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UNIVERSITY OF CYPRUS

IMMIGRATION AND POVERTY: FINDINGS FROM CYPRUS

Christos Koutsampelas

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P.O. Box 20537, 1678 Nicosia, CYPRUS Tel.: +357-22893700, Fax: +357-22895028
Web site: http://www.econ.ucy.ac.cy

Immigration and Poverty: Findings from Cyprus

Christos Koutsampelas

Economics Research Centre, University of Cyprus

Abstract: In this paper we employ the 2009 Family Expenditure Survey conducted by the Statistical Service of Cyprus in order to measure the poverty risk among immigrants in Cyprus. Results show that immigrants face a higher risk and depth of poverty than the native population. Large intra-group variation exists. Poverty risk is considerably higher for non-Europeans and, within the group of Europeans, migrants from Western Europe are better off than those from Eastern Europe. Econometric analysis shows that the worst position of immigrants cannot be explained solely by socioeconomic characteristics, suggesting that this is the outcome of discriminatory practices in the income-generating process. Moreover, we found that the results of the analysis are sensitive to the definition of income. In particular, the inclusion of imputed rent in the notion of income increases the measured poverty gap between natives and immigrants even further, due to the lower incidence of homeownership among immigrants.

Keywords: Poverty, Immigration, Cyprus, Imputed rents.

1. Introduction

In the last decade the successful accession of Cyprus in the EU led to the further opening of the labour market. The harmonisation of the legal framework with the EU Directives resulted to the abolishment of several restrictions to immigration. While a large number of working permits to third-country nationals were issued in order to address labour shortages, especially in the low-skilled sectors of the economy. On top of that, the very good performance of the economy attracted even stronger migratory flows. Net migration rate has been constantly positive and on the increase over the last decade, especially after the outbreak of the international financial crisis[1], As a result the share of foreigners in the total population steeply increased from 9.4 per cent in 2001 to 20.3 per cent in 2011[2].

These concomitant population shifts have triggered the interest of several scholars on migration-related topics in the context of Cyprus, (Pashardes et al. 2001; Christofides et al. 2007; Eliofitou 2008; Christofides et al. 2009). What have in common these studies is that they focus on the effects of the increase in the number of foreign workers on real wages, unemployment and labour market participation. In general, they find that immigration contributed to wage moderation and in that respect it helped the economy grow. It could be argued that, at a certain degree, these authors are motivated by the concern of the local society about the effect of immigration on the national economy. On the other hand, there is a lack of a study that focuses on the situation of

[1] From +5.7 migrants/1000 population in 2000 to +9.6 migrants/1000 population in 2004. The net migration rate accelerated very rapidly and peaked up at an unprecedented +21.7 migrants/ 1000 population in 2011. After 2009, the majority of newcomers are Greeks who seek employment opportunities in Cyprus.

[2] According to 2001 and 2011 Population Censuses conducted by the Statistical Service of Cyprus.

the immigrants and in particular on their economic performance as reflected on their likelihood for being poor.

In spite of the fact that labour markets in most Western countries are regarded as inclusive and that, in most cases, welfare state arrangements are quite developed, several studies have shown that foreigners usually are highly susceptible to poverty. For example, Lelkes (2007) estimates poverty rates for natives and migrants in 14 European countries and finds that the latter face considerably higher poverty risk. Furthermore, among migrants, non-Europeans are even more susceptible to income deprivation. Similar findings are demonstrated by Chapman and Bernstein, (2003) for USA, Blume et al. (2007) for Denmark and Sweden, and more recently by Muñoz de Bustillo and Antón (2011) in the context of Spain. Yet, it could be argued that high poverty among newcomers is a transient problem due to their initial adaptation difficulties which may fade away over time. However, Kazemipur and Halli (2001) showed that the high poverty risk of immigrants in Canada does not decrease with the length of stay in the host country. In Sweden and Denmark, immigrants are found to be much poorer than locals and the problem intensifies along time, Blume et al. (2007). Galloway and Aaberge (2005) found a negative relationship between the probability of being poor and length of stay in Norway. But the problem still persists. It appears that migrants' propensity to poverty is deep rooted and that their current poverty rates can anticipate future poverty rates. Muñoz de Bustillo and Antón (2011) explore what drives poverty differences among natives and locals in Spain. They find that observable socioeconomic and demographic differences between native and migrant households cannot explain the high poverty gap among the two groups. Similar evidence is found by Hammarstedt (2001). Indeed, it appears that in many countries immigrants face the risk of being trapped in

precarious low-paid low-skilled works. Deprived of employment opportunities, they end up and, stay, in poverty. In general, the literature shows that the length of stay exerts an ambiguous effect on the high risk of poverty among immigrants, while welfare state policies usually fail to address completely the problem. Yet the problem of migrant poverty is at a large extent country-specific and should be interpreted in the context of the country under consideration.

