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EFFECT OF CURRENT RESIDENCY REGIONS ACROSS SOCIO-ECONOMIC AND DEMOGRAPHIC FACTORS ON CURRENT SUBJECTIVE FINANCIAL SITUATION IN EGYPTIAN POPULATION

Abstract:

To the best of our knowledge, no study has been undertaken concerning the role which residency plays in determining poverty level in Egypt as a developing country. Therefore, this paper explores the impact of current residency regions for Egyptian households on current subjective financial situation as an indicator of poverty level across demographic and socio-economic factors. Residency regions involve less developed and developed areas in Egypt and residency in Italy as international migration. The data set was obtained from Netherlands Interdisciplinary Demographic Institute that was collected by local research teams in Egypt and Italy. Questionnaires information was concurrently collected from domestic and migrant households in a manner that comparable survey instruments in both countries share the same basic modular design and layout. Ordered logit model is constructed to analyze these data since the response variable in this study is expressed in four categories which have natural ordering. The results indicate that migration to Italy and moving from less developed to developed regions in Egypt enhance current subjective financial situation. Improved past financial situation is an indicator for acquiring better current financial situation which is obvious in less developed regions more than developed regions and Italy. Households migrated to Italy and have current work improved their current subjective financial situation.

Keywords:

Egypt. Financial situation. International migration. Italy. Ordered logistic model. Residency regions

JEL Classification: A13, F22, R19

Introduction

According to literature reviewing, no previous work focused on the effect of current residency on current subjective financial situation across demographic and socio-economic factors in Egypt using ordered logistic model. Therefore, this article aims to determine effect of current residency (either in developed or less developed regions in Egypt or migration to Italy) on Egyptian current subjective financial situation using data collected in both Egypt and Italy by Netherlands Interdisciplinary Demographic Institute (NIDI) in 1997.

Household current subjective financial situation is used as an indicator of poverty many since Egyptian respondents refused to answer question about income category in the survey questionnaires. Sabates-Wheeler et al. (2008) indicated that the use of current subjective financial situation as an indicator of subjective poverty minimizes the problem of lacking comparability across people groups. Measurement of subjective poverty expresses the financial status of individuals and its impact on their current living standards that satisfying basic needs (Price et al. 2007). Goedhart et al. (1976) were considered among the first who used subjective poverty measure by asking about the minimum income sufficient for the family of interest.

De Haan and Rogaly (2002) emphasized the contextual specificity of the relationship between migration and poverty where various conclusions were interpreted about this relationship. Migration can either sustain poverty or help people to move out of poverty (Kothari 2002). It may have negative effect in form of lost-labor in origin country or positive effect through migrants' remittances which contribute directly to incomes of households in migrant source regions (Taylor 2000). Migration patterns of poor may maintain and reinforce the pre-existing concentration of poverty since the poor migration tends to be into high poverty areas (Nord 1998). However, some researchers found that international migration supports the economy of origin country through remittances as a significant source of income for less developed countries (Gunter and der Hoeven 2004; Sorensen 2004). Richard et al. (2005) reported that both international migration and remittances have a strong impact on reducing the level, depth and severity of poverty in the developing world.

Improving subjective financial situation to reduce poverty in developing countries as Egypt is an important issue. Migration is expected to affect Egyptian subjective financial situation since Egypt is one of the main labor sending countries in Middle East and considered among the top ten recipients of remittances worldwide (Nassar 2009). Regardless migration to Gulf countries, Italy receives a large sector of Egyptian migration. The long coastlines and large size of Italian informal labor markets are the main factors that facilitate Egyptian migration to Italy. Both counties are culturally close and share centuries of social, cultural and economic exchange (Gilmore 1982).

Datt and Jolliffe (1999) modeled the determinants of poverty in Egypt using data from integrated household survey (1997). They used consumption per person to define poverty measure and reported that increasing average years of schooling, improving the level of parent’s education, improving irrigation and reducing the number of unemployed individuals have positive and large effects on poverty levels. Sabates-Wheeler et al. (2008) developed a conceptual probit model to study the possible dynamic relationship between past poverty, migration and current poverty using data collected by NIDI (1997). They used subjective poverty as a measure of

poverty and found that education level, past poverty, migration status and interaction between past poverty and migration status affect significantly current poverty level (poor or non-poor). In 2009, Roushdy et al. analyzed Egypt labor market survey data (1998) and Egypt labor market panel survey data (2006) to determine the factors affecting poverty status of Egyptian households. They used the wealth status of the household as a proxy of poverty and reported that migration and remittance are more likely to enhance household wealth status.

Due to some limitations of previous works concerning the effects of current residency on the Egyptian current subjective financial situation across demographic and socio-economic factors, further studies are required to investigate the framework of possible determinants for this relationship.

