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Measuring the Poverty Risk among Immigrants in Cyprus

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Measuring the Poverty Risk among Immigrants in Cyprus

Christos Koutsampelas

Executive Summary

In this paper we employ the Family Expenditure Survey 2008/9 conducted by the Statistical Service of Cyprus in order to measure the level and the determinants of poverty risk among immigrants in Cyprus. The results of the analysis show that immigrants face a higher risk and/or depth of poverty than the indigenous population. Moreover, the poverty risk varies among immigrant groups, being considerably higher for non-Europeans. Econometric analysis shows that the worst position of immigrants cannot be explained by the various socioeconomic characteristics known to be associated with higher risk and depth of poverty, suggesting that this is the outcome of labour market discrimination practices. Furthermore, we found that the inclusion of imputed rent in the notion of income increases the measured poverty gap even further, due to the lower incidence of homeownership among immigrants.

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Ο κίνδυνος Φτώχειας των Μεταναστών στην Κύπρο

Χρήστος Κουτσαμπέλας

ΠΕΡΙΛΗΨΗ

Η μελέτη βασίζεται στα στοιχεία της Έρευνας Οικογενειακών Προϋπολογισμών του 2009 που διεξήχθη από τη Στατιστική Υπηρεσία της Κύπρου. Σκοπός της μελέτης είναι να μετρήσει το επίπεδο και τους προσδιοριστικούς παράγοντες της φτώχειας των μεταναστών στην Κύπρο. Τα αποτελέσματα της ανάλυσης δείχνουν ότι οι μετανάστες αντιμετωπίζουν υψηλότερο κίνδυνο φτώχειας από ότι ο υπόλοιπος πληθυσμός. Επιπλέον ο κίνδυνος φτώχειας διαφέρει ανάμεσα στους μετανάστες. Οι μετανάστες από χώρες της Ασίας και της Αφρικής κινδυνεύουν συγκριτικά πολύ περισσότερο από τους Ευρωπαίους. Η οικονομετρική ανάλυση έδειξε ότι η χειρότερη θέση των μεταναστών δεν μπορεί να εξηγηθεί αποκλειστικά από κοινωνικοοικονομικούς παράγοντες που τυπικά συσχετίζονται με τον υψηλό κίνδυνο φτώχειας αλλά εν μέρει μπορεί να αποδοθεί και σε φαινόμενα διακρίσεων. Επίσης, σύμφωνα με τα ευρήματα της μελέτης σημαντικό ρόλο στον προσδιορισμό της φτώχειας των μεταναστών έχει ο ορισμός του εισοδήματος. Συγκεκριμένα η προσθήκη των τεκμαρτών ενοικίων στον ορισμό του εισοδήματος αύξησε το χάσμα φτώχειας μεταξύ των μεταναστών και του υπόλοιπου πληθυσμού ακόμα περισσότερο. Αυτό συμβαίνει διότι τα ποσοστά ιδιοκατοίκησης των Κυπρίων είναι αισθητά υψηλότερα σε σχέση με των μεταναστών.

1. INTRODUCTION

In the last decade the successful accession of Cyprus in the EU led to the further opening of the labour market. The gradual harmonisation of the legal framework with the EU Directives resulted to the abolishment of several restrictions to immigration. These institutional changes in addition with the very good performance of the economy gradually transformed Cyprus to a very attractive destination for immigrants. During the period of 2000-2008 the country experienced the strongest immigrant flows. According to Gregoriou et al (2009) the net migration rate peaked in 2004 at 21.3 per cent, thereafter slowed down, but it remained positive. The economic and social consequences of migration are an interesting and complex topic that systematically attracts the interest of scholars. In the context of the country of reference, two broad literature strands are discernible; the first emphasizes on the effect of immigration on the labour market (Pashardes et al, 2001; Christofides et al, 2007; Eliofitou, 2008; Christofides et al., 2009). These studies focus on the impact of immigration on wages and unemployment. At a certain extent, they echo the concern of the local society about the effect of immigration on the labour market. On the other hand, a number of social scientists (Trimikliniotis and Pantelides, 2003; Trimikliniotis, 2009, Zembylas, 2010; Zembylas and Lesta, 2011) focus on issues of ethnic discrimination while several NGO and official reports¹ attempt to raise social awareness about problems of social integration of migrants.