Our study follows the paths of this strand of the literature and adopts a variety of methodological tools to explore several dimensions of migrant poverty in Cyprus. But in some cases we adopt a critical stance. First, the majority of the above studies employ distributions of disposable income for measuring poverty, (Hammarstedt 2001; Gallaway and Aaaberge 2005; Blume et al. 2007; Hansen and Wahlberg 2009; Muñoz de Bustillo and Antón 2011). In spite of the fact that this is a standard approach in the literature, it may contaminate the analysis with biases. Recent studies in the field of the distributional effects of noncash incomes, (see Marical et al, 2008 for a comprehensive overview of the literature) have shown that the distributional effects of non-cash incomes are non-negligible. Furthermore, certain population groups may benefit disproportionately from particular non-monetary incomes than other groups. In that case the use of monetary income as a proxy of individuals' material well-being may be misleading. In our framework of analysis, we find as particularly important the consideration of imputed rents, i.e. the notional non-monetary income that homeowners enjoy. The reason is that homeownership is very widespread among Cypriots but, expectedly, not among immigrants. Therefore, if we ignore imputed rents, we underestimate the well-being of natives and overestimate the well-being of immigrants in relative terms.

Another feature often met in several studies is that many studies do not take into account the extent of ethnic diversity when estimating group specific poverty rates. The most common distinction is between natives and migrants (Muñoz de Bustillo and Antón, 2011) or between natives, Europeans and non-Europeans as in Lelkes (2007). It is likely that these choices are dictated by the lack of disaggregated data. However our analysis indicates that this treatment may hide important facets of migrant poverty. On the contrary, partitioning the migrant population in more groups yields richer results.

The idiosyncratic case of a large number of female migrants employed as in-house domestic servants in Cypriot households is another manifestation of the inherent limitations of traditional poverty measurement as well as of the need for taking into account all aspects of diversity. As we will argue further in the paper, income fails to provide an accurate approximation of the well-being of this very particular group and, consequently, standard tools of relative poverty measurement produce ambiguous outcomes.

The structure of the paper unfolds as follows; section 2 describes the data and methods used in the paper, section 3 describes the economic and demographic attributes of native and foreign households in Cyprus. In section 4 we move to the main bulk of the analysis, where we explore the extent and nature of poverty among migrants. This section is deployed in three parts; the first is devoted to traditional poverty analysis, the second includes the econometric analysis and the third section discusses the case of domestic workers and how the methodological treatment of this specific group affects the overall results. The last section concludes.

2. Data and methods

The data used in the study are the micro-data of the 2008/9 Family Expenditure Survey (FES) conducted by the Statistical Service of Cyprus. The survey covers all the private (non-institutional) households of the areas controlled by the Republic of Cyprus and its sampling fraction is 1/100 (around 2,707 households or 7,976 individuals). The income reference period extends from October 2008 to November 2009. The database contains detailed information on the demographic and socioeconomic characteristics of the household, its consumption items and its income. Pivotal in the analysis is the detailed information on the nationality of the household members. Several other methodological settings are described below. First, we set income as proxy of the unobservable welfare of the household. Then as income we define the sum of all monetary income components (wages, income from self-employment, passive income, pensions and cash transfers). But we move further than that by considering non-monetary incomes, (imputed rents[3], consumption of own production and fringe benefits). The latter (consumption of own production and fringe benefits) represent a very small share of disposable income but imputed rent, which is the fictitious rent that homeowners would have to pay if they weren't homeowners, is important. The unit of analysis is the individual in the context of the household and the distributions used are distributions of equivalised household disposable income per capita. Simply, we add all monetary incomes of the household members (thus assuming implicitly that income is altruistically shared within the family) and divide the amount by the number of "equivalent adults". The latter are computed using equivalence scales which take into account economies of scale within the household as well as different needs among individuals of

[3] We use the self-assessed values of imputed rents as provided by the homeowners in the survey. However a more robust approach would have required the application of econometric techniques to estimate imputed rent as a function of housing characteristics.

different age. Among the numerous scales, we prefer the "modified OECD equivalence scales" that assign weights of 1.00 to the household head, 0.50 to each of the remaining adults in the household and 0.30 to each child. There is not a priori argument in favour of these scales beyond their undisputed popularity which facilitates comparisons. Finally, we note that these assumptions are very common in the literature and usually adopted by most official statistic agencies.

The measurement of poverty presupposes the choice of a poverty measure and a poverty line. We follow the approach of Eurostat and set the relative poverty line equal to 60 per cent of the median of the corresponding distribution. This implies a framework of relative poverty measurement. The poverty indices selected for measuring relative poverty belong to the parametric family of Foster, Greer and Thorbecke (1984) which is characterized by a parameter interpreted as the social aversion to poverty. As we increase the value of the parameter the society is supposed to be more and more averse to poverty. In the extreme, as the parameter goes to infinity, the index collapses to the Rawlsian maximin principle; only the poverty of the poorest matters.

A particularity of the Cypriot microdata is that live-in domestic servants are treated as members of the household. Despite that they may benefit from housing amenities or other in-kind provisions of the household, it is erroneous to assume that their economic welfare is approximated by the equivalised household income of the household they are employed by. Therefore, we treat them as separate households in the main analysis. Their monthly employment

income is augmented by the imputed value of the free provision of housing, which was arbitrarily set to €250[4].

