with a visa or work permit. With respect to economic migrants we find selectivity in gender and past poverty status for both Ghanaians and Egyptian migrants, but no differences according to human capital. The findings presented in this paper enrich existing empirical studies by providing a clear estimation of sequential events and enable policymakers to better understand the processes behind migration and poverty. Further analysis will explore similar issues with respect to return migrants.

1   INTRODUCTION

Throughout the world the poor (and non-poor) use migration as a livelihood and income diversification strategy (Bigsten 1996, Lucas 1997, de Haan 1999). However, it is possible that the poor are less likely to use migration as a livelihood strategy due to the overwhelming costs of moving and the risk related to foregone 'domestic' product. If this is the case then the depth or severity of poverty will exacerbate this relationship. Research suggests that when the poor do migrate it is often forced (for lack of an alternative) and this may prolong their destitution (Kothari 2002). Furthermore, migration choices may cause people to fall into poverty or may promote existing poverty of both the migrant and 'sending' households (Massey 1999). Thus the relationship between poverty and migration is unlikely to be a unidirectional one.

Three issues further complicate any analysis of this relationship. First, an endogeneity issue, discussed in detail below, which manifests itself in the problems of migrant selectivity, reverse causality between poverty and migration and unobservable effects. Second, the nature of poverty as a multifaceted concept including economic, social and political elements, which implies caution in measurement and interpretation. Third, the notion that migration is not a homogeneous livelihood strategy and as such one should differentiate between legal and illegal, national and international, forced, current and return migration.

The link between migration and poverty has been studied previously (see Waddington and Sabates-Wheeler 2004, for a review connecting findings from the economic and sustainable livelihoods literatures). In the empirical literature two of the main challenges have been how to deal with the endogeneity bias induced by migration choice and how to model the sequencing of events between migration and poverty (Manski 1993). The key issue behind endogeneity bias is that migration choices are likely to be the result of systematic decisions made by individuals or households. Therefore, comparing the outcomes of migrants against those of non-migrants, ignoring the fact that the sample of migrants is non-random, will suffer from bias. In order to correctly model the sequence of events it is necessary to have historical data that links past poverty status to migration decisions and to future poverty outcomes of migration.

The aim of this paper is to explore the above issues using micro-economic data on migrants and non-migrants from Ghana and Egypt. The data allow us to observe the realised outcomes of a migration decision because it includes both non-migrants and actual current migrants. We analyse the impacts of

migration on poverty, using subjective financial poverty as an outcome and migration as a livelihood strategy. Within this we analyse how past poverty interacts with migration choice to affect current poverty. We also explore whether migration is an option for the poor and if there is a difference between levels of poverty and migration. For the case of migrants, we investigate the selectivity between economic and non-economic migrants and between legal and illegal migrants. Using a two-period model that allows us to partially control for the endogeneity of migration choice and to model the sequencing of events, this paper provides an empirical estimation of the interrelationship between migration and poverty. By modelling how past poverty affects migration choice and, in turn, how this choice impacts on future poverty status, this research contributes to improving our understanding of this complex interrelationship.

The data we use for analysis in this paper was collected in 1997/1998 as part of a special purpose migration survey on the push and pull factors of international migration. The survey was coordinated by NIDI (Netherlands Interdisciplinary Demographic Institute), and was implemented in five developing, predominantly-sending countries, and three European, predominantly-receiving countries. The survey collected data on current, return and non-migrants, at the individual and household level. Our analysis compares non-migrants residing in Ghana and Egypt with Ghanaians and Egyptians migrants living in Italy.

This paper is organised as follows: Section 2 provides a brief overview of migration trends and poverty in Egypt and Ghana – our countries of study. Section 3 gives an overview of the theoretical linkages between migration and poverty and reviews the dominant hypotheses in the literature. In Section 4 we detail a method for examining these linkages econometrically and propose a conceptual model. Section 5 describes the methodology for the analysis and describes the outcome variable, main migration variable and other controls. Section 6 presents results and in Section 7 we draw out the implications these results have for theory and policy.

2   COUNTRY BACKGROUND ON POVERTY AND MIGRATION

2.1   Ghana

As reviewed in Anarfi et al. (2003), international migration within West Africa has a long and established history. Prior to the 1960s Ghana experienced minimal migration, mainly as a result of its relative economic prosperity. This advantageous economic position attracted many migrants from neighbouring

West African countries. Legal migration flows typically involved students and professionals moving to the UK and other English speaking countries (Anarfi, et al. 2000). In 1965, large-scale emigration of Ghanaians began. This coincided with the beginning of a period of economic crisis in Ghana. This crisis, which manifested itself in a balance of payments deficit, growing unemployment and social malaise, lasted well into the 1990s. Van Hear (1998) highlights this period as the point at which Ghanaian emigration began on a substantial scale. Peil (1995) argues that migration became a common household strategy in Ghana and estimates that around 10-20 percent of Ghanaian nationals were living abroad in the 1980s and early 1990. Many Ghanaians left Ghana in search of jobs, with a substantial number of professionals, such as teachers, lawyers and administrators leaving the country for a better life elsewhere. The number of Ghanaians who left the country undocumented, and the background characteristics of these migrants is, however, unknown. During the 1980s large-scale emigration of unskilled and semi-skilled Ghanaians to neighbouring countries characterised migration flows. Essentially migration became 'the basic survival strategy for individuals and families to enable them to cope with difficult economic conditions' (Anarfi et al. 2000: 6).

During the 1980s Ghana lost many of its trained professionals (for estimates of various professional migrant flows see Anarfi et al. 2000) and possibly many unskilled migrants who left undocumented. Distrust in the government, a deteriorating economy, together with regional policies to aid the movement of people, all exacerbated the out-migration of Ghanaians. Evidence of the large number of Ghanaians living abroad became evident in the large deportation of foreign nationals from Nigeria in 1983. Estimates of Ghanaian deportees stand at over one million (Adeku 1995). Out-migration continued through the 1990s and continues today to a range of countries including the UK, USA, Canada and West Africa. Anarfi et al (2003) offer macro-economic reasons for the continued exodus: a long history of emigration from Ghana to other countries; economic decline and political instability, which has been further exacerbated by out-migration; a high population growth rate over the last three decades and thus a high labour supply (Abdulai 1999); together with booming economies in neighbouring African countries creating a 'pull' effect. The Voices of the Poor study on Ghana indicates that young people feel they have no choice but to leave home in search of work, since the successful generation of remittances is likely to make the difference between food security and a lack of it for their families (Kunfaa 1999). Studies also indicate that in the Ghanaian context gender is a strong determinant of migration, such that men have a higher propensity to migrate. Women tend to migrate in order to join their husbands. With societal and cultural norms favouring men it is possible that this discrimination is reflected in the disproportionate migration of men over women, with the latter facing more constraints to their movement (Treveh 1997).

National income in the form of remittances is extremely important for the Ghanaian economy. Anarfi et al. state that the Bank of Ghana estimates migrant remittances at approximately USD 400 million a year in 2001, representing approximately 20 per cent of Ghana's export earnings.[1] This money plays a crucial role in maintaining macro-economic stability in the country. The scale of remittances has been increasing over recent years. Some argue that this is evidence of the extent of the diasporisation of Ghanaians. A study by Asiedu (2003) showed that over 70 percent of remittances were used for recurrent expenditures (mainly for consumptive purposes). This included costs of hospital visits and bills, education, marriage, funerals, debt repayments and expenditure on other consumables. Less than 30 percent of remittances were used for long term 'hard' investment purposes. The 1991 study of return migrants (Twum-Baah, Nabila et al. 1995) found that the majority of remittances brought back by returnees was in the form of goods rather than cash. The majority of these goods were for personal and household use, rather than for commercial purposes. Anarfi et al. report that 'goods-carrying' is in many cases a strategy to overcome tax at the point of entry. However, these goods are often converted into cash through sale.

2.2 Egypt

Egypt is a middle-income country whose earnings rely on tourism, income from the Suez Canal, transfers from Egyptians working abroad and oil sales. The Egyptian economy in the past two decades has been affected by several international events, including the Gulf War of 1990 and the more recent events of 9/11. According to World Bank indicators, Egypt's real economic growth declined from approximately 5 percent in the pre-Gulf War period to 1.1 percent in 1991. Thereafter it steadily increased until 1999 but has been falling again since 2000. The UNDP Human Development Index (2004) ranks Egypt 120 out of 177 countries, and although the country performed well in improving some social and economic indicators, progress still needs to be made. As the World Bank (2001) reported, the incidence of poverty in the mid-1990s ranged between 22 and 48 percent of the total population, with a percentage of extreme-poor estimated at 7-10 percent of the total population. A panel study of 347 households drawn from the Egypt Integrated Household Survey (EIHS) of 1997 that studies the dynamics of poverty in Egypt in 1997-99 (see Haddad and Ahmed 2002), found that the

---

[1] IMF estimates for the same year were much more conservative (see Anarfi et al. 2003: 24)

number of households who climbed out of poverty was less than half the number of households who fell into poverty.[2]

Both internal and international migration became widespread in Egypt during the second half of the last century. Until the mid-1950s Egypt had been a land of immigrants.[3] After the world energy crisis in 1973, Egypt's government promoted a liberalised policy that facilitated the emigration of Egyptian labourers. These movements were mainly towards Arab oil-producing countries which, following the energy crisis, had witnessed an increase in demand for skilled and unskilled workers. A decline in the number of Egyptian migrants to the Arab Gulf countries occurred in the late 80s-early 90s, due to the 1983 Iran-Iraq war (that depressed oil revenues and consequently the demand for labour in the Arab states) and the 1990 Gulf War, which forced almost all Egyptian immigrants in Iraq and Kuwait to return to Egypt (see Zohry and Harrel-Bond 2003). However, from 1992, emigration of Egyptians was again on the increase, with up to an estimated 2.7 million Egyptians abroad in 2000, of whom 1.9 million were in the Arab Gulf countries (see Table 2).

Nowadays, international migration from Egypt takes two forms (see Zohry and Harrel-Bond, 2003). There is temporary migration towards Arab countries, with Saudi Arabia, Libya, Jordan and Kuwait being the most popular destinations. This migration consists largely of men working in the construction sector.[4] Then there is permanent migration to North America and Europe. The 2001 CAPMAS estimates (in Zohry and Harrel-Bond, 2003) report a total of 824,000 Egyptians living in non-Arab countries. About 80 percent of them are in USA (318,000), Canada (110,000), Italy (90,000), Australia (70,000), and Greece (60,000). Results from the study entitled 'Push and Pull Factors of International Migration' (Birindelli et. al. 2000) show that the main reason for international migration from Egypt is the high level of unemployment there and the consequent difficulties in sustaining the family. Thus migration from Egypt represents an important livelihood strategy to cope with poverty. The study also shows that migrants are from the younger age cohorts of the population, and are also, on average, better educated than non-migrants.

---

[2] Interestingly, the same study also found low mobility between consumption groups, with 67 percent of overall poverty being chronic (average consumption over time being below the poverty line).

[3] Egyptians started moving abroad in the 1930s when Egypt sponsored a programme transferring schoolteachers to Iraq and, after the 1952 revolution, to other Arab countries. However, during this early phase of migration the movement of Egyptians abroad was strictly controlled by the government. The majority of migrants at the time were highly skilled and either moved temporarily to work in Arab and African countries, or permanently to Western Europe, North America and Australia (see, for example, Kandil and Metwally 1992).

[4] A considerable number of skilled migrants are also part of this group. Most highly skilled Egyptian workers migrate to Saudi Arabia, Libya, Kuwait, UAE, Qatar, Yemen, and Oman. The highest proportions of unskilled migrants are found in Lebanon, Iraq, and Jordan (see Zohry and Harrel-Bond, 2003).

According to the IMF data (in Zohry and Harrel-Bond, 2003), in 1992 Egypt received the largest amount of remittances from workers abroad (USD 6.1 billion). However, this high level of remittances has been mainly attributed to the return of Egyptian migrants from the Gulf region after the 1990 Gulf War. Recent trends in Egyptian remittances show much lower figures, with an estimated 2001/02 total amount of transfers from Egyptians abroad of USD 2.8 billion (Central Bank of Egypt 2003, in Zohry and Harrel-Bond 2003).[5] The largest amount of remittances in 2001/02 came from the United States, followed by Saudi Arabia, and the United Arab Emirates. Remittances from Western Europe consisted of only 15 percent of the total. Although migrant remittances in Egypt constitute a significant portion of the GDP, Birindelli et. al. (2000) found that these are mostly used to meet daily household expenses, whereas McCormick and Wahba (2000) found that most investments by returnees are made in Cairo and other urban areas. Quite apart from the effects of remittances, Egyptian international migration is perceived as having caused a 'brain drain' with potentialnegative consequences for the country.

