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Blind spots of traditional poverty measurement: the case of migrants

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Abstract
The aim of this paper is to examine blind-spots of poverty measurement with application to the study of migrant poverty. These blind-spots stem mostly from the heterogeneity of migrant population and the difficulty of capturing this heterogeneity in unidimensional monetary measures of economic well-being such as income (or consumption). In this context, the paper demonstrates the utility of noncash monetary variables in accounting for dimensions of material well-being which otherwise would have remained undetected. The microdata of the 2009 Cyprus Family Expenditure Survey and the idiosyncratic case of foreign domestic workers are used to illustrate the importance of the points made above, as well as to put forth potential solutions.

Keywords: Poverty; immigration; domestic workers; domestic workers.

Introduction

Traditional poverty measurement analyses poverty on the basis of income relativities. An income threshold, dubbed 'poverty line', is computed using a commonly accepted standard and thereafter the incidence and intensity of poverty are determined vis-à-vis this threshold. This approach, despite its shortcomings, is widely used to diagnose the social situation in country-specific or comparative contexts, as well as to gauge the outcome of redistributive policies. Policies, which are designed to provide income support to those in need of them, cannot be evaluated by other means but by their capacity to alleviate poverty among targeted groups susceptible to material deprivation, such as the immigrants. Indeed, many studies have shown that immigrants experience systematically higher risk of poverty than natives and this differential, which can become very wide in some occasions, is difficult to narrow even with well-intended state interventions[1]. The role of policies can become even more challenging when their design is based on inaccurate estimates of the actual welfare of immigrants.

An important analytic challenge when dealing with migrant poverty is that immigrants compose a highly heterogeneous population group. This is because

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[1] See the following literature for obtaining a comprehensive picture on poverty among immigrants and policy implications; (Kazemipur and Halli, 2001; Hammarstedt, 2001; Chapman and Bernstein, 2003; Galloway and Aaberge, 2005; Blume et al., 2007; Lelkes, 2007; Hansen and Wahlberg, 2009; Gradin, 2012; Muñoz de Bustillo and Antón, 2011).

individuals, in their decision to move from their birth country and to settle to another, follow different paths of migration and are motivated by different reasons. Their migration strategies have implications for their labour market outcomes, access to public services, assimilation dynamics and, ultimately, determine their position in the income ladder. The paper attempts to show that bypassing this issue carelessly and adopting standard approaches in poverty measurement may be problematic. To illustrate this, the paper focuses mostly on a very idiosyncratic group of immigrants; namely that of foreign domestic workers, whose situation has been almost entirely neglected in the literature. Then, taking this illustrative example as stepping-stone, the discussion moves from the singularity of this case to more universal suggestions about the methodological treatment of immigrants as far as the measurement of their poverty risk is concerned. The basic argument is that unidimensional metrics of well-being may not fully capture the entire range and complexity of material deprivation that certain groups are susceptible to, but it is feasible to partly overcome this problem by using as instrument in the analysis specific noncash incomes. For, noncash incomes serve to capture further dimensions of economic well-being and provide a better picture of the relative differences between the various population groups.

Data and Methods

The empirical analysis is based on the typical assumptions usually characterizing most studies of poverty and income inequality. This section sketches these methods, as well as describes the overall context. The paper utilizes the 2009 Family Expenditure Survey (CyFES)[2]. Disposable income is used as the basic proxy of the unobservable material of well-being of individuals and is defined as the sum of all monetary income components after the deduction of taxes and social insurance contributions. Yet, we also estimate the monetary value of homeownership (and free accommodation) and add it on the concept of income. This 'fictitious' income is known as imputed rent. The unit of analysis is the individual in the context of the household and the distributions used are distributions of equivalised disposable income. The household is treated as a single spending unit and all incomes are added up in order to form total household income which, thereafter, is equivalised using the 'modified OECD equivalence scales'. OECD scales assign weights of 1.0 to the household head, 0.5 to each of the remaining adults in the household and 0.3 to each child (person aged below 14). The measurement of poverty presupposes the choice of a poverty line and here the approach of Eurostat is used with a relative poverty line equal to 60 per cent of the median of the corresponding distribution. The poverty indices selected for measuring relative poverty belong to the parametric family of FGT index, (Foster et al., 1984), while the poverty aversion parameter is set at 0, 1 and 2 successively. In the context of poverty decomposition by