3. Descriptive statistics

Before we proceed to econometric analysis, we portray the socio-demographic profiles of the various ethnic groups. According to FES data, about 89.1 per cent of the population living in the government controlled area of the Republic of Cyprus are Cypriots. Citizens of Greek nationality amount to 2.7 per cent of the total population, while Asians (mainly from Sri-Lanka and Philippines) and British represent each around 2.2 per cent of the population. There is also a considerable number of immigrants from Bulgaria, Romania, Poland, countries of Near- and Middle-East as well as very small numbers of immigrants from other European and non-European countries. For analytical purposes, we group immigrants according to their country of origin, namely to Cypriots, Europeans and non-Europeans. Europeans were further separated between two subcategories:

- Denoted by 'EU-A' are mainly immigrants from Western and Mediterranean countries (Austria, Belgium, Denmark, Finland, France, German, Greece, Italy, Ireland, Luxemburg, Malta, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland and the UK)[5];

[4] This amount can be sensibly considered as a minimum threshold for renting a very low cost accommodation in Cyprus.

[5] A very small number of migrants from Canada and Australia was added in the EU-A group. This arbitrary treatment is justified on the basis of cultural similarities between these groups.

- Denoted by ‘EU-B’ are immigrants from East-European countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Russia) and Turkey.

The tripartite distinction between natives, Europeans and non-Europeans is very common in the literature. But it makes more sense to separate even further the group of Europeans since there is large within-group heterogeneity. Not only differences in the observable socioeconomic characteristics between those two wider migrant groups (EU-A and EU-B) matter for poverty analysis, but also natives’ stance and attitudes are likely to depend on the country of origin. In Table 1 we move to the description of socio-demographic variables. We focus on gender, age, household structure, education, labour market participation and residence. These characteristics may be associated, positively or negatively, with poverty (for example, low education is typically correlated with high poverty rates). Insofar, ethnic groups are not homogeneous with respect to these characteristics, it is interesting to explore in what extent these differences are responsible for explaining inter-group variability in poverty rates or whether part of this variability should be attributed to other unobservable factors.

As the first rows of the Table reveal, a feature of the immigrant population of Cyprus is that they consist disproportionately of females: almost 68% of immigrants from EU-B countries and 56.8% from non-European countries are females. This is due to the high demand for domestic workers by wealthy Cypriot households and to the demand for female personnel to fill vacancies in the tourism and restaurant sectors of the economy. When we move to age, we find that most immigrants are adults of working age. On the contrary the lowest share of working-age population is observed within the group of Cypriots (19.9%, 19.8% and 20% for age groups 18-

30, 31-45 and 46-60, respectively); while the highest is observed among non-Europeans, the overwhelming majority of whom consists of young workers (86.8% of the population is aged between 18 and 60). Expectedly the share of elderly immigrants is very small; none among the non-Europeans and only 1.9% of European immigrants are over 60. Furthermore, 22.7% of Cypriots are children, while the share of children in other ethnic groups is lower.

[Table 1 ABOUT HERE]

The structure of the household is also related to poverty. A crude example is that mono-parental families usually face very high risk of poverty, since one income earner cannot easily cover the needs of the family. But multi-child families might be prone to poverty due to their very high needs. In the table we have estimated the proportion of individuals living in each of the following household types: older single persons or couples, younger single persons or couples, couples with children, mono-parental families and other. The most prevalent household structure among Cypriots is couples with children (49.3%), followed by households that consist of either an older single person or an older couple (12.7%). The percentage of persons living in mono-parental families is rather small (only 2.9%). The structure of immigrant households from EU-A countries shows the greatest similarity with Cypriot households, with the main difference being the smaller percentage of younger adults among the latter population group. This difference is more pronounced when Cypriot households are compared with immigrants from EU-B countries; and even more so when compared with non-Europeans. The prevalence of small size young adult households among immigrants is not surprising. The large share of "other" household among non-Europeans migrants is attributed to the large proportion of domestic workers who we treat them as separate households although they cohabitate with Cypriot families (but not classifying

them as single persons since it would be misleading). Not surprisingly we found a zero number of mono-parental and elderly families among AA group.

The table reports also the average educational attainment (of adults) by population group. A fairly large proportion of Cypriots (24%) appear to be low educated; however, this is due to the presence of many older persons in this population group. Immigrants from EU countries have, on average, higher levels of educational attainment than Cypriots, e.g. over 38% among them have university-level educational qualifications, as opposed to 23.7% among Cypriots. This finding may be attributed to the fact that many university graduates in these countries seek temporary employment in Cyprus attracted by very good salaries in financial sector. The large proportion (12.8%) of students from non-European countries is probably due to many of them enrolling in private educational institutions solely to obtain a residence permit allowing them to work. However we should note that the educational qualifications are not always comparable between countries, e.g. medicine and other degrees from several non-EU universities are not officially recognised. While in some cases highly educated immigrants may not be able to practice their profession due to language/ethnic barriers.

From the labour market participation figures, we obtain that the main motivation for immigrating to Cyprus is employment. The proportion of employed persons is lowest (54.6%) among Cypriots and highest (81.5%) among immigrants from non-EU countries; while the immigrants from EU countries are somewhere in between (62.6%, 59.9% and 67.4%, for EU, EU-A and EU-B), respectively. Nonetheless migrants are more often plagued by unemployment. Indeed the lowest rate is observed among Cypriots, only 3.1% in the sample, and increases among immigrants from EU and non-EU countries, in that order. We conclude with a comment about

the geographical dispersion of population. Immigrants are relatively more concentrated in urban areas. Yet, we should bear in mind that Cyprus is a small island country. Thus the spatial dimension is not of utmost importance. For example, it is possible to live in a village but work in a city.