As in the case of Ghana, there are few studies directly linking poverty and migration in Egypt. The analysis below goes some way towards filling this gap.

3   CHALLENGES IN THE EMPIRICAL LITERATURE

Evidence on the migration propensity of different income or asset groups is mixed. Some research suggests a non-linear relationship between income or wealth and migration – that migration may not be an available choice for the poorest due to prohibitive costs, but is enabled as income or wealth increases above a certain threshold, until at higher income or wealth levels, migration is no longer considered necessary (Banerjee and Kanbur 1981, cited in Lucas 1997; Adams 1993).

Other studies argue that the relationship between income and migration is more complex. For example, Lipton (1980, cited in de Haan 1999: 26) argues that 'better-off migrants are "pulled" towards fairly firm prospects of a job (or education), whereas the poor are "pushed" by rural poverty and labor-replacing methods'. Income tends to interact with other migration determinants such as human capital and social networks (Lucas 1997). In a study of rural residents in Kenya, Bigsten (1996) found that land and income are insignificant but size of household labor force and social contacts (as measured by

---

[5] Egyptian remittances are very sensitive to falls in oil prices in the Gulf region; they tend to increase whenever oil prices are high.

migration of other households in the same survey cluster) were highly significant determinants of circular migration.

Recent 'livelihoods' literature finds that the option of migrating is severely restricted for the chronically (long-term) and severely (poorest) poor. The ability to adopt migration as a livelihood strategy is affected by the degree of social inclusion/exclusion, reflected in access to and control over resources. Furthermore, Kothari (2002) argues that many poor non-moving individuals and households from a sending area are likely to remain, or become, chronically poor. They are unable, unless 'forced', to choose migration to ameliorate their circumstances due to prohibitive financial and economic costs, as well as such factors as limited access to networks, and disadvantage in terms of skills, knowledge and physical mobility.

A fundamental reason for the mixed bag of evidence on poverty-migration linkages is the fact that it is extremely difficult to separate cause and effect empirically. The main reason for this relates to an endogeneity problem in estimating the migration-poverty relationship. The problem of endogeneity can arise for three main reasons: (i) reverse causality or the inability to establish direction of causality between poverty and migration; (ii) self-selection of the migration choice, that is, migration decisions are systematic, not random and; (iii) the existence of unobservable factors that the model is unable to directly account for. Two further issues complicate the empirical analysis: the heterogeneity of migration strategies and the poverty measure used. Below, we discuss each of these in turn.

3.1   Endogeneity: Reverse Causality and Sequencing

When specifying migration choice models, it is commonly recognized that there is likely to be a reverse causality problem between levels of income (or poverty) and migration. That is, does migration determine one's living standards or does one's living standards determine the choice to migrate. If both statements are true, and one is interested in estimating the impacts of migration on current living standards, ignoring the impact of past living standards on migration will bias the effects of migration on current living standards.

While the dynamic nature of migration choice is acknowledged within the literature, attempts to model the effects of migration on outcomes are based on cross-sectional single equation models, largely due to the lack of multi-period data. Borjas (1989) showed that the use of cross-section data provides unreliable and biased estimates of the parameters that determine migrants' earnings over time.

Furthermore, cross-sectional data lack information regarding the individual's situation before migration, which makes the reverse causality between migration and poverty impossible to unpack. For example, Taylor, Rozelle and de Brauw (2003) estimate the effects of migration on improving the standard of living in rural China. The empirical estimation for the migration equation does not contain any information prior to the migration experience. The only predictors of migration included in the analysis are those that are time-invariant, e.g. gender or region.

Accounting for the sequencing of migration and poverty is therefore crucial to establish the effect of past poverty on migration choices and the subsequent effect of migration on future poverty outcomes. There are very few empirical studies that account for past information in the migration decision and estimate the effects of migration in future outcomes (e.g. Kennan and Walker 2003, McKenzie and Rapoport 2004, Sabates 2005). Kennan and Walker develop a model for migration choices, where individuals can move sequentially and to several locations. In this respect, their model uses migration movements to explain future mobility. McKenzie and Rapoport utilize a specialized migration dataset, the Mexican Migration Project, to model migration decisions as a function of household wealth, and then the effects of migration prevalence on community of origin inequality. Sabates uses panel data to estimate the effects of migration on the income trajectories of early and recent migrants. These papers point to the importance of using more than one time period to properly deal with the causality problem and the complexity of the interrelations between migration and outcomes.

3.2   Endogeneity: Selection

The main assumption behind many migration models is that migration choices are made rationally, which means that individuals make migration decisions because they have some basis for perceiving a more favorable outcome from this choice (Nakosteen and Zimmer 1980). Rationality implies that individuals tend to select themselves rather than being randomly selected, which introduces the concept of selectivity bias in empirical studies (Borjas 1987, 1991; Chiswick 1986; Lucas 1997).

Chiswick (1999) argues that selectivity bias generally applies for economic migrants. These migrants self-select because they tend to have better education, skills (including entrepreneurial skills) and labor market experience, are more ambitious, and have a comparative advantage in job search at destination labor markets compared to non-migrants. The same logic implies that non-migrants do not move because their comparative advantage lies in staying (Tunali 2000). Consequently, it is expected that economic migrants will have labor market success measured as lower unemployment rates, higher

earnings than other migrants (short-term migrants, refugees and illegal migrants) and non-migrants (Chiswick 1986). Therefore, comparing earnings of economic migrants to those of non-migrants ignoring the selectivity of economic migrants will yield a biased estimate of the migration strategy.

The first empirical models to account for the selectivity of migration are Chiswick (1978) and Borjas (1987) for international migrants, and Nakosteen and Zimmer (1980) for internal migrants. In general, their results suggest that the selectivity of migration is both time and context specific. However, these analyses lack information on earnings prior to migration, again referring to the issue of reverse causality, and the selectivity of migrants is measured against their counterparts -- non-migrants -- in the country of destination, rather than with respect to non-migrants from origin location.

To overcome this last shortcoming, Chiquiar and Hansen (2002) investigate the selectivity of Mexican migrants in the US against non-migrants in origin communities. They find evidence for a selection of migrants in terms of observable skills such as levels of education. They also find a stronger selection effect for women. Yashiv (2004) uses data on Palestinian men, employed in Israel, to investigate the selectivity of migrants using both observable and unobservable skills. He also finds evidence for positive selection of migrants in terms of observable skills, i.e. education, but this happens as long as the expected return in the destination country is high. If the expected return is low, skilled workers may decide not to migrate. In terms of unobservable skills, i.e. ability, motivations, self-efficacy, he also finds evidence of positive selection for migrants.

3.3   Endogeneity: Unobservables

Even if we are able to control for reverse causality and selection problems how can we be completely sure that all factors that may affect migration decisions and poverty have been accounted for? Numerous factors circumscribe an individual's choice to migrate and their future poverty outcomes. Although these are known to the individual, they remain unknown to the researcher. There are two types of unobserved factors, time-variant and time-invariant. Examples of unobserved time-variant factors that may affect the relationship between migration and poverty are motivations, risk behaviour, self-esteem, and ability. Examples of time-invariant factors may be an internal conflict at the place of origin at some point in time, or stable personality traits which, regardless of the year of the interview, will be the same for each individual.

There are a number of different ways of dealing with endogeneity empirically.[6] One of the most common methods to empirically establish the effect of migration on poverty is by using instrumental variables estimation techniques. Finding suitable instruments to estimate migration effects has proven to be troublesome (Manski 1993). Taylor, Rozelle and de Brauw (2003) use three equations to account for the endogeneity of remittances and the endogeneity of migration. Their instruments for migration include migrants' networks, which the authors state predict migration choices but does not explain household income.[7]

Munshi (2003) estimates the effects of job networks on employment status among recent Mexican migrants in the US using an instrumental variables approach. The instrument, rainfall in the origin community, captures changes in the size of the networks that are not correlated with labor market outcomes at the destination. Low rainfall increased migration to the US, which in turn increased the size of the network for subsequent migrants. These new migrants obtain better referrals from the established network of migrants so that they get better paid jobs upon arrival in the US. With fixed effects the author aims to capture the selectivity of migrants due to ability.[8]

When the outcome of interest is a measurement of poverty, or income, or employment for current migrants at destination and non-migrants at origin (as it is the case here), rainfall cannot be utilized as instrument. This is because rainfall could predict poverty, income or employment status of non-migrants, hence be correlated with the outcome. For this reason, in estimating the effects of migration on community of origin inequality, McKenzie and Rapoport (2004) use historic migration flows in destination places as instruments for current migration that are not correlated with current community of origin inequality. Historic migration flows to destination location improve migrants' networks and lower subsequent migration costs, hence exogenously predicting current migration.

In this paper we attempt to deal with the above endogeneity problem head-on in order to make some more robust empirical claims about poverty-migration linkages. Using a two-period model where past poverty is introduced as a predictor of migration choice and, in turn, how this choice impacts on future

---

[6] For instance, through the use of fixed or random effects when panel data is available one can control for time-invariant unobservable factors. With experimental designs, which are extremely rare in the social sciences, statistical methods to account for self-selectivity (Heckman 1979) or the use of instruments that induce random variation to the migration choice but are uncorrelated to the outcome of interest, one can account for time-varying unobservable factors.

[7] Although we agree that migrant networks are an important predictor of migration, it is not at all clear that networks will not affect migrants' capacity to access job opportunities or create business partnerships. In this case migrants' networks are expected to increase migrants' income possibilities and therefore invalidate the reliability of the instrument.

poverty status conditional on past poverty status, this paper overcomes the one period simultaneity problem. We deal with the selection problem by estimating a bivariate selection model and we include IVs to attempt to control for unobservables individual characteristics which are correlated with the migration choice and with current poverty status.

3.4 Heterogeneity of Migration Strategies and Implications for Selection Bias

Migration should not be conceived as a homogenous strategy. Individuals have different migration strategies and move for many different reasons. The migration strategy has repercussions for labor market outcomes, access to government support and legal institutions, access to education and training, access to health services, social network creation, asset accumulation and wealth, and a whole range of other outcomes.

While Chiswick (1999) points out the selectivity of migration for economic migrants, Hunt (2004) further finds that this selectivity is influenced by employment opportunities with the same employer. She argues that this specific category of migrants have an even lower cost of migration that is absorbed by the employer through the job transference. Hunt also finds that internal migrants moving from a neighbouring state are not self-selected whereas internal migrants moving from a distant state are positively self-selected in terms of their education. Therefore the heterogeneity of the migration strategy includes elements such as distance and employment status that have consequences for the selection of migrants.

Aside from economic migrants, the selection bias of other migration strategies has not received a lot of attention in the literature. For instance, Chiswick (1999) mentions that the selectivity bias of refugees, tied movers, ideological migrants, short-term migrants and illegal migrants should be less than for economic migrants. While this may be true in terms of some observed human capital measurements, such as education, it is not clear that it applies to all sources of selection. For instance, illegal migrants are disproportionately young men, willing to take risks and, in general, they migrate from poor areas. It is not clear, however, how these migrants compare with their counterparts, namely non-migrants from the same origin locations who are not willing to take the risk to move across borders illegally. For the case of illegal migration and other types of migration movements, the selectivity bias is less obvious and remains empirically unexplored.

---

[8] One shortcoming from this analysis is that ability is not a time-invariant characteristic that can be captured by fixed effects.

Constant and Massey (2003) find that immigrants who choose to go back to their home country from Germany are likely to do it during their first years of arrival in Germany or when they are old enough to retire. Return migration is highly selective with respect to employment. Those immigrants who have occasional employment or are unemployed are more likely to return. Also, the selectivity of return is influenced by maintaining strong ties with the country of origin. They find heterogeneity in the probability to return with respect to nationality, distance of origin country to Germany and whether there are restrictions to entry into Germany from the countries where migrants come from. Interestingly, they do not find selectivity of return migration with respect to gender.