Data and Methods

Data and Sample

The data used in this article were collected using independent multistage stratified disproportionate probability sampling. Households were grouped into "household migration status" strata and the total target sample size was distributed disproportionately over these strata, giving most weight to the stratum of "recent migrant households". The fieldwork took place in the period April-June 1997 in Egypt and in March-June 1997 in Italy. Comparable survey instruments were used such that questionnaires share the same basic modular design and layout (NIDI 2000).

Total sample size used in this analysis was 1222 households included 502 recent migrant households in Italy and 720 non-migrants households in Egypt, 357 households from less developed regions and 363 from developed regions. Data used in this study were obtained from reference person in Egypt and from main migrant actor in Italy. There were 11.13% observations deleted due to missing values for the response or explanatory variables. The definitions of recent migrant household, non-migrant household, less developed regions, developed regions, reference person and main migrant actor were used according to NIDI (2000). Household surveys are ideally suited to deal with data concern household residency region since it is considered as a household decision rather than as an individual decision (Taylor et al. 2003).

Measures

The outcome variable is the measurement of Egyptian households current subjective financial situation that was obtained by asking the following question: “Overall, is the financial situation of the household more than sufficient, sufficient, barely sufficient, or insufficient to buy all the basic needs?” and the answer is expressed in four levels which are 1 for "more than sufficient", 2 for "sufficient", 3 for "barely sufficient" and 4 for "insufficient" (NIDI did not define what constitutes basic needs).

Age is a quantitative variable and some of explanatory variables were categorized according to NIDI data (1997) as follows; gender is classified as male, female (reference category is female), ownership of a house in Egypt (for non-migrants) or Italy (for migrants) is categorized as yes, no (reference category is no), manage to save money in past 12 months is classified as yes, no (reference category is no), remittances is classified as yes, no (reference category is no), current work is classified as yes, no (reference category is no), past subjective financial situation was expressed before migration or 5 years ago for the case of non-migrant is categorized

as more than sufficient, sufficient, barely sufficient, or insufficient to buy all the basic needs (reference category is insufficient) and highest level of school attended is categorized as less than secondary, secondary, higher than secondary (less than secondary is the reference category).

The following variables were re-categorized using SPSS package. Residency regions include less developed and developed regions in Egypt and residency in Italy (less developed regions is the reference category) and total number of persons in the household includes low level (1-4 persons), medium level (5-6 persons), high level (more than 6 persons) (high level is the reference category).

Table 1 represents cross-tabulations between current residency regions and the other variables used in the analysis. The average age of households was older in developed regions (43.97) compared to less developed regions (40.96) and Italy (33.54). Past financial situation affects current situation in different residency regions such that households reside in Italy feel financially more than sufficient currently and in the past (8.8% and 9.4% respectively). However, households reside in less developed regions feel insufficient financial situation in the past and currently (11.0% and 11.8% respectively). Households migrated to Italy could save money in the past 12 months (47.2%), had remittances (42.9%) and had current work (87.8%) which are more than households in less developed and developed regions. Most households migrated to Italy attended secondary school or higher (89.2%), whereas 49.7% in less developed regions attended less than secondary. There was 92.3% of households migrated to Italy could not own a house there. Within less developed regions, 41.7% households had high level of total number of persons whereas within developed regions, 47.9% had low level of total number of persons and 39.6% households in Italy had medium level of total number of persons.

Methods

The response scale in this study has a natural ordering; therefore, ordered logit model is eminently suitable for the analysis of these data since it appears to be more sensitive to the ordinal data and has direct interpretation in terms of odds and odds ratios (Norris et al. 2006).

This study dealt with N households, P predictors and K mutually, exclusive and ordered categories of the outcome reflects current subjective financial situation such that j=1 if household's financial situation is more than sufficient, j=2 if household's financial situation is sufficient, j=3 if household's financial situation is barely sufficient and j=4 if household's financial situation is insufficient.

Table 1 Descriptive statistics for variables used in this study

Variables (%)	Less developed regions	Developed regions	Migration to Italy
Age[1]	40.96 (14.251)	43.97 (14.390)	33.54 (6.197)
Current subjective financial situation			
More than sufficient	1.7	6.3	8.8
Sufficient	55.7	63.1	58.1
Barely sufficient	30.8	24.2	27.5
Insufficient	11.8	6.3	5.6
Past subjective financial situation			
More than sufficient	4.0	6.6	9.4
Sufficient	59.5	71.1	52.4
Barely sufficient	25.6	18.6	30.6
Insufficient	11.0	3.7	7.6
Saving money in past 12 months			
Yes	3.4	5.5	47.2
No	96.6	94.5	52.8
Remittances			
Yes	7.6	3.6	42.9
No	92.4	96.4	57.1
Current work			
Yes	46.8	46.4	87.8
No	53.2	53.6	12.2
Gender			
Male	42.9	49.6	95.6
Female	57.1	50.4	4.4
Ownership a house			
Yes	93.6	50.4	7.7
No	6.4	49.6	92.3
Highest level of school attended			
Less than secondary	49.7	33.7	10.8
Secondary	33.3	32.6	55.0
Higher than secondary	16.9	33.7	34.2
Total number of persons in the household			
Low level	29.7	47.9	25.7
Medium level	28.6	33.9	39.6
High level	41.7	18.2	34.7
Number of households	357	363	502

[1]Means and standard deviations (in parentheses)
Source: NIDI (1997) data.