4. Poverty Analysis

4.1 Poverty decomposition by ethnic groups

In Tables 2 and 3 we decompose overall poverty and estimate, accordingly, the group-specific poverty rates of each ethnic group. For that purpose, we employ the property of decomposability that indices of the FGT family possess. Let the population be 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 (reported in the second, fourth and fifth columns of the Tables). In order to measure poverty we use two definitions of income: a) disposable income (Table 2); b) disposable income plus imputed rents (Table 3).

When we employ disposable income as a proxy of economic well-being overall poverty risk is 15 per cent. But it varies considerably across ethnic groups. Surprisingly, we observe the lowest poverty risk for EU-A migrants (11.6%) and the largest for Asians and Africans at 75.8%. In between, we find Cypriots (13.2%) and EU-B migrants (15.6%). The ranking of the four groups according to their measured poverty rate does not change if we increase the parameter at 1. But it

does when we set it at 2; Cypriots, then, face the lowest poverty rate at 0.009, Europeans follow (intra-group differences are hardly discernible) and lastly are Asians and Africans. It should be noted that FGT(2) is not only sensitive to incidence and intensity of poverty, but also to the inequality of income among the poor.

[Table 2 ABOUT HERE]

When we add imputed rents in the concept of resources, we find that overall poverty risk is considerably reduced irrespective of the choice of the poverty aversion parameter. Note that this happens despite that the poverty threshold also increases by the addition of imputed rents. This finding confirms previous studies in other European countries that argue that homeownership exerts an equalizing effect on the income distribution, (Yates, 1994; Frick and Grabka, 2003; Frick et al, 2010). However what is even more important in our context of analysis is that the ranking of ethnic groups with respect to poverty, changes. The lowest poverty risk is now observed for Cypriots (11.2%), while the poverty rate of EU-A and EU-B migrants increases sharply at 18.4% and 26.6%, respectively. The poverty rate of AA migrants increases further to a staggering 82.3%. When the poverty aversion parameter increases, the ranking remains unchanged.

[Table 3 ABOUT HERE]

The changes in group-specific poverty rates induced by the change in the definition of income are the result of varying homeownership rates across the four ethnic groups; 83.2% for Cypriots, 53% and 28% for EU-A and EU-B respectively and 8.3% for Asians and Africans. Naturally, natives are more probable to own a dwelling than migrants and therefore Cypriots' relative

income position improves vis-à-vis other population groups when we consider the income advantage of homeownership.

4.2 Econometric analysis: Modelling the determinants of poverty incidence

High risk of poverty can be associated with a variety of factors, including low labour market participation, low education level, single parenthood, gender, age and large number of children or other dependents in the family. Our analysis controls for all these factors and examines whether being an immigrant can also increase the poverty risk by estimating a Probit model relating these factors to the probability of a household being poor. The econometric specification of the model is of the following general form:

$$P(y_i = 1|X_i) = \Phi(X_i^{'}\beta) \qquad (2)$$

Where y_i is a binary dependent variable taking the value of 1 if the household is poor and zero otherwise; X_i is the vector of demographic and socioeconomic characteristics of the i household, while the Greek letter Φ stands for the cumulative density function of the standard normal distribution. Since the interpretation of the coefficients of a bivariate model is usually tricky, it makes sense, instead, to present marginal effects:

$$Marginal\ effect = P(y_i = 1|\bar{X}, x_k = 1) - P(y_i = 1|\bar{X}, x_k = 0) \qquad (3)$$

Thus marginal effect measures the change in probability of being poor for a discrete change in the dummy variable when all other independent variables are evaluated at their means. Immigrant status is included as an explanatory variable. The remaining covariates are: gender of the household head, age of the household head, household type, educational level of the

household head, labour market participation of household head, geographical location of the household and dependency ratio[6]. We have calculated two versions of the above model differentiating in each the definition of income. In the left part of Table 4 we define poverty using monetary income as a yardstick of economic well-being. Then, we perform the analysis by adding imputed rents in the concept of resources (right part of the Table). The second and fourth columns report the parameter estimate showing the change in the probability of a household being poor which is associated with a marginal change in the explanatory variable listed in the first column. The intermediate columns report the p-values.

[Table 4: Multivariate analysis of at-risk-of-poverty rate under alternative definitions of income]

Focusing on nationality, it appears that the probability of being poor increases significantly when the head of the household is an immigrant from EU-B countries (in comparison with being a Cypriot) and more so when the head is from an AA country. Other variables significant for explaining the incidence of poverty is the gender of the head, his or her educational attainment, labour market status, area of residence as well as the dependency ratio of the household. Surprisingly, the age of the head appears statistically insignificant but this may be due to high correlation with other variables (e.g. labour market participation). Overall the results of the model suggest that immigrants are vulnerable to poverty, even when controlling for factors contributing to low income such as low education or high dependency ratio. This is an indication that immigrants in Cyprus are possibly subject to ethnic discrimination practices in the income generating processes. The outcome of these practices may be the joint effect of several factors.