In order to analyze the selectivity of migrants this paper compares migrants who have a work permit or a visa to be in the country of destination with those that do not. If there is no selectivity between migrants who are 'legally' versus those who are 'illegally' in the destination country, we will expect that similar variables will predict their choice to migrate with a visa or work permit. It also compares economic migrants versus migrants who move for other reasons to unpack some of the differences between these migrants.

3.5   Poverty as a Multi-Faceted Concept

Endogeneity of migration is not the only complication in interpreting the linkages between migration and poverty. Poverty is a multifaceted concept, including economic, social and political elements. 'Poverty is generally conceived as absolute or relative and is associated with lack of income, or failure to attain capabilities. It can be chronic or temporary, is sometimes closely associated with inequality, and is often correlated with vulnerability and social exclusion' (Lok-Dessallien 2000: 1). Such a broad understanding of poverty implies that any given method used in its measurement may be incapable of reflecting the many dimensions and types of poverty.

The traditional economics of migration literature analyses poverty in terms of income, unemployment and wage determinants of migration (Harris and Todaro 1970). The assumption underlying these models is that expected wage in urban areas is the force driving rural migrants. Many of the empirical papers reviewed above focus on estimating income returns to migration. For example Chiswick 1978, Nakosteen and Zimmer 1980, Borjas 1987, Chiquiar and Hansen 2002, Lewin et al. 2003, Hartog and Winkelmann 2003 -- all estimate earning differentials for migrants versus other groups, and Trzcinski and Randolph 1991 use relative earnings. An income approach to poverty analysis, as used in the

traditionalist models, provides only partial analysis of the possible outcomes of migration in terms of poverty reduction.

Broader notions of poverty are taken up by researchers who aim to analyse migration at the meso-level. These studies see migration as a response to intra-community inequality. Since people are concerned with their relative well-being, households that are poor relative to their community migrate elsewhere to improve their welfare ranking (Stark 1991; Stark and Taylor 1989). McKenzie and Rapoport (2004) further point out that household wealth – measured by expenditure on non-durable goods – is an important predictor of migration, and that migration prevalence has a negative effect on inequality in the community of origin. Stark (1991) argues that migrants concerned about relative deprivation may be discouraged from internally migrating where it is not seen to provide sufficiently greater relative income opportunities, or where relative deprivation at internal destination is perceived by the migrant as more deleterious than in another country because they are more socially and culturally aware.

The proliferation of recent poverty analyses, both conceptual and empirical, confirms the need to utilise measurements of poverty that are broader than income or occupation (see, for instance, Ravallion and Bidani 1994; Ravallion 1996; and Ravallion and Lokshin1999). Subjective poverty measurements – those that rely on relative measurements or self-reported poverty – are becoming widely used as they are able to more fully capture social and political aspects of poverty. However they are sensitive to personality, relative positioning and aspirations. More recently the new economics of migration adds risk, social networks, social protection, collective action, education, income diversification and asset accumulation to our understanding of migration and poverty (Portes and Rumbaut 1996; Massey 1999). In this paper we use a poverty indicator that refers to subjective financial situation of the household, both before and after migration.

3.6   Lack of Data on Actual Migration Outcomes

A common constraint for researchers analysing migration is that it is very difficult to get a data set that includes both non-migrants and current migrants from the same origin source location. This is either because the research takes place at the source location so current migrants are not available for interview (unless they are at home on holiday), or because it is extremely expensive to locate current migrants. Most researchers have investigated intentions to migrate as an indicator of migration. This research can control for contemporaneous confounding factors – such as income or employment – and indicate whether poverty is associated with the increase of an individual's intention to migrate.

However, the extent to which intentions data could be used to infer the actual behaviour or choice of migration remains debatable (Manski 1993; Louviere, Hensher and Swait 2000). Therefore, the problem of this analysis is the extent to which intentions are realised in migration experiences. Gardner, De Jong, Arnold and Carino (1986) argue that the difference between an intention to migrate and migration is larger for international migration than for internal population movements. If intentions are not realised then policy conclusions about different migrants using intentions data need to be treated with caution.

The data we use for this research is unique in that it allows us to combine two datasets from different countries to observe the actual, realised migration choice of individuals from the same source country.

4. MODELLING THE EFFECT OF MIGRATION CHOICE ON POVERTY OUTCOMES: MEDIATING, MODERATING, AND ENDOGENEITY

In this section, we explore the effects of migration on poverty in terms of the channels, the moderating effects, and the endogeneity of the migration choice. Channels are the factors by which migration can have an effect on poverty. The moderating effect is when migration changes the nature of the relationship between a factor of interest and poverty. Finally, the endogeneity of migration arises from the existence of both observable and unobservable factors that affect both the migration choice and the poverty status. This section describes each of these concepts.

The relationship between migration and poverty could be modelled in statistical analysis in terms of the factors that mediate the effects of migration on poverty, the role of migration as a mediating factor, and the role of migration as a moderating factor (see Figure 1). For clarity it may be helpful to offer brief explanations. In general, mediating refers to the channel or mechanism for the effect of a factor on the outcome. In terms of the effects of migration on poverty, mediation explores the factors gained or lost by migrants relative to non-migrants, such that observed differences in poverty outcomes may be explained. Asset accumulation, for example, has important implications for poverty reduction (Barham 1995, Dercon 1996). If, as a result of migration, migrants are more able to accumulate assets than non-migrants, then asset accumulation mediates the effect of migration on poverty.

There may be other important mediators, such as remittances, returns to skills, income generating opportunities, social networks or institutional support. Some of these factors depend directly on the migration choice, but not exclusively on it. Relative returns to labour in destination versus origin location

depends on migration, but also on migrants' ability, motivations, educational achievements, entrepreneur skills and comparative advantage. These characteristics are likely to also affect the migration choice and the poverty outcome of interest, hence the endogeneity of migration due to unobservables explained above.

Are these channels generalised across all types of migrants? The answer is perhaps not. The effects of migration on poverty may be channelled differently depending, among other things, on the migration status and the place of destination. Illegal migrants may not have access to institutional support upon arrival to destination countries, for example unemployment or housing benefits. They may have other institutional support in the form of NGOs or community support groups. Sending remittances using formal financial systems may not be an option available for all illegal migrants. Remittances may be sent using non-traditional banking methods, such as telegraphs or friends. Migrants who have the expectation to return may invest in productive assets in origin location. Return migrants are more likely to purchase land and housing in origin places and to rent while living abroad.

Figure 1: Mediated and Moderating Effects of Migration on Poverty

(A) Factors that mediate migration effects:

```
┌────────────┐      ┌─────────────────────┐      ┌──────────────────┐
│ Migration  │─────▶│ Assets              │─────▶│ Current Poverty  │
└────────────┘      │ Remittances         │      └──────────────────┘
                    │ Job opportunities   │
                    │ Networks            │
                    │ Institutional Support│
                    │ Wage differentials  │
                    └─────────────────────┘
```

(B) Migration moderates the dynamics of poverty:

```
                      ┌────────────┐
                      │ Migration  │
                      └────────────┘
                            │
                            ▼
┌──────────────┐                        ┌──────────────────┐
│ Past Poverty │───────────────────────▶│ Current Poverty  │
└──────────────┘                        └──────────────────┘
```

(C) Migration mediates the dynamics of poverty:

```
┌──────────────┐      ┌────────────┐      ┌──────────────────┐
│ Past Poverty │─────▶│ Migration  │─────▶│ Current Poverty  │
└──────────────┘      └────────────┘      └──────────────────┘
```
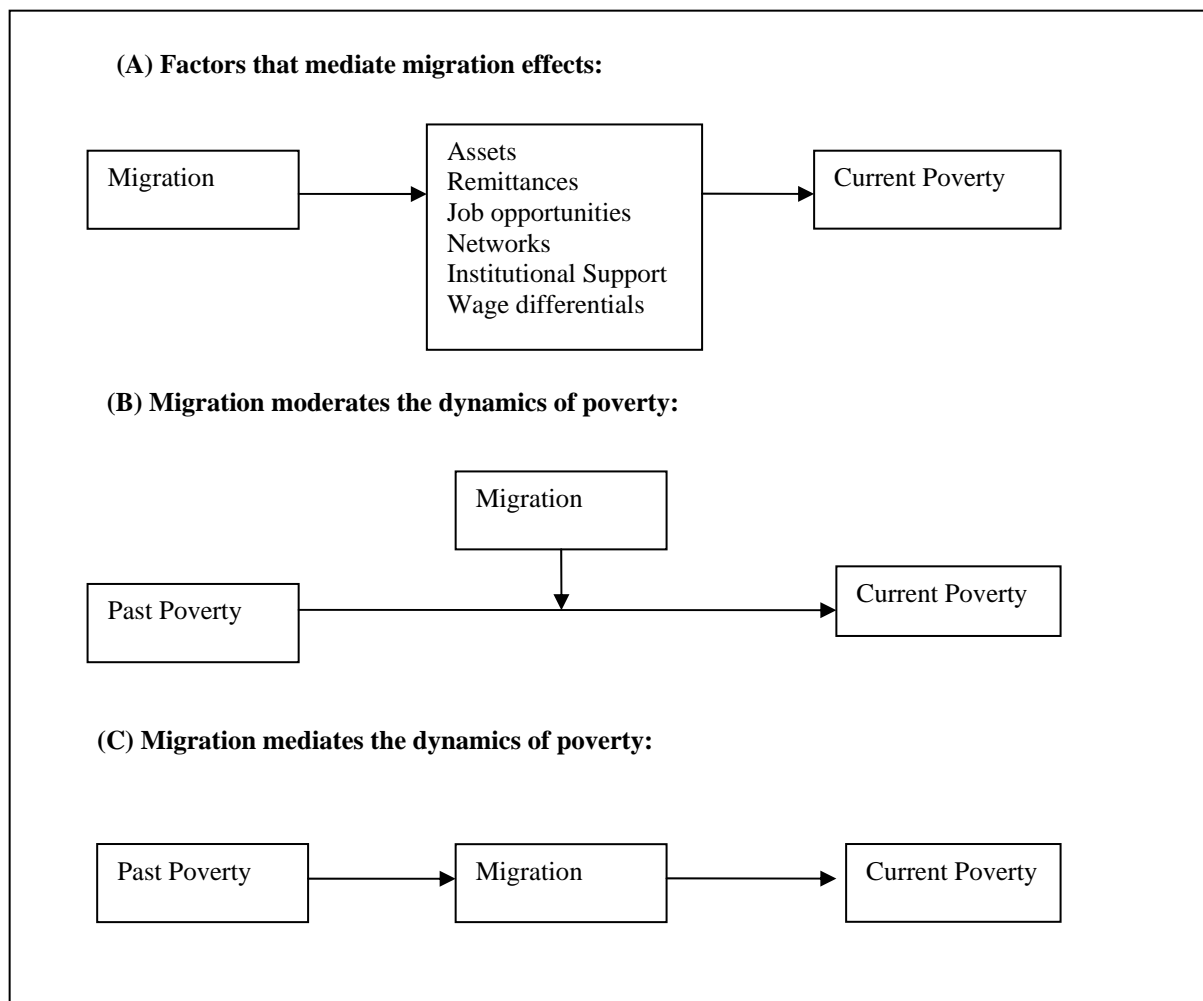
'Moderating' refers to changes in the nature of the relationship between the two variables. In our case, migration may be moderating the dynamics of poverty. Poverty traps occur when poor people enter vicious cycles of poverty and the poverty reproduces itself. Therefore, past poverty is a strong predictor of future poverty. In this case, migration moderates the dynamics of poverty if for a given level of past poverty, those who migrate are less likely to be poor in the current period than those who did not migrate.

Migration could also be one of the mechanisms affecting the reproduction of poverty over time. If the extreme or chronic poor lack access to migration as a strategy (as suggested by the livelihoods literature) and non-poor households are more likely to migrate and through migration improve their income generating opportunities, then migration mediates the reproduction of poverty. Migration could be the mechanism for the effect of other factors, for example, education, income, or social class. Individuals with high levels of education may be more able to use migration as an income generating strategy and thus affect their future earnings. In this case, educational effects are transmitted through migration.

The moderating effect is different to the mediating effect in that the latter indicates that part of the effects of a factor on poverty is channelled through migration; whereas the former indicates that migration changes the nature of the relationship between the factor and poverty. In this paper, we investigate both effects. By modelling poverty as a function of migration and factors that occurred prior to, or at the time of, migration, as well as interactions between past poverty and migration, our aim is to determine whether migration is causally related to poverty.