The ordered logit model relies on the idea of the cumulative probability of a response to fall below or in a category j which has the following form

$$pr(Y_i \leq j/\boldsymbol{X}_i)=\frac{exp(\boldsymbol{\alpha}_j+\acute{\boldsymbol{\beta}}\boldsymbol{X}_i)}{1+exp(\boldsymbol{\alpha}_j+\acute{\boldsymbol{\beta}}X_i)}, \qquad i=1,...,N,\ j=1,...,K \qquad (1)$$

Ordered logit model (log-odds model) with p predictors can be expressed as

$$logit(pr(Y_i \leq j/\boldsymbol{X}_i)) = \log\left(\frac{pr(Y_i \leq j/\boldsymbol{X}_i)}{pr(Y_i > j/\boldsymbol{X}_i)}\right)$$

$$= \propto_j + \beta_1 X_{i1} + \cdots + \beta_p X_{ip},\ i = 1, \ldots, N,\ j=1,...,K,\ p=1,...,P \qquad (2)$$

where $\propto_j$ is an intercept, $\boldsymbol{X}_i$ is a vector of categorical and continuous explanatory variables, and $\acute{\boldsymbol{\beta}}$ is the vector of unknown coefficients represents the relationship of predictors to the log odds of falling below or into a category j compared to all higher categories of the response variable (Menard 2010). It is assumed that the relationship of predictors to the log odds of a response being below or into a specific category j is the same regardless the categories are being compared. Thus, there is only one set of regression coefficient estimates for all comparisons and the log odds differ only by the constants for different levels of the response variable. The parameters are estimated using maximum likelihood estimates method and optimization technique used is fisher scoring. The odds ratio corresponding to the coefficient β_p has the following form

$$\text{Odds ratio}=exp\left(\beta_p\right),\ p = 1, \ldots, P \qquad (3)$$

Proc logistic using SAS package appears to be most appropriate for ordinal response models to obtain maximum likelihood estimates and odds ratios (Park 2009).

Results

Demographic and socio-economic variables and their interactions with households' current residency regions were included in an ordered logit model cumulated over better financial situation. The variables found to be significant at 5% level were current residency regions, remittances, past financial situation, current residency×ownership a house, current residency×saving money in past 12 months, current residency×current work and current residency×past subjective financial situation. A consequent cumulative logit model was constructed using the significant variables and their interactions with current residency regions to check their significance at 5% level.

Parameter estimates and odds ratios of the final ordered logit model are presented in Table 2. Current residency region and its interactions with current work and past financial situation have significant effect on Egyptian current financial situation. These reflect the importance of including current residency region as a factor and across other socio-economic factors' categories in the statistical model to explore the determinants of current financial situation in Egypt.

Effects of current residency regions within reference categories of past financial situation and current work and also effects of past financial situation and current work within less developed regions are directly obtained from Table 2. Egyptian households reside in Italy and developed regions reported better current financial situation than those reside in less developed regions (13.4 times and approximately 4 times respectively).

Within less developed regions, household has a current work reported a better current financial situation 1.4 times as a household who does not have a current. A

household who was more than sufficient in the past is approximately 77 times as household who felt insufficient towards being in better current financial situation.

Table 2: Ordered logit model estimates, standard errors, and odds ratios

Parameter	Estimate	SE	Odds ratio
households' residency regions (developed)	1.3586*	(0.6955)	3.8907
households' residency regions (Italy)	2.5918**	(0.5532)	13.3538
Current work (yes)	0.3438	(0.2360)	1.4103
Past financial situation (more than suff.)	4.3430**	(0.7458)	76.9380
Past financial situation (suff.)	3.8262**	(0.4138)	45.8878
Past financial situation (barely suff.)	2.2499**	(0.4313)	9.4868
Developed regions×current work	-0.1679	(0.3371)	0.8454
Italy× current work	0.8344*	(0.3584)	2.3034
Developed regions×more than suff. in the past	-0.5816	(1.0574)	0.5590
Developed regions× suff. in the past	-1.0497	(0.7109)	0. 3500
Developed regions× barely suff. in the past	-1.0099	(0.7549)	0.3643
Italy×more than suff. in the past	-2.5378**	(0.8740)	0.0790
Italy×suff. in the past	-3.4992**	(0.5427)	0.0302
Italy×barely suff. in the past	-2.3465**	(0.5665)	0.0957
Intercept	-6.8531**	(0.4276)	0.0011
Intercept	-3.0760**	(0.4006)	0.0461
Intercept	-0.8385*	(0.3814)	0.4324
Number of Observations	1086		