[6] The dependency ratio is defined as the ratio of the non-working age members of the household to the total size of the household. High dependency ratios are associated with higher risk of poverty.

Migrants may be employed more often than natives in temporary or/and part-time jobs or concentrated in low productivity sectors of the economy (constructions, domestic workers, tourism). Or they may be plagued by inadequate linguistic skills, discriminatory treatment by employers, low awareness of employment rights, limited transferability of skills acquired abroad (for example degrees from third country universities are not officially recognized) or other cultural, and often unobserved, labour market barriers, (Antón, Muñoz de Bustillo and Carrera 2010; Drydakis 2012).

In the above analysis, we employed a monetary definition of income for identifying the poor. However, as empirical studies of the distributional effects of non-cash incomes have shown, omitting such items may contaminate the analysis with biases, Smeeding et al. (1993). These biases are important when the analysis is targeted to specific population groups that benefit disproportionately from non-cash incomes relative to other groups. In our setting, we found as particular relevant the effect of homeownership. In particular, if homeownership rates vary between natives and immigrants (or among immigrant groups), then the omission of imputed rents will result in underestimation of the economic well-being of those groups who enjoy higher rates of homeownership and vice versa. For that reason, we add imputed rents in the concept of income and re-estimate the model. The results in Table 4 confirm our initial conjecture: immigrant status is now associated with a larger increase in the probability of being poor. This is more obvious in the case of European immigrants. EU-A coefficient increases from 0.013 to 0.141 and EU-B coefficient increases from 0.279 to 0.414.

In the last part of the section, we perform an econometric decomposition of the probability of being poor as in Muñoz de Bustillo and Antón (2011). The previous analysis showed that

different poverty rates among ethnic groups are not associated only with the observable characteristics of the household but also with migrant identity. The latter may leverage or deleverage the economic returns of the socio-demographic characteristics of the household. For example, an educated migrant may have less employment opportunities than a native with the same educational qualifications. Here we attempt to explore further the contribution of such factors in the extent of migrant poverty. For that purpose we estimate the poverty risk that immigrants would face if they weren't immigrants. This "counterfactual risk of poverty" is estimated as follows; first, we estimate the probit model only for the subsample of natives. Then we apply the coefficients of the probit model for natives to the subsamples of migrants:

$$\tilde{p} = \frac{1}{n_{mig}} \sum_{1}^{n_{mig}} \Phi(X_{mig} b_{loc}) \qquad (4)$$

P-tilde, the counterfactual risk of poverty, is the risk that migrants would have faced if they weren't migrants holding all other attributes (age, sex, education, etc.) the same. This is presented in the second row of Table 5. In the third row we present the difference in the actual risk between the natives and each migrant group and in the last row, the counterfactual difference (i.e. the difference between the actual risk of natives and the counterfactual risk of migrants).

The poverty risk of EU-A migrants does not change if their observable characteristics are rewarded the same way as natives'. This indicates that their actual risk is entirely attributed to their observable characteristics. The case is entirely different for the other two migrant groups. Interestingly, their counterfactual risk is estimated at 7.5 and 7.2 per cent, respectively, well below the actual risk of natives. Were their household attributes rewarded the same way as natives', their situation would be far better than natives.

[Table 5 ABOUT HERE]

As before, we adopted two definitions of income. The augmented definition of income resulted to an increase in the actual risk for migrants and a decrease for Cypriots, while the imputed risk of migrants is further reduced. Thus, the above results are amplified if we take into account imputed rents.

4.3 The case of domestic workers

But there is an important caveat to consider. Our analysis treats live-in domestic servants as separate households. According to the definition of household provided by Canberra Group (2011): *A private household is either (a) a person living alone in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multi-person household or (b) a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food and possibly other essentials for living. The group may be composed of related persons only or of unrelated persons or of a combination of both. The group may also pool their income.* The definition is not clear in that aspect. Domestic workers definitely do not pool their income with family's but on the other hand they benefit from household expenses (food or other essentials for living) therefore, in that sense, they could be considered as household members. It is a borderline case which allows the analyst to provide her own interpretation.

In our context, a reasonable criticism is that by treating domestic workers as separate households, our estimates exaggerate the level of poverty among AA immigrants (domestic workers are

mostly young females from Asia). The wage earnings of these workers are very low[7], but they enjoy many non-cash benefits (besides free accommodation) such as other consumption in kind (food, heating, free use of other housing amenities, etc.). Thus, their disposable income may understate their economic well-being even if it is augmented by the imputed value of free accommodation. This assertion is strengthened further by anecdotal evidence of frequent remittances to their destination countries. It could be argued that despite their low monetary earnings, they still manage to save money due to the other noncash benefits they gain. Nevertheless, it is very difficult in practice to estimate the monetary value of these noncash items and include them in the analysis. In the following Tables, we test the sensitivity of the results by excluding domestic workers from the sample and repeating the calculations.