[2] CyFES is a detailed microdata survey conducted by the Statistical Service of Cyprus which covers all private households of the area controlled by the Republic of Cyprus at a sampling fraction of 1/100 (size of the sample is 2,707 households/7,976 individuals).

subgroups the procedure goes as follows; the population is partitioned into K groups, then overall poverty can be expressed as the weighted sum of group-specific poverty rates:

$$P(Z,a) = \sum_{k=1}^{K} S_k \, P_k(Z,a) \qquad (1)$$

Where Z is the poverty line, alpha is the poverty aversion parameter, S_k is the population share of each group and P_k is the group-specific poverty rate.

The estimation of imputed rents is based on a hedonic pricing regression model. The idea is to use the subsample of renters in order to estimate a simple model of rent determination and then apply it to the subsample of homeowners in order to predict the rent they would have to pay if they had to rent the house (instead of own it).

Therefore, we run a two-stage OLS estimation model of the natural logarithm of gross rent on a set of housing characteristics. The rent, used as dependent variable, is the actual rent, thus we limit the regression to the subsample of renters. However, when the dependent variable is only observed for a subset of the sample (in this case only for renters) emerges the possibility of selectivity bias. To deal with this estimation problem is necessary in order to arrive at consistent estimators. The standard approach in the literature is to add an explicit selection equation to the model, (Heckman, 1979)[3] as follows;

First, using the entire sample, we estimate the following probit model;

$$P(s = 1|z) = f(z\gamma) \qquad (2)$$

Where z is a vector containing all variables relevant to selection process (in our case socio-demographic characteristic which may be relevant to the possibility of renting a house instead of owning it, e.g. age of the household head) and s takes the value of one if the house is rented. Thereafter, the estimated coefficients are used to compute the inverse mills ratio (that is the ratio between the standard normal probability density function and standard normal);

$$\hat{\lambda} = f(z\hat{\gamma})/F(z\hat{\gamma}) \qquad (3)$$

The estimated inverse mills ratio enters into the hedonic equation as a simple independent variable;

$$Y = Xb + \sigma\hat{\lambda} + u \qquad (4)$$

Where Y stands for the natural logarithm of rent, X is the vector that contains housing characteristics and u is the error. In the Appendix, the results of the estimation, the corresponding diagnostics, as well as a detailed listing of variables are provided.

[3] See Frick and Grabka (2003) and Frick et al. (2010) for interesting applications of this method in the context of imputed rents.

The statistical treatment of a very particular migrant group: The case for domestic service workers

Live-in domestic service workers comprise one of the most idiosyncratic migrant groups. Domestic workers reside on employer's premises, either permanently or for extended periods of time, and provide a variety of in-house services which range from child and elderly care to housekeeping, cleaning, cooking, shopping and other errands. According to International Labour Office (ILO) there are at least 53 million domestic workers globally, the overwhelming majority of whom are migrant females. In several countries, the absence of sufficient public provision of child and/or elderly care altogether with the presence of relatively high living standards have resulted to a number of families employing paid carers in permanent basis. These domestic workers are usually immigrants from poor countries and live within the household they are employed by. In Cyprus, the labour shortages observed in the last decades, (Eliofotou, 2008), resulted to a slackening of the regulatory framework and the issuing of a number of visas for foreigners to work in the island. The arrival of a large number of Asian workers (mostly females from Sri Lanka, Philippines or Vietnam) led to the formation of an unusually large labour force of domestic service workers. According to official estimates, 6,171 Sri Lankan, 9,584 Filipino and 6,770 Vietnamese women legally resided in Cyprus in 2011, (2011 Census). Domestic workers are among the most vulnerable groups of employees and in general there is scant information about their situation, with few notable exceptions (e.g. Kantaris et al., 2014).