Notes:
Suff: sufficient.
SE: Standard errors are in parentheses.
Reference categories of categorical variables used in the model: less developed regions for current residency regions, no for current work and insufficient financial for past financial situation.
* P<0.05; ** P<0.01

Effect of moving from less developed to developed regions or Italy is not constant across past financial situation and current work categories due to interactions. Thus, estimates of past financial situation and current work are indirectly calculated and interpreted. Table 3 summarizes these calculated estimates and corresponding odds ratios.

Moving from less developed to developed regions or Italy affects current financial situation through current work and past financial situation. Effect of current work on current financial situating in Italy is greater than less developed and developed regions in Egypt. A household has a current work in Italy is 3.2 times as likely a household who does not have a current work towards feeling better current financial situation whereas household has a current work in developed regions is 1.2 times as likely a household who does not have a current work towards feeling better current financial situation. However, the effect of past financial situation on the current situating in developed regions is greater than Italy. A household in developed regions whose financial situation was more than sufficient in the past is approximately 43 times as a

household whose past financial was insufficient towards being in better current financial situation. A household reside in Italy whose financial situation was more than sufficient in the past is approximately 6 times as a household whose past financial was insufficient towards being in better current financial situation.

Table 3 Estimates and odds ratios regarding to interactions of current work and past financial situation with households' current residency regions.

Parameter	Estimate	Odds ratio
Within developed regions		
Current work (yes)	0.1759	1.1923
Past financial situation (more than suff.)	3.7614	43.086
Past financial situation (suff.)	2.7765	16.0627
Past financial situation (barely suff.)	1.24	3.4456
Within Italy		
Current work (yes)	1.1782	3.2485
Past financial situation (more than suff.)	1.8052	6.0812
Past financial situation (suff.)	0.3270	1.3868
Past financial situation (barely suff.)	-0.0966	0.9079

Conclusions

It was concerned to estimate the effect of current residency regions across demographic and socio-economic factors on Egyptian current subjective financial situation using NIDI households data (1997) collected in Egypt and Italy. The outcome, current financial situation is categorized in four ordered levels as they expressed in the collected data. Ignoring any of outcome variable categories may lead to less efficiency because some of the information available will not be used and many parameters may be estimated more than necessary.

Previous studies focused on factors affect households current financial situation in Egypt didn't discuss the effect of including the residency region as a factor and its interaction with other demographic and socio-economic factors. NIDI (2000) explained the inclusion of different regions in Egypt according to their development. The developed regions included Cairo/Alexandria, urban lower and upper regions with more recent migration flows whereas less developed regions included rural lower regions with more established migration flows and rural upper regions with more recent migration flows. It was important to study the effect of residency region and its interaction with other demographic and socio-economic factors since it is built historical trends in Egypt.

Despite some economic factors seem to have a relation with poverty as indicted with current financial situation, the findings of this study do not show significant effect of some variables on current financial situation in Egypt. These variables are ownership a house in the residency region, manage to save money in past 12 months, remittances and their interactions with current residency regions. Moreover, demographic factors such as age, gender, total number of persons in the household

and their interactions with current residency are not considered to be determinants of current financial situation. Education as represented by highest level of school attended and its interaction with current residency do not significantly affect Egyptian current financial situation. Current residency regions proved to have a significant effect on Egyptian current subjective financial situation such that households moved from less developed to developed regions or Italy reported better current financial situation. Sabates-Wheeler et al. (2008) focused on the effect of migrant status (migrant or non-migrant) on poverty level and reported that migrant status affects current poverty when it is included in statistical model contains the interaction between migrant status and past poverty. Roushdy et al. (2009) also reported that migrant status affects significantly poverty level that is in accordance with findings of this study.

The results of this study indicated that current work is not a determinant of current financial situation. However, its interaction with current residency regions affects current financial situation such that there is a greater effect of current work for households reside in Italy than less developed and developed regions. Egyptian past financial situation has a significant effect on the current financial situation. When households moved from insufficient past financial to higher financial level, their current situation became better. This effect is greater in less developed regions than developed areas and Italy. These findings reflect the association between past and current financial situation and emphasis the effect of interaction between current residency regions and past financial situation; a finding similar to Sabates-Wheeler et al. (2008).

The findings of this study highlight two policy recommendations that can contribute in planes aimed to improve Egyptian current financial level. It necessitates planning for developing the less developed regions in the following few years to improve the financial situation. It is also highlights the need to managing and organizing policy for international migration due to its positive impact on current financial situation as an indicator of Egyptian economy.

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