[Table 6 ABOUT HERE]

[Table 7 ABOUT HERE]

If we compare Tables 6 and 7 with Tables 2 and 3 we observe that ranks remain the same in most cases (the only change we observe is for FGT2 between Table 3 and 6). But the level of group-specific poverty rates changes, especially for Asians and Africans. Their poverty rate decreases considerably from 75.8% (Table 2) to 58.3% (Table 6). This happens because the overwhelming majority of domestic workers are poor if poverty is measured by their disposable income and they are treated as separate households. Finally, in Table 8 we test the sensitivity of the results of the econometric model, again, by excluding domestic workers from the sample. Indeed, as expected, the exclusion induces changes in the coefficient and the p-values of the model. Most

[7] Their minimum wage is set by the Law. In 2009, it was set at €422.

importantly, we note that the being an immigrant from AA countries is now associated with a smaller marginal effect (0.544 instead of 0.765 in the basic model).

[Table 8 ABOUT HERE]

To conclude; the methodological treatment of domestic workers does matter. Especially as regards the measurement of poverty risk of the group of Asians and Africans. However, our main findings still hold:

(a) Locals face lower risk of poverty than migrants and there is high variation in poverty rates among migrant groups.

(b) Immigrant status has a statistically significant effect on the probability of being poor even if we take into account socio-demographic differences between migrants and locals.

(c) The omission of imputed rents in the concept of income underestimates the effect of migrant status on poverty risk as well as the measured poverty risk of migrant groups.

5. Conclusions

Over the last decade, Cyprus has attracted large inflows of immigrants from European and non-European countries. In spite of the fact that several aspects of immigration in Cyprus were examined by scholars, the issue of migrant poverty had not been scrutinized. Our estimations showed that immigrants face higher poverty risk than the local population. Moreover, the poverty risk varies among immigrants. In particular, immigrants from Asia and Africa experience the highest probability of being poor, while migrants from Eastern Europe also face high risk of poverty but less than the former. On the contrary the situation of migrants from

affluent European countries is far better and comparable to those of natives. The results of our econometric model showed that the disadvantageous position of immigrants in the income distribution cannot be explained only by the various socioeconomic characteristics that are typically associated with poverty. In addition, we found evidence of existence of ethnic-related discrimination in the income generating process. Again the distinction between Western Europeans, Eastern Europeans and third country nationals matters in the analysis. The situation of immigrants is not only associated with "being an immigrant" but also depends on the country of origin.

The case of foreign domestic workers is interesting from a methodological standpoint. Among other, it demonstrates the limitations of traditional poverty measurement. Their objective poverty risk, as measured by standard tools of poverty analysis, is extremely high. But this may be misleading. If they are treated as members of the household they are employed by, then their true welfare is overestimated. On the other hand, if they are treated as separate single-person households, it is quite contestable if their economic welfare is accurately approximated by their income. Furthermore, their subjective poverty rate is unlikely to coincide with their objective poverty rate (as measured by their income). Most probably, domestic workers compare their living of standard not with natives' but with what they would have enjoyed in their countries of origins. This argument may be extended for other migrant groups but it is far more relevant for domestic workers. For they are usually in a stay of impermanency (typically they are granted temporary working permits which they ought to periodically update). As immigrants assimilate in the local society, it could be expected that subjective and objective poverty would

convergence. Not only migrants would be poor, but also feel poor. But, the case of domestic workers is more complex.

Implications related to the definition of income move beyond the context of Cyprus. Poverty analysis is highly influenced by the definition of income. In particular, the adoption of an extended definition of income that included the monetary value of the services derived from homeownership influenced the results. First, the poverty gap between natives and migrants increased. Secondly, the ranking of ethnic groups with respect to poverty changed. Erroneously, Europeans (from more-developed countries) appear to be in more advantageous position than Cypriots if we do not take into account imputed rents. And lastly the effect of migrant identity on the probability of being poor increased. What triggered these changes is the very fact that homeownership rates differ considerably between native and non-native population (as well among migrant groups). Cypriots are more probably to own a house than immigrants who are usually renters. Therefore, it is important to employ in the analysis proxies of economic well-being that rely not only on monetary income but also include certain non-monetary components such as imputed rents. Similarly, it could be argued that the monetary value of publicly provided goods (such as education and health) should be included in the analysis. If the members of a population group benefit relatively more from the provision of public goods, then ignoring this particular dimension, could result to an underestimation of their material well-being. For example, migrant families with children may benefit more, at least in relative terms, by the free provision of public education than native families simply because they bear more children on average. Migrants may also benefit more from the free provision of public health care services if we assume that; (a) they have higher health needs than the rest of population and (b) they do not

face inequities in the access for healthcare services (but if such inequities exist, the analysis should take them into account). Such considerations are beyond the scope of our study. But in principle it does make sense to include all in-kind public transfers as well as private non-cash incomes in the concept of resources. The pathway toward this direction is not free of complexities. The estimation of the value of several noncash components is marred with numerous theoretical and empirical problems, Koutsampelas and Tsakloglou, (2012).