The following equation describes the relationship between migration and poverty, taking into consideration factors that are likely to influence the migration choice and the poverty outcome, also known as confounding factors, and the mediating effects of migration in the dynamics of poverty:

$$P_{i,t} = \beta_0 + \beta_1 M_{i,t-k} + \beta_2 P_{i,t-k} + \beta_3 M_{i,t-k} \mid P_{i,t-k} + \beta_4 X_{i,t-k} + \beta_5 X_i + \varepsilon_{1t} \tag{1}$$

where $P_{i,t}$ refers to poverty of individual i at time t, $M_{i,t-k}$ refers to migration at time t-k, and $P_{i,t-k}$ refers to poverty at time t-k. Migration is interacted with poverty status to model the mediating effect of migration. $X_{i,t-k}$ is a matrix of pre-migration variables that are known to affect migration at time t-k and poverty status at time t (e.g. educational background, age, occupation prior to migration) and X_i are time-invariant individual characteristics (e.g. ethnicity, gender). The β are parameters to be estimated and ε_{1t} is the error term, assumed independent of P_{t-k}, M_{t-k}, X_{t-k}, and the interactions, and normally distributed.

Equation (1) does not include factors that affect poverty status at time t that occur after migration. This is because we are not interested here in estimating the determinants of poverty status, but rather the causal link between poverty and migration. As explained above, some of the determinants of current poverty may have been the result of migration, hence including them in the estimation are likely to knock-out any effect of migration. That is, we will be including the channels of migration in the poverty equation.

Parameter estimates from equation (1) could indicate causality under a number of assumptions. Among these we assume that the model is correctly specified, that there are no biases from measurement error in observable variables; and that all possible factors that affect migration and current poverty status are being controlled for, indicating that migration remains exogenous. This last assumption is of special concern. Even when working with very rich datasets, there is information about the choice made by

individuals that will remain unknown to the researcher. When these unobservable factors are systematic they induce endogeneity bias in the estimates.

The econometric techniques involved to control for endogeneity require that suitable instruments are available. The following set of equations describes the instrumental variable model:

$$P_{i,t} = \beta_0 + \beta_1 M_{i,t-k} + \beta_2 P_{i,t-k} + \beta_3 M_{i,t-k} \mid P_{i,t-k} + \beta_4 X_{i,t-k} + \beta_5 X_i + \varepsilon_{1t}$$
$$M_{i,t-k} = \varphi_0 + \varphi_1 P_{i,t-k} + \varphi_2 X_{i,t-k} + \varphi_3 Z + \varepsilon_{2t-k} \tag{2}$$

where migration is now modelled in a separate equation that depends on past poverty and other socio-economic and demographic characteristics. Estimation of the causal effects of migration on poverty depends on the existence of suitable instruments, as well as on how migration and poverty are measured. These issues will be discussed in the next section.

5 METHODOLOGY

5.1 The Structure of the NIDI Data

Data for this paper comes from the survey of Push and Pull Factors of International Migration, managed by the Netherlands Interdisciplinary Demographic Institute (NIDI), and collected by local teams in different countries in 1997-98. The project focuses on migration from the Southern and East Mediterranean area and from Sub-Saharan Africa to the European Union. Primary data on migration was collected in eight countries within these areas -- five sending countries and three receiving countries. In this paper we only use data from two sending countries, Ghana and Egypt, and one receiving country, Italy.

In sending countries four regions were selected on the basis of a number of criteria related to their development and migration history. Migrants to any international destination as well as non-migrants were sampled, and in each of the four regions above, independent multi-stage stratified disproportionate probability sampling took place to sample the target population for the survey.

Due to the lack of exhaustive lists of foreigners living in Italy, the sampling design of the Italian survey required a different approach. Eight cities and their provinces were chosen from across the country: Milan, Brescia, Bergamo and Modena in Northern Italy and, Rome, Latina, Naples and Caserta in

Central-Southern Italy. These provinces were selected on the basis of ex-ante knowledge. Milan, Rome and Latina were chosen for the Egyptian community, and Bergamo, Brescia, Modena, Rome, Caserta and Naples were selected for Ghanaians. In each area interviewees were randomly selected so that the total number of units would be roughly proportional to the total number of Egyptians/Ghanaians living in that area. However, due to the difficulty in identifying members from foreign communities in Italy, the actual sampling in each area was based on points of aggregation to ensure representativeness at the level of these local areas. These are places where immigrants congregate for specific purposes, including administrative, religious, or social. This approach is based on the assumption that every migrant attends one or more points of aggregation and therefore once the points of aggregation have been identified, it can be assumed that the migrants interviewed are randomly selected from the list of all migrants. Lastly, after sampling different areas, a weight was determined for each area to obtain representative results for the whole country (for more detail about the selected aggregation points and the weighting system adopted see Birindelli et. al 2000: 16-22).

The project managed by NIDI required a specialised migration survey. This provides rich information about various individual, household and macro-level factors that influence people's decisions to migrate. The study includes a micro-level survey (household and individual data for migrants and non-migrants) and a macro-level survey (contextual data at the national, regional and community levels) in each of the selected countries.

In the NIDI study all individuals between the ages of 18 to 65 were classified according to migration status (migrants/non-migrants, current/return migrants and recent/non-recent migrants) and responded to an individual questionnaire. Three different types of individual questionnaires were designed in sending countries, one for non-migrants, one for current migrants and one for return migrants. In receiving countries there was only one questionnaire for current migrants. Information on social and demographic characteristics and social interaction, work, migration history and intentions to migrate was collected.

Further information was collected on household composition and economic situation in the past. For non-migrants this information refers to five years previously, i.e. 1992-1993, whereas for migrant households this information refers to the year in which migration occurred (anytime between 1 to 10 years). This information was provided by the economic head of the household (for non-migrant households) or by the *main migrant actor* (in migrant households). In sending countries, return migrants

acted as the main migrant respondents whereas information on current migrants had to be given by a proxy person. In receiving countries, this information is given by the main migrant.

Past information on household composition and economic situation is what allows us to look more closely at the causal effect of migration on poverty. Specifically, we would like to have as much information as possible about factors that happened before, or at the time of, migration. In the survey, this information is incomplete for current migrants in sending countries. This is because the proxy person was not entitled to respond to questions requiring subjective answers referring to the economic situation of the current migrant before migration occurred. For this reason, this paper explores exclusively the relationship between migration and poverty using current migrants living in Italy and non-migrants in sending countries.[9]

Our sample for non-migrants in Ghana includes 711 households and for Egypt 764 households. In Italy, there are 579 Ghanaian households and 448 Egyptian households. Some missing observations exist due to the fact that we are using a two-period model and information is incomplete for the past (e.g. poverty status before migration and civil status prior to migration). Missing observations account for 2.1 percent of non-migrant households in Ghana, 5.5 percent of non-migrant households in Egypt, 12.1 percent of Ghanaian households living in Italy and 10.9 percent of Egyptian households living in Italy.

5.2 Outcome Variable: Subjective Poverty

As discussed in Section 3.5, income or income range is typically used as a poverty measurement, with the poor being defined as those people/families who fall below some pre-defined living-standards income level. Other poverty measurements are based on expenditure, nutritional information or anthropometric measurements. The NIDI data set does not include continuous income, expenditure or consumption information. The poverty indicators refer to subjective financial poverty status over time; comparative subjective poverty relative to households in the neighbourhood; and an income category ranking. Unfortunately, many respondents failed to answer the question related to the latter as they felt the information was sensitive. It is very likely that the former two measures are highly correlated and therefore we use only the first poverty measurement.

[9] The analysis for return migrants is left for future research.

It could be argued that subjective poverty measurements are of limited use when comparing across time and across individuals. This is because it may be possible that the same criteria for evaluating poverty status do not remain constant. We would argue that this problem is minimised here due to the very specific nature of the question that provides income and basic needs parameters to subjective poverty. It is highly unlikely that any one individual will evaluate this type of poverty in an inconsistent manner over time because basic needs requirements before is specified in relation to basic needs now. On the other hand, it is possible that different individuals, especially if they are from different countries, have a different understanding of basic needs bundles. However, we are interested in whether migration has, on average, improved or otherwise changed people's perceptions of basic needs bundles, not whether people have different bundles.

Our outcome variable is current financial subjective poverty status. The question posed to gain this variable was: '*Overall, is the financial situation of the household more than sufficient, sufficient, barely sufficient, or insufficient to buy all the basic needs?*' Information on this variable was collected using four categories of poverty (insufficient income, barely sufficient, sufficient and more than sufficient). We have re-categorised this ranking into two for estimation purposes: poor (using insufficient and barely sufficient income) and not-poor (using sufficient and more than sufficient income). In a simple cross-tabulation between migration status and current poverty status we find that 64.5 percent of Ghanaian migrants in Italy considered themselves as poor, nearly 6.3 percentage points lower than the percent of non-migrants in Ghana who consider themselves poor (70.8 percent). The gap in current poverty status between Egyptian migrants in Italy and non-migrants in Egypt is only 2.2 percentage points (34.5 percent versus 36.7 percent for migrants and non-migrants respectively). As expected, more people in Ghana perceive themselves as poor compared to in Egypt.

More insights are gained from this relationship when analysing the current poverty status conditional on past poverty status and migration (Figure 2). For past poverty status we distinguish between different categories of poverty: insufficient (very poor); barely sufficient (poor), and sufficient or more than sufficient (not-poor). In both countries, poverty is persistent, with past poverty being a significant determinant of current poverty status. We find, as expected, that poverty is more persistent for Ghanaians than for Egyptians. However, there are some striking differences between current poverty status of Ghanaians and Egyptians migrants living in Italy. Among the non-poor migrants, 43 percent of Ghanaians and 29 percent of the Egyptian migrants consider themselves as currently poor. In the 'very poor' category fall 81 percent of Ghanaian migrants, compared to only 36 percent of Egyptian migrants.

Regardless of their past poverty status, Ghanaian migrants in Italy are less likely to be poor compared to non-migrants living in Ghana. A remarkable difference is seen for poor individuals (nearly 17 percentage points difference). Interestingly for Egypt, non-poor non-migrants in Egypt are seven percentage points less likely to be poor than non-poor Egyptian migrants in Italy (29 percent versus 22 percent). However, both poor and very poor Egyptian migrants in Italy are less likely to be poorer than poor and very poor non-migrants in Egypt. The differences here are striking: 31 percentage points between poor migrants and non-migrants and 44 percentage points between very poor migrants and non-migrants. This is a remarkable result as the very poor were farther below the poverty line than the moderately poor and so the impact of migration on their poverty status had to be larger in order to bring them out of poverty.