In terms of poverty measurement, the assessment of the economic welfare of this group is challenging due to several methodological ambiguities. The first of them concerns the unit of analysis. In that respect, the analyst should choose between; a) treating domestic workers as members of the employer household and b) treating them as separate household units. It should be noted that in several household surveys - Cyprus Family Expenditure Survey is such an example- domestic workers are counted by default as members of the household[4]. In that case, and if this issue gets unnoticed by the analyst, their welfare will be approximated by the equivalised disposable income of the household. Yet, this treatment may result to a miscalculation of the economic well-being of the group. Even if they may benefit from housing amenities or other in-kind provisions of the household, their economic situation cannot be equated with their employers. As a consequence, their observed poverty risk would appear relatively low as the households employing domestic workers are usually affluent and the corresponding equivalized income will be most probably above the poverty threshold. Furthermore, this methodological treatment would cause a downward bias in total estimates of poverty among immigrants as well as large biases in ethnic groups who consist of a disproportionate share of domestic workers (e.g. females of Asian origin).

[4] However, additional information is provided that makes possible to separate them in the sample.

The alternative option is to treat domestic workers as separate income units and approximate their economic welfare by their monthly employment income. Indeed, the EU-Statistics on Income and Living Conditions (EU-SILC) - the most widely used informational source for comparative statistics on income distribution and social inclusion at the European level- defines private households as a "*person living alone or a group of people who live together in the same private dwelling and share expenditures, including the joint provision of the essentials of living*" and further that "*Shares in household expenses include benefiting from expenses (e.g. children, persons with no income) as well as contributing to expenses. If expenses are not shared, then the person constitutes a separate household at the same address*"[5]. Therefore, we can conclude that, according to these definitions, domestic workers would be counted as separate units, although it is possible that in some cases the interviewer may judge the opposite (i.e. register them as members of the household). Again this treatment may be problematic for a number of reasons. Domestic workers definitely do not share the same welfare levels with their employers, but on the other hand they do benefit from some household expenses (food, heating, free accommodation or other essentials for living[6]) and, in that sense, they could be considered as being close to household members. By including them as household members, we risk overestimating their material well-being, by treating them as separate units, we risk underestimating it. It is a borderline case and a certain degree of arbitrariness is unavoidable. Admittedly, in countries with small domestic service sector, poverty estimates should be expected to be relatively insensitive to the treatment of this group. But in countries with a relatively large population of domestic workers, their treatment may matter; especially for studies of migrant poverty attempting to decompose poverty by ethnic groups.

The paper proposes the following solution to the problem (consisting of two stages); 1) define domestic workers as separate income units (e.g. forming one-person households) and 2) augment their monetary income with the imputed value of the noncash benefits they derive from the fact that they reside in their employer's household. These noncash benefits range from food and the use of house amenities to the provision of health insurance; yet the most important is the provision of free accommodation. Obviously, the range of noncash benefits which would be included in the calculation is subject to the availability of the relevant information. The rule should be to include as much noncash income components as possible.

Our estimations, presented in Table 1, take into account only the value of free accommodation which is measured as the fictitious rent homeowners would have to pay if they were renters. These values, after being equivalized (i.e. the imputed rent is divided by the number of equivalized adults for each household) is then added to individuals' income.

[5] See pg. 77, Methodological Guidelines and Description of EU-SILC Target Variables (2015 Operation, Version July 2014): Link

[6] For example Kantaris et al. (2014) report that a number of employers subsidize the cost of private health insurance of the domestic workers employed in their households.

Table 1: Poverty decomposition by ethnic groups

Group	S_k (%)	FGT(0)	SE	FGT(1)	SE	FGT(2)	SE
Domestic workers are treated as members of the host household							
CY	0.891	0.136	0.007	0.028	0.002	0.009	0.001
EU	0.079	0.129	0.024	0.027	0.007	0.009	0.003
AA	0.029	0.503	0.059	0.125	0.017	0.040	0.007
All	1.000	0.146	0.007	0.031	0.002	0.010	0.001
Domestic workers	0.012	0.391	0.042	0.110	0.014	0.038	0.006
Domestic workers are treated as separate units							
CY	0.891	0.130	0.007	0.026	0.002	0.009	0.001
EU	0.079	0.129	0.024	0.028	0.007	0.010	0.003
AA	0.029	0.757	0.045	0.350	0.027	0.207	0.007
All	1.000	0.149	0.007	0.036	0.002	0.014	0.001
Domestic workers	0.012	1.000	-	0.652	0.009	0.436	0.013
Domestic workers are treated as separate units and their income is augmented with imputed rents							
CY	0.891	0.096	0.006	0.016	0.001	0.004	0.001
EU	0.079	0.213	0.032	0.043	0.009	0.014	0.005
AA	0.029	0.779	0.041	0.302	0.020	0.143	0.012
All	1.000	0.125	0.007	0.027	0.002	0.009	0.001
Domestic workers	0.012	0.895	0.028	0.400	0.021	0.215	0.017