We conclude with policy implications. Large poverty gaps between natives and immigrants may result to inter-communal tensions in the long-run. Thus, there is scope for intervention on behalf of the government. The results do not provide concrete evidence of discriminatory practices in the labour market. Yet, we showed that poverty gaps cannot be explained solely by differences in observable socio-demographic characteristics among population groups. This finding should be interpreted in the light of other qualitative studies in Cyprus who focus solely on issues of ethnic discrimination, (Trimikliniotis and Pantelides 2003; Trimikliniotis 2009; Spyrou 2009; Zembylas et al. 2010; Zembylas and Lesta 2011). These studies describe how migratory flows changed the social landscape and to what extent natives adopt exclusionary stances, embrace racist repertoires or take up xenophobic positions that result to discrimination or segregation. Such stances and practices most probably may have resulted to ethnic-related biases in the income-generating process which in turn results to large poverty gaps between ethnic groups. According to assimilation theory, immigrants after being in the host country for a long period will manage to overcome language and cultural barriers, improve their employability, familiarize with social networks and, as a result, step up the social ladder. Yet, as we discussed already, empirical findings in many developed countries do not embrace the optimism of assimilation theory. Even

worse, we predict that poverty gap between migrants and natives will amplify due to the economic crisis. For during such periods of economic hardship, immigrants are even more vulnerable to income deprivation while xenophobia and racism is likely to rise. As it is implied by our analysis, policy measures should be tailored to the specific needs of each migrant group instead of adopting a one-size-fits-for-all approach. Poverty risk differs among migrant groups but most importantly, the factors that underlie these differences are very likely to be different (for example, migrants from Europe may be more fluent in English language than third-country nationals or employers may discriminate with respect to colour or country of origin). An obvious way to reduce the poverty gap between natives and migrants is through redistributing income. Yet in the current framework such endeavor would prove fruitless. For it would not only create political tensions but the long-run distributional effects of such policy would be ambiguous. Cash transfers would cope with the symptoms but not with the root of the problem. Instead the government should place more emphasis on shaping locals' perceptions towards immigrants. Stricter enforcement of employment regulation within sectors largely occupied by migrants could help, too. We close the section by noting that in the context of the country of reference, immigration policy could prove very crucial in the long-run. Cypriot society is rapidly ageing. Fertility rates are low and life expectancy is on the increase. Demography is expected to put considerably strain on the pension system. But the rate of population ageing, and consequently replacement rates, may be modulated by migration. The convergence of poverty rates between ethnic groups is a necessary step if this is going to materialize.

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Table 1: Socio-demographic characteristics by ethnic group

	Cypriots	EU	EU-A	EU-B	AA
Male	50.5	42.3	47.8	32.0	43.2
Female	49.5	57.7	52.2	68.0	56.8
0-17	22.7	15.1	17.1	11.3	7.9
18-30	19.9	28.3	20.3	43.4	41.0
31-45	19.8	28.7	27.2	31.5	43.1
46-60	20.0	17.2	20.0	11.9	8.0
60+	17.6	10.7	15.3	1.9	0.0
65 + single persons/couples	12.7	8.0	10.6	2.9	0.0
< 65 single persons/couples	11.9	28.5	24.8	35.5	17.8
Couples with children	49.3	43.8	47.2	37.5	23.2
Mono-parental families	2.9	6.9	6.9	6.8	0.0
Other	23.1	12.9	10.5	17.4	59.1
Primary	24.0	4.0	6.0	0.5	14.8
Secondary	41.6	53.2	51.3	56.6	48.7
Tertiary	23.7	38.1	37.8	38.6	23.7
Student	10.8	4.6	4.8	4.3	12.8
Employed	54.6	62.6	59.9	67.4	81.4
Unemployed	3.1	7.3	6.1	9.2	10.4
Pensioner	17.3	11.1	16.2	2.0	0.0
Student	14.2	6.3	7.7	3.8	4.0
Housemaid	7.8	11.6	8.6	17.1	3.3
Other	2.9	1.1	1.4	0.4	0.9
Urban	69.9	78.8	75.4	85.1	85.5
Rural	30.1	21.2	24.6	14.9	14.2

Source: FES 2008/9, Author's own calculations.

Table 2: Poverty decomposition by ethnic groups (disposable income)

Group	S_k (%)	FGT(0)	Rank	FGT(1)	Rank	FGT(2)	Rank
CY	89.1	0.132	2	0.027	2	0.009	1
EU-A	5.2	0.116	1	0.025	1	0.010	3
EU-B	5.7	0.156	3	0.031	3	0.010	2
AA	2.9	0.758	4	0.350	4	0.206	4
All	100.0	0.150		0.037		0.015	

Source: FES 2008/9, Author's own calculations.

Table 3: Poverty decomposition by ethnic groups (disposable income plus imputed rents)

Group	S_k (%)	FGT(0)	Rank	FGT(1)	Rank	FGT(2)	Rank
CY	89.1	0.112	1	0.019	1	0.005	1
EU-A	5.2	0.184	2	0.030	2	0.010	2
EU-B	5.7	0.266	3	0.057	3	0.018	3
AA	2.9	0.823	4	0.318	4	0.137	4
All	100.0	0.141		0.029		0.010	

Source: FES 2008/9, Author's own calculations.