Figure 2: Current Poverty Conditional on Migration and Past Poverty by Country

Graphs by country
Source: NIDI data
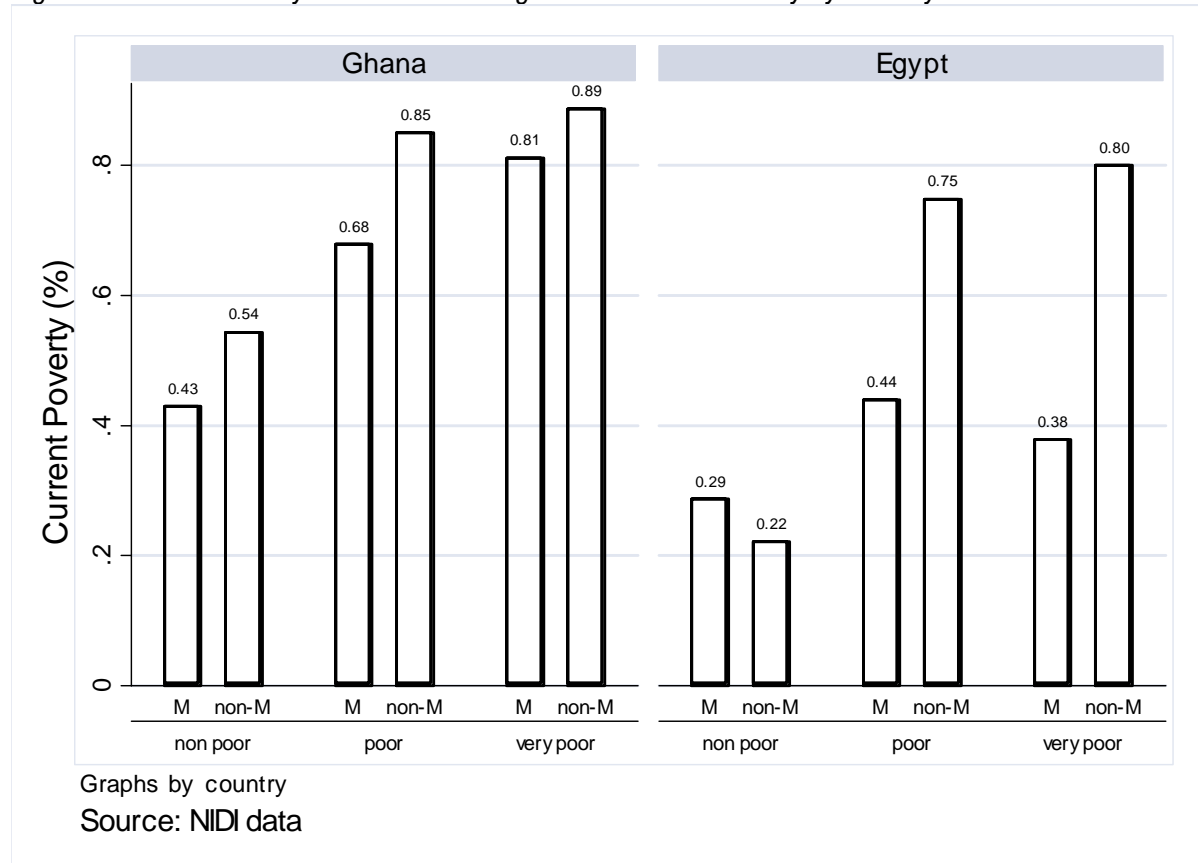
The above results indicate some interesting roles for migration in poverty dynamics. For Ghanaians, regardless of their poverty status before migration, the strategy to migrate seemed to have positive consequences for their current poverty status. We also find this for poor and very poor Egyptian migrants living in Italy. But for Egyptians who were non-poor before migrating, the migration strategy seemed to have detrimental consequences for their current poverty status. We will address these issues more fully in a multivariate analysis.

5.3 Other Explanatory Variables: Controls and Instruments

It is useful to explain the choice and interpretation of control variables and instruments that may be used in addressing the effects of migration on poverty (Table 1 summarises control and instrumental variables used in our analysis). Control variables need to be attributes of the selection of migration and of the current poverty status that are unaffected by the migration choice. Suitable controls are thus pre-migration variables, as well as all time invariant individual characteristics. For the latter we use gender and age, and ethnicity just for the case of Ghana.

Pre-migration control variables included in the analysis are employment status and education. There are four categories for the employment status before migration. These are: employer, employee and casual worker, unemployed or unpaid family labour, and inactive or retired. Education refers to the highest educational qualification attained. These two variables are thought to influence both the choice of migration and the poverty outcome. Given data restrictions, we do not have any further information on pre-migration controls.

Notice that since our control variables are measured just before migration, any effects of migration we estimate will include the impact of subsequent events that are affected by the migration choice. For example, we mentioned the channels for migration effects such as asset accumulation, remittances or job opportunities. The parameter for migration will thus consist of all channels through which return migration affects poverty.

Instrumental variables have the property to be correlated to the migration choice and uncorrelated with the poverty outcome. In general, finding a suitable instrument in empirical analysis is not an easy task. The instruments proposed here make use of the time dimension of the data to provide the justification that these could have affected migration in the past but should bear no effect on current poverty status. In other words, we expect that our instruments do not have persistent effects that will affect our outcome variable.[10]

We propose two instruments, measured at the household-level. The first instrument is marital status before migration. The migration literature has shown that single individuals are more likely to migrate than married individuals or those living with a partner. We expect that being single before migration predicts individuals' choice to change location, but it does not have persistent effects on poverty. It is true that a change in marital status may have consequences for the household's financial situation. But the fact that an individual was single in the past should not affect her poverty status today. The second instrument is household size. Household size has non-linear effects on migration. We expect that household size before migration does not affect current poverty; however a change in household size may have an effect.

---

[10] One may think of education as an example of variables that have persistent effects. Highest educational qualification attained is proven to affect poverty in adulthood. Alternatively, one may think of a financial shock that affects the choice of individuals to attain education when young as a variable that should not have persistent effects. This shock could affect the choice of schooling, but not whether individuals are poor when adults.

Table 1: Description of the Variables Used in the Analysis

Symbol	Variable	Ghana Non-migrants	Migrants	Egypt Non-migrants	Migrants
		Mean (s.d.)	Mean (s.d.)	Mean (s.d.)	Mean (s.d.)
Poor now	Current poverty status (1 if poor or very poor)	0.708	0.645	0.367	0.345
Very Poor (t-k)	Very poor before migration	0.187	0.257	0.059	0.083
Poor (t-k)	Moderately poor before migration	0.329	0.257	0.213	0.335
Age	Age	38.1 (11.8)	32.9 (6.2)	42.7 (14.8)	33.5 (6.1)
Male	Gender (1 if male)	0.471	0.817	0.367	0.957
Primary or less	Highest qualifications	0.286	0.359	0.665	0.181
Secondary	attained	0.558	0.587	0.208	0.536
Higher		0.154	0.053	0.127	0.283
Inactive/retired	Employment status before	0.187	0.086	0.560	0.123
Employer	migration	0.472	0.102	0.109	0.055
Employee & Casual workers		0.245	0.551	0.259	0.559
Unemployed or unpaid work		0.096	0.261	0.071	0.229
Ethnicity (Twi)	Ethnicity (1 if Twi)	0.545	0.513	n.a.	n.a.
Instruments					
Single	Marital status before migration (1 if single)	0.408	0.478	0.277	0.732
Household size	Household size before migration	3.73 (2.53)	4.49 (2.55)	5.25 (2.43)	4.03 (2.52)
Observations		711	579	764	448

Source: NIDI Data

5.4 Estimation Method and Strategy

Given that current poverty status is a categorical variable – poor, not poor – we estimate a probit model to analyse the effect of migration (equation 1). The estimation strategy is as follows: we first estimate a probit model that includes migration, age, gender, ethnicity, education, regional controls, poverty status before migration, and other pre-migration controls. In order to assess the moderating effect of migration on the dynamics of poverty we estimate the model with interaction terms between past poverty and migration status. This model is useful to gain insights into how much of the possible effect of migration on poverty is accounted for by other factors.

The endogeneity, or reverse causality, of migration on poverty is dealt with through instrumental variable estimation techniques. We adopt a bivariate probit model to estimate the structural model

specified in equation 2. This model allows the migration choice indicator to be endogenously determined with the probability for current poverty status. This represents an improvement on existing literature linking poverty and migration as they typically infer unidirectional causality, as in the qualitative data, or they rely on single-equation estimate (Heckman 1978). In the resulting econometric framework, represented by the recursive bivariate model (Heckman 1978, Maddala 1983), the hypothesis of exogeneity of the indicator variable for migration can be defined as the absence of correlation between the error terms. This hypothesis can then be tested using various approaches. We use the Wald test to determine the existence of correlation.

We utilise estimated parameters from the probit and bivariate probit models to calculate marginal effects and the role of migration on the dynamics of poverty. The marginal effect represents the change in the probability of current poverty status that is associated with change in each explanatory variable, holding other variables constant. We also calculate marginal effects of past poverty and migration in order to quantify the effect of migration in the dynamics of poverty. Finally, we utilise results from each country to investigate variables that remain significant across countries and those that are context specific.

One post-estimation test is performed to verify the reliability of our IV estimation. If the instrument is correlated with the poverty equation, i.e. weak instruments, estimated parameters for the effect of migration may be biased (Bound, Jaeger and Baker 1993). Therefore, to verify the reliability of the instruments we show that these are (i) significant in the migration equation, (ii) do not predict current poverty, and (iii) improve the pseudo-R^2 in the migration equation.

In order to gain some insights into the selectivity of migrants we keep only the sample of migrants and estimate a probit model of the choice to migrate with a work permit or a visa. We also perform the analysis for migrants who moved for economic reasons versus other reasons. Economic migrants here are defined as those who moved to seek a job or income opportunities in the country of destination because they could not find a job in the country of origin, because their income was too low, because their work conditions prior to migration were unsatisfactory, or because they wanted to save money. The idea behind this analysis is that if migration strategies are homogenous, then we should not find statistical differences between migrants who moved with a visa versus those who moved without a visa.

Our analysis has some limitations. First, current migrants living in Italy moved from all over Ghana or Egypt, whereas non-migrants come from only some selected regions within each country. This limits

our ability to incorporate regional controls in the models. Second, although our data has a clear improvement on cross-sectional studies, its longitudinal structure is limited to only two periods. Moreover, information before migration is limited to household characteristics and economic situation, leaving aside important variables that may affect the migration choice. Third, our instrumental variables are not perfect and may be subject to criticism. In this case, our 'instruments' may only serve for identification of the model (Wilde 2000).

6 ANALYSIS AND RESULTS

6.1 Results from the Probit Model

Table 2 presents results from the probit estimates of current poverty status as a function of migration, past poverty, time invariant characteristics, and pre-migration controls for Ghana and Egypt. The base model aims to estimate a direct effect of return migration on current poverty whereas the model with interactions introduces the moderating effect of migration in the poverty dynamics. The sample size is 1,290 households in the case of Ghana and 1,212 for Egypt.

For Ghana, the base model shows that migrants are statistically less likely to consider themselves to be poor than non-migrants. This result remains significant even after controlling for factors that occurred before, or at the time of the migration choice. In Egypt, the base model shows that migration is not a significant determinant of current poverty status. It may be the case, as shown in Figure 2, that migration has a moderating effect on the dynamics of poverty.

In both countries, past poverty is a significant determinant of current poverty status, indicating a high degree of persistent poverty or immobility out of poverty. Using the base model and the model with interactions we find that past poverty is a statistically significant determinant of current poverty.

The model with interactions presents interesting results for the role of migration. Our findings suggest that the moderating effect of migration on the dynamics of poverty in Egypt is substantial for both poor and very poor households. In Ghana, we also find a statistically significant moderating effect of migration, but only for poor households. In Egypt, the direct effect of migration in the model with interactions becomes positive and statistically significant. This is the effect that compares non-poor migrants in Egypt with non-poor Egyptian migrants living in Italy (which in Figure 2 suggested that non-

poor non-migrants were less likely to be poor than non-poor migrants). The model with interactions shows that mobility out of poverty remains low in both countries, as indicated by the significant effect of the past poverty variable. However, for migrants this effect is weaker than for non-migrants.

Table 2: Probit Estimates on Current Subjective Poverty Status

| | GHANA | | EGYPT | |
	Base Model	Interactions	Base Model	Interactions
Migration	-0.454	-0.273	-0.077	0.321
	(4.56)**	(1.96)*	(0.68)	(2.49)**
Poor (t-k)	0.797	0.971	0.946	1.388
	(9.15)**	(7.79)**	(10.52)**	(11.27)**
Very Poor (t-k)	1.085	1.126	0.980	1.548
	(9.60)**	(6.99)**	(6.56)**	(6.99)**
Age	-0.002	-0.002	-0.002	-0.001
	(0.50)	(0.39)	(0.61)	(0.44)
Male	0.169	0.166	0.022	0.003
	(1.94)*	(1.88)*	(0.19)	(0.03)
Ethnicity	0.071	0.085		
	(0.91)	(1.07)		
Secondary	-0.256	-0.267	-0.347	-0.324
	(2.86)**	(2.99)**	(3.37)**	(3.11)**
Higher	-0.161	-0.157	-0.265	-0.264
	(1.10)	(1.07)	(2.23)*	(2.20)*
Employer	0.349	0.363	-0.142	-0.127
	(2.80)**	(2.88)**	(0.89)	(0.77)
Employee	0.184	0.186	0.015	0.027
	(1.49)	(1.50)	(0.13)	(0.24)
Unemployed	0.288	0.288	-0.064	0.056
	(2.01)*	(2.00)*	(0.45)	(0.39)
Poor Migrants		-0.366		-1.027
		(2.03)*		(5.64)**
Very poor Migrants		-0.152		-1.338
		(0.67)		(4.19)**
Constant	0.044	-0.033	-0.426	-0.591
	(0.22)	(0.16)	(2.74)**	(3.54)**
Observations	1290	1290	1212	1212

Notes: Robust z-statistics in parentheses * significant at 5% level; ** significant at 1% level.
Categories for comparison: For migrants, non-migrants; for past poverty status, non-poor; for education, less than secondary; for occupation prior to migration, inactive and retired; for ethnicity in Ghana, the dominant group (Twi) is compared against other ethnic groups.