Source: CyFES 2008/9.

Notes: CY stands for Cypriot, EU for European and AA for Asian and Africans. S_k is the population share. SE stands for Standard Errors.

In the first row of Table 1, we consider the scenario in which domestic workers are treated as members of the employer's household. This scenario results to a high poverty risk for domestic workers, albeit considerably lower than their ethnic group poverty rate would suggest. This finding may seem paradoxical, but many domestic workers live with elderly people (to whom they provide care) who enjoy a standard of living considerably higher that their observed income suggests[7]. When domestic workers are counted as separate income units (second row of the table), their seeming poverty risk skyrockets. All

[7] Most likely these households benefit from considerable interhousehold transfers (both in kind and in cash) which do not appear in the data.

domestic workers[8] are under the poverty threshold, while their depth of poverty is extremely high (and significantly higher compared to the first scenario). The last row of the table presents the scenario which according to our view depicts more accurately the true level of the economic well-being of domestic workers. Poverty rates stand in between the other two scenarios, thus appearing more realistic.

In Table 1, we have moved one step further by estimating the group specific poverty risks of other migrant groups to examine whether and to what extent, the treatment of domestic workers affects the observed poverty rates of ethnic groups (or equivalently the decomposition of overall poverty by ethnic groups). Comparing the first and second panels of the Table, one can easily notice that despite the share of domestic workers in the population is small (1.2% of the sample), they still influence other groups' observed poverty rates. This influence is not always statistically significant (for example the overall poverty incidence increases from 14.6% to 14.9% if we treat domestic workers as separate units but this increase is not reliable from a statistical point of view), but it becomes more important when we either focus on the poverty rates of specific migrant groups (e.g. Asians and Africans) or we increase the poverty aversion parameter [e.g. when moving from FGT(0) index to FGT(1) and FGT(2)]. Comparisons between the first and second panels and the third cannot be done in this context, for the estimations of the third panel are based on a different definition of income. Yet the point here is that this new definition adopted (altogether with treating domestic workers as separate household units) produces the most realistic results, given all the data limitations of the survey.

Conclusions

The empirical analysis of the paper gives rise to several layers of interpretation. Firstly, it attempts to provide some insight regarding the situation of foreign domestic workers; a rarely investigated theme in poverty studies. Admittedly, our knowledge remains limited. Even if our estimates give an indication of welfare gap between domestic workers and other groups, still much more detailed information is needed in order to draw a more accurate picture. Secondly, the paper demonstrates that the methodological treatment of this group may have implication for the measurement of the poverty of other groups and in some cases [for example when using indices such as FGT(2) or other similarly sensitive index] even for total poverty rates. This is because, the standard convention in modern poverty measurement is to adopt a relative concept of poverty. Thus, any change in the income position of a group affects the relative income position of other groups. In our context, the observed levels of poverty among third country nationals was found to be significantly influenced by whether domestic workers will be treated as separate income units or not and by the concept of income which will be used for gauging individuals' standard

[8] The number of domestic workers in the sample is 165.Using survey weights, their total population is estimated to 9,823 persons.

of living. Thirdly, the case of domestic workers is a manifestation of the heterogeneity of migrant population (which, in general, far exceeds those of natives) and the solution put forth, namely to use noncash incomes in order to take into account other dimensions of their material well-being, can be used in other contexts in order to capture in unidimensional measures of poverty, advantages or disadvantages that migrant may enjoy or suffer from (e.g. access or lack of access to specific public services).