Table 4: Multivariate analysis of at-risk-of-poverty rate under alternative definitions of income

Variables	*At-risk-of-poverty(monetary income)*		*At-risk-of-poverty(monetary income plus imputed rents)*	
	Marginal effect	P>|z|	Marginal effect	P>|z|
Ethnic group of head (Reference group: Cypriots)				
EU-A	0.013	0.70	0.141**	0.00
EU-B	0.279**	0.00	0.414**	0.00
AA	0.765**	0.00	0.816**	0.00
Sex of the head (Reference group: Male)				
Female	0.133**	0.00	0.099**	0.00
Age of the head (Reference group: aged 18-30)				
31-45	-0.010	0.80	-0.042	0.24
45-60	0.021	0.64	-0.001	0.80
60-75	0.010	0.86	0.012	0.79
75+	0.109*	0.11	0.162**	0.01
Household type (Reference group: Single person)				
Couple w/out children	0.004	0.87	-0.000	0.99
Couples with children	0.028	0.38	0.063*	0.07
Multi-child family	0.042	0.63	0.063	0.46
Mono-parental	-0.038	0.38	0.060	0.28
Other (incl. domestic workers)	-0.031	0.20	-0.009	0.73
Education level of head (Reference group: Primary or less)				
Secondary	-0.098**	0.00	-0.101**	0.00
Tertiary	-0.181**	0.00	-0.153**	0.00
Labour market participation of head (Reference group: Employed)				
Unemployed	0.282**	0.00	0.187**	0.00
Pensioner	0.121**	0.00	0.055*	0.08
Other	0.269**	0.00	0.177**	0.00
Area of residence (Reference group: Urban areas)				
Rural	0.040**	0.01	0.037**	0.02
Dependency ratio	0.149**	0.00	0.083*	0.01
Observations:	2,865		2,865	
Wald $Chi^2(19)$:	718.6		594.7	
McFadden R^2:	0.347		0.313	

** indicates significance at 5% level, * indicates significance at 10% level.

Table 5: Actual and counterfactual differences between groups

	Cypriots	EU-A	EU-B	AA
Actual risk of poverty	0.1834	0.134	0.229	0.800
Counterfactual risk of poverty		0.134	0.075	0.072
Actual difference between groups		-0.049	0.046	0.617
Counterfactual difference between groups		-0.049	-0.108	-0.111

Source: FES 2008/9, Authors' own calculations

Table 6: Poverty decomposition by ethnic groups (disposable income), domestic workers are excluded from sample.

Group	S_k (%)	FGT(0)	Rank	FGT(1)	Rank	FGT(2)	Rank
CY	90.2	0.138	2	0.028	2	0.009	2
EU-A	5.3	0.116	1	0.026	1	0.010	3
EU-B	2.8	0.157	3	0.029	3	0.008	1
AA	1.7	0.583	4	0.136	4	0.042	4
All	100.0	0.145		0.030		0.010	

Source: FES 2008/9, Author's own calculations.

Table 7: Poverty decomposition by ethnic groups (disposable income plus imputed rents), domestic workers are excluded from the sample.

Group	S_k(%)	FGT(0)	Rank	FGT(1)	Rank	FGT(2)	Rank
CY	90.2	0.116	1	0.019	1	0.005	1
EU-A	5.3	0.184	2	0.030	2	0.010	2
EU-B	2.8	0.262	3	0.056	3	0.017	3
AA	1.7	0.696	4	0.223	4	0.084	4
All	100.0	0.133		0.024		0.007	

Source: FES 2008/9, Author's own calculations.

Table 8: Multivariate analysis of at-risk-of-poverty rate and depth of poverty under alternative definitions of income (domestic workers are excluded)

Variables	*At-risk-of-poverty (monetary income)*		*At-risk-of-poverty(monetary*	
	Marginal effect	P>|z|	Marginal effect	P>|z|
Ethnic group of head (compared to Cypriots)				
EU-A	0.004	0.89	0.121**	0.00
EU-B	0.243**	0.00	0.380**	0.00
AA	0.537**	0.00	0.674**	0.00
Sex of the head				
Female	0.063**	0.01	0.047**	0.04
Age of the head (compared to 18-30)				
31-45	-0.026	0.50	-0.048	0.13
45-60	0.001	0.98	-0.020	0.54
60-75	-0.009	0.85	0.013	0.76
75+	0.115*	0.07	0.163**	0.01
Household type (compared to single person)				
Couple w/out children	-0.031	0.16	-0.024	0.29
Couples with children	0.012	0.64	0.047*	0.10
Multi-child family	0.073	0.32	0.093	0.28
Mono-parental	-0.015	0.73	0.078	0.14
Other	-0.074*	0.00	-0.046**	0.04
Education level of head (compared to primary or less)				
Secondary	-0.093**	0.00	-0.094**	0.00
Tertiary	-0.163**	0.00	-0.135**	0.00
Labour market participation of head (compared to employed)				
Unemployed	0.286**	0.00	0.190**	0.00
Pensioner	0.143**	0.00	0.073**	0.01
Other	0.273**	0.00	0.177**	0.00
Rural	0.032**	0.03	-0.030**	0.03
Dependency ratio	0.080**	0.00	0.032	0.27
Observations:	2,701		2,701	
Wald $Chi^2(19)$:	544.7		427.4	
McFadden R^2:	0.292		0.235	

** indicates significance at 5% level, * indicates significance at 10% level.