There are other important results shown in Table 2. Males in Ghana are more likely to be poor. In Egypt, this variable is not significant. In Ghana and Egypt we find that education is a significant determinant of current poverty. The higher the educational qualification attained, the less likely it is that

individuals are poor. Finally, we find that past occupation is a significant determinant of current poverty in Ghana, but not in Egypt. Compared to inactive (mainly retired) individuals, employers and the unemployed are more likely to be poor in Ghana. Although these results may seem contradictory, with retired individuals being less likely to consider themselves as poor, one must remember that the poverty indicator utilised here is subjective poverty status. Therefore, based on life course analysis, retired people face fewer fluctuations in their permanent income. This may be reflected in the subjective measures of their financial situation. The other groups are formed of younger individuals, whose transitory income is more volatile, and they are hence more likely to report insufficiently met financial needs.

6.2 Results from the Bivariate Probit Model

As mentioned in the conceptual model, estimation of the poverty equation by probit model does not completely account for the possibility that the migration choice may be correlated with the error term, and hence, the estimates for the migration effect may be biased. For this reason, we model the migration choice in a different equation and estimate the system of equations using a bivariate probit model. These results are presented in Table 3 for Ghana and in Table 4 for Egypt.

There are two main general results. First, using the migration equation we find that poor and very poor Ghanaians (in Table 3) and poor Egyptians (in Table 4) are more likely to migrate to Italy compared to non-poor Ghanaians and non-poor Egyptians, respectively. This result is contrary to a common statement made in the migration literature that poor individuals are less likely to migrate due to the high transaction costs. Second, using the poverty equation we find that the moderating effect of migration on poverty remains statistically significant, even after accounting for the endogeneity of migration. For the case of Egypt, the moderating effect of migration is significant for both poor and non-poor migrants (Table 4) whereas for Ghana this is only significant for poor migrants (Table 3). These two results suggest that the poor and possibly the very poor were able to use migration as a strategy out of poverty. This is the case when we compare the poverty status of poor (and very poor) migrants in Italy versus poor (and very poor) non-migrants in origin countries. In this case, migration has changed the nature of the dynamics of poverty. Past poor migrants are less likely to be currently poor than past poor non-migrants.

Table 3: Ghana: Bivariate Probit Estimates on Current Subjective Poverty Status and Migration

CURRENT POVERTY EQUATION	Base Model		Interactions Model	
	parameter	z-stat	parameter	z-stat
Migration	-0.475	(-1.80)	-0.273	(-0.95)
Poor (t-k)	0.799	(8.77)**	0.971	(7.64)**
Very Poor (t-k)	1.086	(9.5)**	1.126	(6.95)**
Age	-0.002	(-0.47)	-0.002	(-0.34)
Male	0.175	(1.62)	0.166	(1.53)
Ethnicity	0.071	(0.91)	0.085	(1.07)
Secondary	-0.258	(-2.78)**	-0.267	(-2.88)**
Higher	-0.169	(-0.96)	-0.157	(-0.88)
Employer	0.347	(2.74)**	0.363	(2.84)**
Employee	0.191	(1.27)	0.186	(1.23)
Unemployed	0.295	(1.78)	0.288	(1.73)
Poor Migrants			-0.366	(-2.03)*
Very poor Migrants			-0.152	(-0.67)
Constant	0.055	(0.23)	-0.033	(-0.13)
MIGRATION EQUATION	Base Model		Interactions Model	
	parameter	z-stat	parameter	z-stat
Poor (t-k)	0.452	(4.44)**	0.451	(4.44)**
Very Poor (t-k)	0.350	(2.99)**	0.350	(2.99)**
Age	0.424	(7.08)**	0.424	(7.08)**
Age^2	-0.006	(-7.3)**	-0.006	(-7.29)**
Male	1.000	(10.13)**	1.000	(10.14)**
Ethnicity	0.099	(1.05)	0.100	(1.07)
Secondary	-0.378	(-3.89)**	-0.378	(-3.89)**
Higher	-1.320	(-7.61)**	-1.319	(-7.6)**
Employer	-0.684	(-4.16)**	-0.685	(-4.16)**
Employee	0.752	(4.74)**	0.752	(4.74)**
Unemployed	0.823	(4.81)**	0.822	(4.81)**
Z1: Med HHS	0.687	(5.9)**	0.687	(5.9)**
Z2: Large HHS	0.859	(5.76)**	0.860	(5.78)**
Z3: Single	0.431	(3.76)**	0.431	(3.77)**
Constant	-8.403	(-8.2)**	-8.405	(-8.19)**
rho	0.015	s.e.=(0.162)	0.000	s.e.=(0.163)

Notes: White corrected z-statistic in parentheses. Asterisks indicates significant at (*) 5%, (**) 1% level. Categories for comparison as in

Table 2, with the addition of instruments for marital status 'not single' and household size 'small household, 2 or fewer members'.

In the migration choice equation we find the expected results with respect to age and gender for both Ghana and Egypt. We find that as people get older the more likely they are to migrate; however, after a certain age the propensity to migrate decreases. We also see that males are more likely to migrate than females. With respect to education, we find contradictory results. In keeping with the dominant

literature on migrant characteristics, individuals with higher levels of education are significantly more likely to migrate than individuals with no education. We find that this is the case for Egyptians migrants in Italy. However, we find that Ghanaians with higher levels of education are less likely to migrate to Italy than Ghanaians with lower levels of education.

With respect to occupation in Ghana, results show that employers are less likely to migrate than the retired and occupationally 'inactive' individuals. Employees and unemployed are more likely to migrate than the retired and occupationally 'inactive' individuals. In Egypt, employers are less likely to migrate than inactive individuals whereas unemployed individuals are more likely to migrate than inactive individuals.

In general, we believe that the migration equation is adequately specified as the usual suspects are accounted for and have the expected signs.

Table 3 and Table 4 show results using the instruments for migration. An unreliable instrument can seriously bias the estimated parameters. We find that marital status and household size before migration are strongly associated with migration choice both in Ghana and in Egypt. This provides evidence that the instrument is correlated with endogenous regressors. Moreover, not including the instruments in the migration equation as explanatory variables reduces the pseudo-R squared from 0.42 to 0.39 in Ghana and from 0.59 to 0.53 in Egypt. This provides further evidence of the reliability of the instrument. Finally, if we include our instruments in the poverty equation in Ghana, and test the hypothesis that all the estimated parameters for the instruments equal zero, with 95 percent confidence we do not reject the null hypothesis that the instruments do not predict current poverty ($\chi^2(3) = 2.60$). Similarly in Egypt, with 95 percent confidence we do not reject the null hypothesis ($\chi^2(3) = 1.98$).

Table 4: Egypt: Bivariate Probit Estimates on Current Subjective Poverty Status and Migration

CURRENT POVERTY EQUATION	Base Model		Interactions Model	
	parameter	z-stat	parameter	z-stat
Migration	-0.258	(-1.36)	0.153	(0.71)
Poor (t-k)	0.966	(10.67)**	1.405	(11.32)**
Very Poor (t-k)	0.985	(6.63)**	1.546	(6.98)**
Age	-0.003	(-0.92)	-0.003	(-0.71)
Male	0.101	(0.77)	0.077	(0.55)
Secondary	-0.310	(-2.89)**	-0.290	(-2.63)**
Higher	-0.230	(-1.96)*	-0.232	(-1.89)
Employer	-0.167	(-1.03)	-0.151	(-0.90)
Employee	0.026	(0.24)	0.037	(0.33)
Unemployed	-0.031	(-0.21)	0.085	(0.58)
Poor Migrants			-1.024	(-5.64)**
Very poor Migrants			-1.322	(-4.14)**
Constant	-0.389	(-2.44)**	(-3.24)**	(-0.13)

MIGRATION EQUATION	Base Model		Interactions Model	
	parameter	z-stat	parameter	z-stat
Poor (t-k)	0.768	(5.73)**	0.759	(5.65)**
Very Poor (t-k)	0.146	(0.77)	0.132	(0.69)
Age	0.342	(5.38)**	0.342	(5.40)**
Age^2	-0.005	(-5.32)**	-0.005	(-5.34)**
Male	1.886	(11.15)**	1.886	(11.16)**
Secondary	0.648	(4.84)**	0.647	(4.80)**
Higher	0.483	(2.98)**	0.479	(2.96)**
Employer	-0.475	(-2.12)*	-0.482	(-2.16)*
Employee	0.267	(1.67)	0.263	(1.64)
Unemployed	0.829	(4.39)**	0.831	(4.39)**
Z1: Med HHS	-0.646	(-4.21)**	-0.648	(-4.23)**
Z2: Large HHS	-0.907	(-5.24)**	-0.909	(-5.24)**
Z3: Single	0.852	(6.21)**	0.852	(6.21)**
Constant	-8.002	(-7.17)**	-7.991	(-7.17)**
rho	0.145	s.e.=(0.118)	0.132	s.e.=(0.130)

Notes: White corrected z-statistic in parentheses. Asterisks indicates significant at (*) 5%, (**) 1% level. Categories for comparison as in

Table 2, with the addition of instruments for marital status 'not single' and household size 'small household, 2 or fewer members'.

Our estimated correlations between the poverty and the migration equations for Ghana and Egypt are significantly different. We estimated a very low correlation for Ghana (RHO = 0.015). The Wald test confirms that this correlation is not statistically different than zero. For Egypt, the correlation between equations is much larger (RHO = 0.14). The Wald statistic again indicates that this value is not statistically different than zero either. These results indicate the possibility that observable factors

included in the analysis have accounted for the potential endogeneity of migration. Another possible explanation is that the effects of migration on poverty were captured by our previous probit analysis since the lack of correlation between error terms indicates that the estimation of parameters of these equations could have been achieved by separate probit models. Schultz (2003) finds a similar result for the effects of migration on wages in Ghana. He mentions that the exogeneity of migration cannot be rejected, in which case the estimation of separate equations applies.

## 6.3 Marginal Effects Using Estimated Parameters

Finally, estimated parameters from the bivariate probit model are used to calculate marginal effects. The marginal effect represents the change in the marginal probability of each equation of changes in explanatory variables, holding other variables constant. We will only describe here the marginal effects for statistically significant variables shown in Table 3 and Table 4 for the model with interactions.

In Ghana, compared to non-poor individuals, those who considered themselves living in very poor households are 31 percentage points more likely to remain poor. Similarly, those who reported living in a poor household before migration are 31 percentage points more likely to remain poor. In Egypt poverty is more persistent. Again, compared to individuals considered non-poor, poor and very poor Egyptians are 52 and 54 percentage points more likely to be poor.