Furthermore, it is worth noting two caveats. Standard poverty measurement aims at obtaining the objective poverty among the population. However, there are situations where objective poverty may depart from the subjective poverty that individual's experience. In the case of domestic workers, their situation may be fundamentally different from other migrants (and/or native population) and extremely difficult to capture into a simple scalar. Residing with their employers may mean that they do not participate in social life with the same terms as other population groups. By being less socially integrated, it could be argued that they are bereft of a "normal" private life and are overly dependent on their employers. The high degree of dependency implies that they are also easily exploitable.

Finally, the existence of remittances for several groups of migrants (including domestic workers) is another reason one should be cautious in interpreting income as a proxy of wellbeing in these cases. For, a number of them have recently immigrated and are likely to have left part of their households at their home countries (this is especially true for domestic workers). In that sense, their equivalized income may overestimate their actual well-being due to remittances. Because of the lack of the relevant information, this problem was not considered in the analysis but in acknowledgment of its importance.

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APPENDIX: Table A.1. Heckman selection model (with sample selection)

	Coefficient	Std. Err.	z	P>z
Logarithm of rent				
Type of dwelling (reference:detached house)				
semi-detached	0.044	0.116	0.380	0.704
terraced house	-0.415	0.156	-2.660	0.008
appartment	-0.121	0.102	-1.190	0.234
other	-0.230	0.132	-1.750	0.080
Number of rooms	0.060	0.036	1.670	0.095
Urbanity (reference group: urban)	-0.180	0.129	-1.400	0.162
District (reference group: Nicosia)				
Famagusta	0.031	0.179	0.170	0.864
Larnaca	-0.072	0.118	-0.610	0.544
Limassol	0.166	0.082	2.020	0.043
Paphos	-0.066	0.103	-0.640	0.523
Rented furnished or not	0.046	0.076	0.610	0.540
Size (log of m²)	0.397	0.124	3.200	0.001
Year of construction (reference group: before 1946)				
1946-1960	-0.020	0.198	-0.100	0.920
1961-1970	0.522	0.202	2.590	0.010
1971-1980	0.528	0.185	2.850	0.004
1981-1990	0.647	0.190	3.410	0.001
1991-2000	0.866	0.195	4.440	0.000
2001-	0.944	0.194	4.850	0.000

	Coefficient	Std. Err.	z	P>z
Kitchen (reference: separate room)				
small kitchen	0.062	0.089	0.700	0.485
out of the house	-0.718	0.733	-0.980	0.327
Shower (ref. group: in the house)				
out of the house	0.021	0.481	0.040	0.965
no shower	-0.714	0.754	-0.950	0.344
Toilet (yes or no)	0.256	0.528	0.490	0.627
Hot water	0.266	0.247	1.080	0.282
Central heating	-0.121	0.091	-1.330	0.184
Air conditioning	-0.101	0.073	-1.390	0.164
Garage	-0.102	0.074	-1.380	0.168
Constant	6.063	0.526	11.530	0.000
Selection equation				
Renter (1: yes. 0: no)				
Log of income	-0.096	0.086	-1.110	0.267
Employment (head) (ref.= employer)				
self-employed	-0.225	0.288	-0.780	0.435
employee	-0.102	0.257	-0.400	0.690
other	-0.022	0.292	-0.070	0.941
in retirement	0.004	0.281	0.010	0.989
Age (head)	-0.023	0.004	-5.460	0.000
Number of children				
1	-0.295	0.121	-2.430	0.015
2	-0.506	0.150	-3.370	0.001
3	-0.780	0.310	-2.520	0.012
4	-0.506	0.583	-0.870	0.386
Ethnicity (head)				
European	1.419	0.110	12.940	0.000
Other	2.651	0.346	7.660	0.000
Sex (head)	0.278	0.096	2.900	0.004
Education (head) (ref: primary)				
secondary	0.042	0.114	0.370	0.711
tertiary	0.036	0.136	0.270	0.790
constant	0.641	0.915	0.700	0.483
Mills lambda	-0.081	0.047	-1.710	0.088
Number of Obs.	2,682			
Censored	2,440			
Uncensored	242			
Wald Chi2 (28)	270.28			
Prob. > Chi2	0.00			

Source: CyFES 2009.