The size of the moderating effect of migration on the dynamics of poverty is significant. Poor Ghanaians who migrated to Italy are 13 percentage points less likely to be poor. In Egypt, both poor migrant and very poor migrants are 30 and 32 percentage points less likely to be poor, respectively.
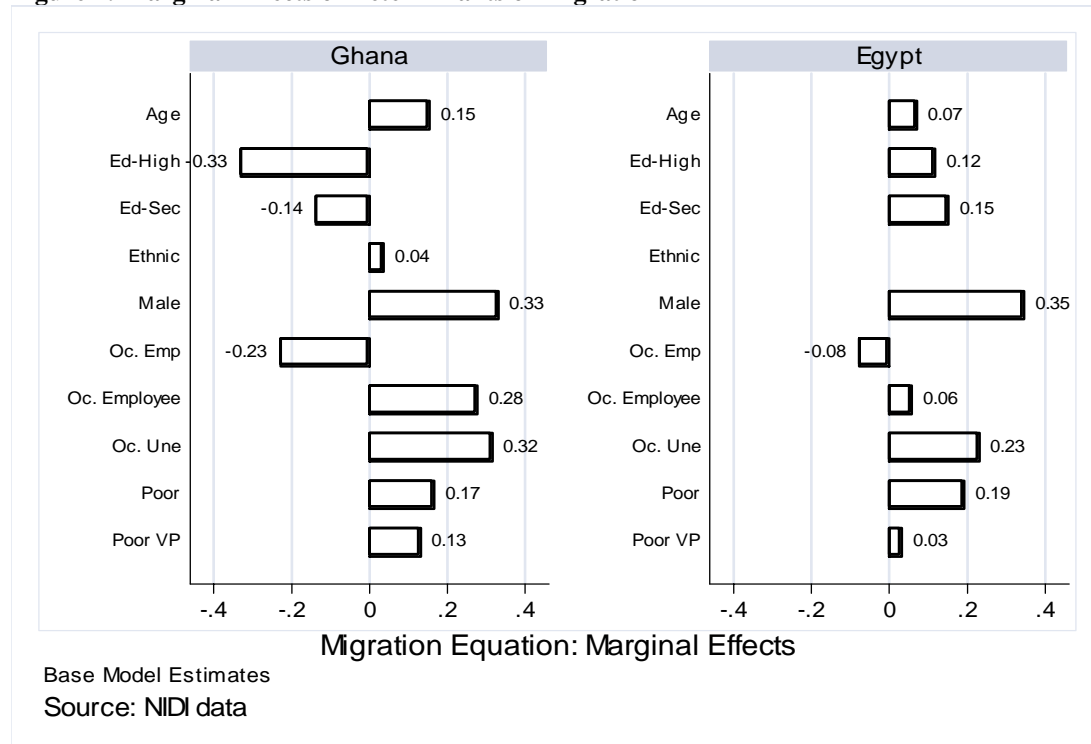
With respect to the marginal effects of education on current poverty we find very similar effects for Ghana and Egypt. Those with secondary education are 9 and 10 percentage points less likely to be poor (Ghana and Egypt, respectively). Those with higher education are 6 and 8 percentage points less likely to be poor (Ghana and Egypt, respectively).

Figure 3: Marginal Effects of Determinants of Current Poverty Using Interactions Model

Poverty Equation: Marginal Effects

Interaction Model Estimates

Source: NIDI data
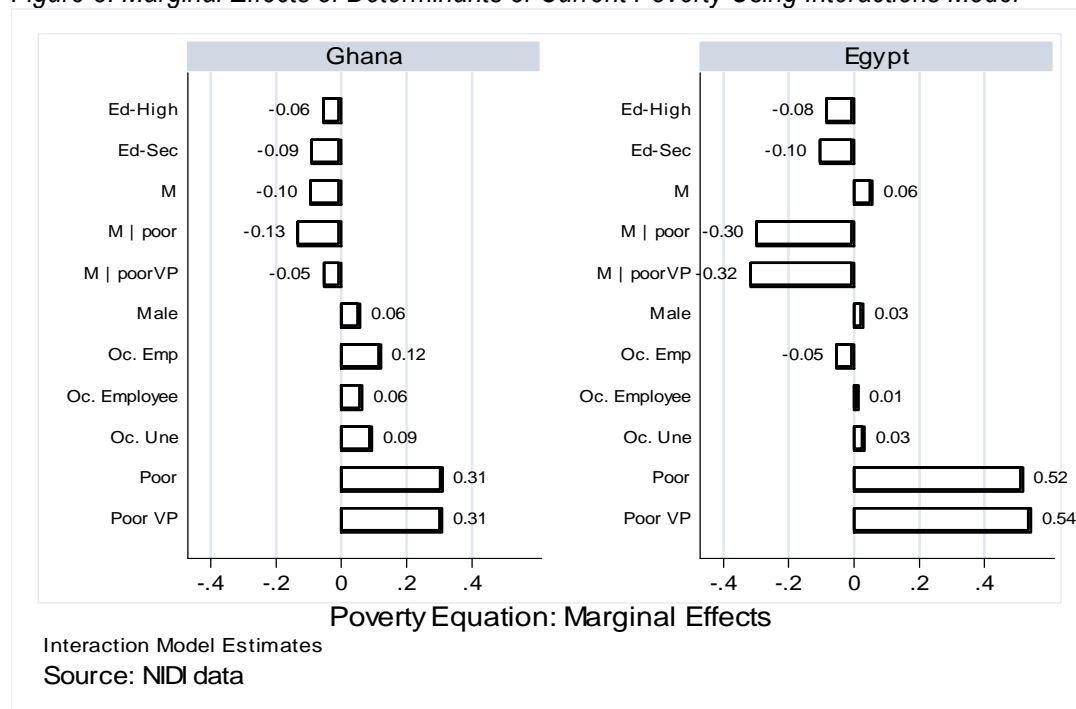
In the migration equation we find that poor and very poor individuals are 17 and 13 percentage points more likely to migrate than non-poor individuals. In Egypt, poor individuals are 19 percentage points more likely to migrate than non-poor individuals. In Ghana, males are 33 percentage points more likely to migrate than females and in Egypt 35 percentage points. In Ghana, the dominant ethnic group (Twi) are 4 percentage points more likely to migrate than other groups.

Figure 4: Marginal Effects of Determinants of Migration

Ghana	Egypt
Age 0.15	Age 0.07
Ed-High -0.33	Ed-High 0.12
Ed-Sec -0.14	Ed-Sec 0.15
Ethnic 0.04	Ethnic
Male 0.33	Male 0.35
Oc. Emp -0.23	Oc. Emp -0.08
Oc. Employee 0.28	Oc. Employee 0.06
Oc. Une 0.32	Oc. Une 0.23
Poor 0.17	Poor 0.19
Poor VP 0.13	Poor VP 0.03

Migration Equation: Marginal Effects

Base Model Estimates
Source: NIDI data

6.4 Insights from Selectivity: The Migration Choice by Visa Status and Reasons for Migration

Table 5 presents the results of the probit model on a model that compares current migrants only according to their visa status and according to their main reason to migrate. Asked whether or not they had a work permit or a visa to be in Italy, 11 percent of the Ghanaians and 20 percent of the Egyptians mentioned not having either. The only variable that predicts the migration choice using visa for Ghanaians is ethnicity, with the main ethnic group being more likely to use, or obtain, a visa or a work permit. For Egyptian migrants, the selectivity according to visa status is based on human capital variables. Those migrants with visa or work permit had higher levels of education, were more likely to be employed before migration, more likely to be single and less likely to come from large households.

Table 5: Marginal Effects Using Probit Estimates of Migration Choice by Visa Status and Reasons

	GHANA		EGYPT	
	Visa Status	Eco. Reasons	Visa Status	Eco. Reasons
Poor (t-k)	0.079	0.485	-0.018	0.725
	(0.46)	(3.51)**	(0.12)	(5.00)**
Very Poor (t-k)	-0.051	0.780	0.034	1.113
	(0.26)	(4.35)**	(0.13)	(3.92)**
Age2	0.079	-0.083	0.022	-0.224
	(0.83)	(0.93)	(0.30)	(2.37)**
Age^2	-0.001	0.001	0.000	0.003
	(0.80)	(0.89)	(0.18)	(2.30)*
Male	-0.119	0.498	-0.593	1.083
	(0.59)	(3.29)**	(1.38)	(3.14)**
Ethnicity	0.332	0.048	-	-
	(2.31)*	(0.38)	-	-
Secondary	0.172	-0.291	0.549	-0.043
	(1.13)	(2.14)*	(3.05)**	(0.22)
Higher	n.a.	-0.294	0.404	-0.196
	n.a.	(1.06)	(1.97)*	(0.93)
Employer	-0.317	-0.042	-0.564	-0.462
	(0.90)	(0.14)	(1.68)*	(1.40)
Employee	-0.007	-0.189	0.114	0.053
	(0.03)	(0.83)	(0.50)	(0.26)
Unemployed	-0.190	-0.139	-0.381	-0.015
	(0.63)	(0.58)	(1.52)	(0.07)
Med HHS	0.103	0.054	-0.008	-0.029
	(0.58)	(0.34)	(0.05)	(0.20)
Large HHS	0.092	0.297	-0.421	-0.256
	(0.40)	(1.46)	(2.04)*	(1.31)
Single	0.236	0.111	0.357	-0.172
	(1.47)	(0.83)	(2.14)*	(1.05)
Constant	-0.499	1.638	-0.080	3.011
	(0.30)	(1.05)	(0.06)	(1.86)*
Predicted Probability	0.88	0.80	0.80	0.60
Observations	547		448	

Notes: White corrected z-statistic in parentheses. Asterisks indicates significant at (*) 5%, (**) 1% level.
Categories for comparison as in
Table 2, with the addition of marital status 'not single' and household size 'small household, 2 or fewer members'.

For the difference between economic migrants versus other migrants we find interesting results. In particular we find that the poor and very poor, both Ghanaians and Egyptians, are more likely to be economic migrants. We also find that male migrants are more likely to be economic migrants. We do not find strong evidence that other human capital indicators affect the reasons of migrants (and the only

evidence that we find is that Ghanaian migrants with secondary education are less likely to be economic migrants). Our results do not support the result of Chiswick (1999) that the selectivity of other types of migrants (versus economic migrants) is less intense. Here, we find that non-economic migrants start with a relatively better position in term of their subjective poverty. It is also highly selective towards men, and in the case of Egyptians, towards young migrants.

7. CONCLUSIONS

In conclusion, we find clear grounds to support the important role of migration in affecting current poverty. We developed a conceptual model for understanding the possible dynamic relationship between past poverty, migration and current poverty. This is something that we have not seen in the literature on migration and poverty. We estimated a bivariate probit model to capture the intricacies of this relationship.

This research has used a novel data source to tackle some fundamental empirical challenges that plague analyses of migration and poverty. Our findings indicate that there is a significant difference between different 'poverty-status' groups in their likelihood of migrating. In Ghana the poor and the very poor are more likely to migrate internationally than the non-poor and in Egypt the poor are more likely to migrate than other groups. This is a striking finding as it contradicts much of the commonly held, but frequently unsubstantiated, belief that poor people are less likely to migrate due to the relatively high constraints that face them. As well as being causally related to severe poverty, for our dataset migration choice is explained by a variety of time invariant factors such as gender, ethnicity and highest qualifications attained, and factors measured at the time of the migration choice such as age, occupational status, marital status and household size.

Second, we find that migration enables poor people to move out of poverty. Thus, as a livelihood strategy migration makes sense for poor people. Specifically, in Egypt, both the 'previously' very poor migrants and the moderately poor migrants are less likely to be currently poor than other groups. Thus we see that migration has a moderating effect on past and current poverty. Interestingly, we notice that in Egypt, through migration, a significant amount of the very poor are able to pull themselves from a long way below the poverty line to a non-poor status. In Ghana, people who were poor at the moment of choosing to migrate, are less likely to be currently poor than other groups. This, together with the previous result implies that migration for the very poor in Ghana does not have a significant impact on

helping very poor return migrants move out of poverty. However the reverse is true for this group in Egypt. Finally, by far the largest determinant of current poverty status for all groups is their past poverty status which highlights the path dependent nature of poverty and the problematic of poverty traps.

We investigate the selectivity of migration in terms of migrants who moved to Italy with a visa or work permit versus those who moved without a visa. It is unlikely that migrants in Italy will reveal their true immigration status in the country, so that many migrants that reported having a visa perhaps do not have one or had a tourist visa and remained illegally in the country. In this is the case, differences between migrants with and without visa may be accentuated. For Ghanaians we find very few differences, but for Egyptians we find that the expected human capital variables accounted for the selectivity of migrants to have a visa. We also investigate the selectivity of economic migrants versus other migrants. We do not find selectivity with respect to human capital, but with respect to past poverty status, gender and for the case of Egyptians only for age.

A possible retort to our finding that poor people are more likely to migrate may take the form of the following argument: namely that boundaries between voluntary and involuntary migration are blurred by the effect that extreme poverty can have on coercing population movement. Whilst the decision to move may be technically 'voluntary', the severely or chronically poor may have no feasible alternative survival choice. To some extent, this corresponds to the difference between 'push' and 'pull' factors. Ellis (2000) notes that there is a big difference between livelihood diversification out of choice, where migration represents an attractive alternative, and migration out of necessity where it is a last resort. The implication is that in the latter case migration is likely to exacerbate poverty and vulnerability. Severely destitute people may be unable to make informed choices about destination where they lack knowledge and social capital, and destination choices will be restricted by financial deficiency. As documented in urban Bangladesh by Wood (2003), poorer migrants may have to borrow at high interest rates to fund the costs of moving or living expenses, for example, during an immediate post-migratory period before wages are received, which exacerbates their own poverty and vulnerability as well as that of any non-migrants depending on them for remittance transfers.

We believe that our research challenges the above line of reasoning based on the empirical results that indicate that migration enables poor people to move out of poverty. In order to fully deal with the above concern we would need to look in depth at the reasons for migration and the constraints to migration. This is something we intend to do in another paper.

Four points are worth making regarding the possible limitations of the current research. First, we have a low number of observations between very poor past poverty and migration choice for Egypt. This implies that statistical significance is harder to achieve. In this paper, even facing this constraint, we achieve statistical significance of the moderating effect of migration at 5 percent or lower. Second, although our methodological discussion holds for poverty and migration in general, our empirical analysis applies exclusively to current migrants versus non-migrants. Unfortunately, due to the low number of observations we are unable to perform the analysis for different migration strategies, for example non-economic illegal migrants from Egypt or Ghana living in Italy.

Third, although the dataset is rich in information on migrants, it has some limitations regarding the availability of information prior to migration. Our analysis does not claim to completely account for time-varying unobservables that could have affected migration choice and current poverty. Furthermore, current migrants living in Italy moved from all over Ghana or Egypt whereas non-migrants come from only some selected regions within each country. This limits our ability to incorporate regional controls in the models. Finally, current poverty status is divided into two categories whereas past poverty is divided into three. We are limited in analyzing more complex changes in poverty status over time as well as the relative change in poverty status between poor and very poor. The latter have to improve substantially to achieve any significant effect. The expansion of poverty into more categories will further enlighten the role of migration on the dynamics of poverty in future analysis.[11]

---

[11] This expansion is possible with the existing data but requires more complex econometric modelling. We may estimate such a model in the future.

REFERENCES

Abdulai, A. (1999) 'International Migration and Agricultural Development in Ghana.' *Scandinavian Journal of Development Alternatives* 18(1): 61-74.

Adams, R.H. (1993) 'The Economic and Demographic Determinants of International Migration in Rural Egypt', *Journal of Development Studies* 30 (1): 146-167.

Adeku, J. (1995) Ghanaians Outside the Country. *Migration Research Study in Ghana*. K. A. T.-B. e. al. Accra, Ghana Statistical Service. 2: International Migration: 2-18.

Anarfi, John K., Awusabo-Asare, K. et al. (2000) 'Push and Pull Factors of International Migration. Country Report: Ghana. Eurostat Working Papers 2000/E(10).

Anarfi, John K., Kwankye, Stephen, Ofuso-Mensah, Ababio and Tiemoko, Richmond (2003) 'Migration from and to Ghana: A Background Paper,' *Country Background Paper C4*, Migration DRC, University of Sussex, UK.

Asiedu, A. (2003) 'Some Benefits of Migrants' Return Visits to Ghana'. Paper presented at international workshop on migration and poverty in West Africa, University of Sussex, Brighton, UK.

Barham, B, M. Carter and Sigelko, W. (1995) 'Agro-Export Production and Peasant Land Access: Examining the Dynamic between Adoption and Accumulation.' *Journal of Development Economics* 46:85-107.

Bigsten, Arne (1996) 'The Circular Migration of Smallholders in Kenya', *Journal of African Economies* 5(1): 1-20.

Borjas, George J. (1987) 'Self-Selection and the Earnings of Immigrants', *American Economic Review* 77(4): 531-553.

_____. (1989) 'Immigrant and Emigrants Earnings: A Longitudinal Study', *Economic Inquiry* 27: 21-37.

_____. (1991) 'Immigration and Self-Selection', in John M. Abowd and Richard B. Freeman (eds) *Immigration Trade and the Labor Market*. Chicago: University of Chicago Press, pp. 29-76.

Bound, J., Jaeger, D. A., and Baker, R. (1993). Problems with IV Estimation When the Correlation Between Instruments and the Endogenous Explanatory Variable is Weak. *Journal of the American Statistical Society, 90, 430,* 443-450.

Chiquiar, Daniel and Gordon Hansen (2002) 'International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States'. NBER Working Paper 9242.

Chiswick, Barry R. (1978) 'The Effect of Americanization on the Earnings of Foreign-Born Men'. *Journal of Political Economy* 86: 897-922

._____. (1986) 'Human Capital and the Labour Market Adjustment of Immigrants: Testing Alternative Hypothesis', *Research in Human Capital and Development* 4:1-26.

_____. (1999) 'Immigration Policy and Immigrant Quality', *American Economic Review* 89(2):181-185.

Constant, Amelie and Douglass S. Massey (2003) 'Self-Selection, Earnings and Out-Migration: A Longitudinal Study of Immigrants to Germany', *Journal of Population Economics* 16: 631-653.

de Haan, Arjan (1999) 'Livelihoods and Poverty: The Role of Migration – A Critical Review of the Migration Literature', *Journal of Development Studies* 36 (2): 1-47

Dercon, S (1996) 'Risk, Crop Choice, and Savings: Evidence from Tanzania', *Economic Development and Cultural Change* 44(3): 485-514.

Birindelli, A. M., G. Blangiardo, C. Bonifazi, M. G. Caruso, L. Cesarini Sforza, P. Farina, G. Cesano, F. Grillo, S. Kouider, M. Savioli and L. Terzera (2000) Push and Pull Factors of International Migration: Country Report: Italy. Rome, Luxembourg, Eurostat Working Papers: 3/2000/E/no.5, pp. 16-22.

Gardner, R., DeJong, G., Arnold, F., Carino, B. (1986) 'The Best-Laid Schemes: An Analysis of the Discrepancies Between Migration Intentions and Behaviour', *Population and Environment*. 8: 63-77.

Haddad, Lawrence James and Ahmed, Akhter U. (2002) 'Avoiding Chronic and Transitory Poverty,' FCND Discussion Paper 133, International Food Policy Research Institute (IFPRI).

Hartog, Joop and Rainer Winkelmann. (2003) 'Comparing Migrants to Non-Migrants: The Case of Dutch Migration to New Zealand', *Journal of Population Economics* 16: 683-705.

Harris, John and Michael Todaro (1970) 'Migration, Unemployment and Development: A Two Sector Analysis', *American Economic Review* 60: 126-142.

Heckman, J. (1978) 'Dummy Endogenous Variables in a Simultaneous Equation System', *Econometrica* 46 (4):931-959.

_____. (1979) 'Sample Selection Bias as a Specification Error', *Econometrica* 47 (1):153-161.

Hunt, Jennifer (2004) 'Are Migrants More Skilled Than Non-Migrants? Repeat, Return, and Same Employer Migrants', *Canadian Journal of Economics* 37(4): 830-848.

Kandil, M., and Metwally, M. (1992) 'Determinants of the Egyptian Labour Migration', *International Migration* 30(1): 39-55.

Kennan, John and James R. Walker (2003) 'The Effect of Expected Income on Individual Migration Decisions', NBER Working Paper 9585.

Kothari, Uma (2002) 'Migration and Chronic Poverty'. Chronic Poverty Research Centre, Working Paper No 16, Institute for Development Policy and Management, University of Manchester.

Kunfaa, E. Y. (1999) *Consultations with the Poor: Ghana Synthesis Report*. Kumasi, Ghana. Report commissioned by the World Bank, Centre for Development of People (CEDEP)

Lewin-Epstein, Noah, Semyonov, Moshe, Kogan, Irena and Wanner, Richard A. (2003) 'Institutional Structure and Immigrant Integration: A Comparative Study of Immigrants' Labour Market Attainment in Canada and Israel,' *International Migration Review* 37(2): 389-420.

Lok-Dessallien, R. (2000) 'Review of Poverty Concepts and Indicators', available to download from: http.//www.undp.org/poverty/publications/pov-red/poverty-assessments.pdf.

Lucas, R. E. (1997) 'Internal Migration in Developing Countries', in M. Rosenzweig and O. Stark (eds) *Handbook of Population and Family Economics, Vol. 1B.* Amsterdam: Elsevier Science Publishing.

Louviere, J.J., Hensher, D.A., and Swait, J.D. (2000) *Stated Choice Methods: Analysis and Applications.* Cambridge, UK: Cambridge University Press.

Maddala, G. (1983) *Limited Dependent and Qualitative Variables in Econometrics*. New York: Cambridge University Press.

Manski, Charles (1993) 'Identification of Exogenous Social Effects: The Reflection Problem', *Review of Economic Studies*, LX: 531-542.

Massey Douglas (1999) 'Why Does Immigration Occur? A Theoretical Synthesis' in Charles De Wind and Philip Kasinitz (eds) *The Handbook of International Migration: The American Experience.* N.Y.: Russell Sage Foundation, pp 34-52.

McKenzie, David and Rapoport, Hillel. (2004) 'Network Effects and the Dynamics of Migration and Inequality: Theory and Evidence from Mexico', BREAD Working Paper 063.

McCormick, B. and Wahba, J. (2000) Return Migration and Entrepreneurship in Egypt. University of Southampton, UK.

Munshi, Kaivan (2003) 'Networks in the Modern Economy: Mexican Migrants in the US Labour Market', *Quarterly Journal of Economics* 118(2): 549-599.

Nakosteen, R. A. and Zimmer, M (1980) 'Migration and Income: The Question of Self-Selection', *Southern Economic Journal* 46:3.

Peil, M. (1995) 'Ghanaians Abroad'. *African Affairs* 94(376): 345-67.

Portes, A. and R. G. Rumbaut (1996) *Immigrant America: A Portrait.* Berkeley: University of California Press.

Ravallion, M (1996) 'How Well Can Method Substitute for Data: Five Experiments in Poverty Analysis', *The World Bank Research Observer* 11(2).

Ravallion, M. and Bidani, B (1994) 'How Robust is Poverty Profile?' *The World Bank Economic Review* 8(1): 75-102.

Ravallion, M. and Michael Lokshin (1999) 'Subjective Economic Welfare', *Policy Research Working Paper 2106*, The World Bank.

Sabates, Ricardo (2005) 'Evolution of the Labor Market in a Regional City: The Changing Economic Performance of Emigrants from Mexico City', *Journal of Regional Science* 45(3): 519-538.

Schultz, Paul T. (2003) 'Wage Rentals for Reproducible Human Capital: Evidence from Ghana and the Ivory Coast', Economic Growth Centre Discussion Paper 868.

Stark, O. (1991) *The Migration of Labour.* Oxford: Blackwell.

Stark, O. and Taylor, J. Edward (1989) 'Relative Deprivation and International Migration', *Demography*, 26: 1-14.

Taylor, Edward J., Rozelle, Scott and de Brauw, Alan (2003) 'Migration and Incomes in Source Communities: A New Economics of Migration Perspective from China', *Economic Development and Cultural Change* 52(1): 75-101.

Treveh, K. (1997) Determinants of International Migration in Ghana in Contemporary Times. Regional Institute for Population Studies. Legon: University of Ghana.

Trzcinski, Eileen and Susan Randolph (1991) 'Human Capital Investments and the Relative Earnings Mobility: The Role of Education, Training, Migration, and Job Search', *Economic Development and Cultural Change* 40(1): 153-167.

Tunali, I. (2000) 'Rationality of Migration', *International Economic Review* 41 (4): 893-920.

Twum-Baah, K. A., J. S. Nabila, et al. (1995) *Migration Research Study in Ghana.* Accra: Ghana Statistical Service.

Van Hear, N. (1998) *New Diasporas: The Mass Exodus, Dispersal and Regrouping of Migrant Communities.* London: UCL Press.

Waddington, H. and Sabates-Wheeler, R. (2004) 'Poverty, Vulnerability and Migration Choice', DRC Working Paper Series WP-T3, University of Sussex.

Wilde, J. (2000) 'Identification of Multiple Equation Probit Models with Endogenous Dummy Regressors', *Economic Letters* 69: 309-312.

Wood, Geof (2003) 'Staying Secure, Staying Poor: The "Faustian Bargain"', *World Development*, 31 (3): 455-471.

World Bank (2001) *Memorandum of the President of the International Bank for Reconstruction and Development and the International Finance Corporation to the Executive Directors on a Country Assistance Strategy for the Arab Republic of Egypt*, World Bank Report No. 22163-EGT.

Yashiv, Eran (2004) 'The Self-Selection of Migrant Workers Revisited', IZA Working Paper 1094.

Zohry, A. and Harrell-Bond, B. (2003) 'Contemporary Egyptian Migration: An Overview of Voluntary and Forced Migration'. Country Background Papers (WP-C3), Migration DRC, University of Sussex, UK.