According to international evidence, migrants usually are more vulnerable to poverty and material deprivation than the rest of the population, (Kazemipur and Halli, 2001; Gallaway and Aaberge, 2005; Blume et al, 2005). Yet, there is a lack of a similar study in the context of Cyprus that uses quantitative methods in order to measure their living standard and, in particular, examine the risk of poverty among immigrants. Our study attempts to fill this void. We employ an econometric model that estimates the determinants of poverty risk emphasizing on the situation of immigrants. We found that immigrant status has a positive effect on the risk of poverty even if we control for other socioeconomic variables typically blamed for being related with poverty (age, labour market situation, gender, etc.). Furthermore, we argue that our analysis has a wider interest. In our analysis, we

¹ ECRI Report on Cyprus (2011), Link: <http://www.coe.int/t/dghl/monitoring/ecri/country-by-country/cyprus/CYP-CbC-IV-2011-020-ENG.pdf>, ENAR Shadow Report (2008), Racism in Cyprus, Link: http://www.kisa.org.cy/EN/resources/reports_/613.html

employed two different definitions of income for the purpose of poverty measurement. Our baseline model relied on a standard definition of disposable income as it is used in many recent studies of poverty among immigrants, (Gallaway and Aaaberger; 2005, Blume et al., 2007; Hansen and Wahlberg, 2009; Gallaway et al., 2009; Munoz de Bustillo and Anton; 2011) and as it is typically found in official statistics. When we added imputed rents (i.e. the monetary value of the services derived from homeownership) we observed that the effect of immigrant status on the probability of being poor increased. This is due to the fact that homeownership rates vary considerably between local and non-local population.

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 country and its sampling fraction is 1/100 (around 2,700 households or 8,000 individuals). 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 information on the citizenship of the household members. For the purposes of the study, income is defined as proxy of the unobservable welfare of the household. The definition of income used in the study includes all monetary income components (wages, income from self-employment, passive income, pensions and cash transfers), as well as non-cash income components (imputed rents², consumption of own production and fringe benefits³). 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. In order to compare meaningfully the incomes of different households with a different number of household members, household income is “corrected” using the appropriate equivalence scales. We adopt the “modified OECD equivalence scales” which 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 (person aged below 14) in the household. Furthermore, cost-sharing within the household is assumed. The household is

² We use the self-assessed monetary values of the homeowners. However, a more robust approach would have required the application of econometric techniques that estimate imputed rents as a function of housing characteristics as in Frick and Grabka (2003).

³ These noncash incomes were also self-assessed. Their relative importance is quite small in the disposable income of households.

treated as a single spending unit and all incomes are added up in order to form total household income. Consequently, equivalised household income serves as a proxy of individual economic welfare⁴.

The measurement of poverty presupposes the choice of a poverty measure and a poverty line. For reasons of comparability with official statistics and other studies, we adopt the standard approach of Eurostat and choose a relative poverty line equal to 60% of the median of equivalised income distribution. As a measure of poverty, we use the headcount ratio (or at-risk-of-poverty), i.e. the proportion of individuals below the poverty line. Moreover, we define as depth of poverty the proportional distance between the income of the poor and the poverty line. These indices are not necessarily among the highly sophisticated measures of poverty proposed in the literature⁵; nevertheless, they are attractive due to their, practicality, simplicity and straightforward interpretation.

3. DESCRIPTIVE STATISTICS

The 2008/9 FES contains detailed information on the citizenship of the participants. This information is summarised in Table 1, where is seen that 89.1 per cent of the population living in the government controlled area of the Republic of Cyprus are Cypriots⁶. Citizens of Greek nationality amount to 2.7 per cent of the total population, while Asians (mainly from Sri-Lanka and Philippines) and British each represent around 2.2 per cent of the population. There is also a considerable number of immigrants from Near- and Middle-East, Bulgaria and Romania; and smaller numbers from Poland, African countries and Slovakia.

⁴ A particularity of the Cypriot microdata is that domestic workers 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. Their employment income is augmented by the imputed value of the free provision of housing, which was arbitrarily set to €250.

⁵ For a comprehensive survey, see Zheng (1997).

⁶ It should be noted that this figure includes Turkish-Cypriots residing in the government controlled areas, not possible to be identified separately from the Greek-Cypriots.

Table 1: The distribution of population by ethnic group

Country	Frequency	%	Country	Frequency	%
Cyprus	703,540	89.1	Bulgaria	4,477	0.6
Greece	21,596	2.7	Romania	3,858	0.5
Asians	17,218	2.2	Poland	1,681	0.2
UK	17,043	2.7	North Africa ²	1,035	0.1
Other Europe ¹	12,527	1.7	Slovakia	960	0.1
Near & Middle East	4,637	0.6	Other	875	0.1

Notes: ¹ Includes Turkey. ² Algeria, Egypt, Libya, Morocco, Sudan and Tunisia.

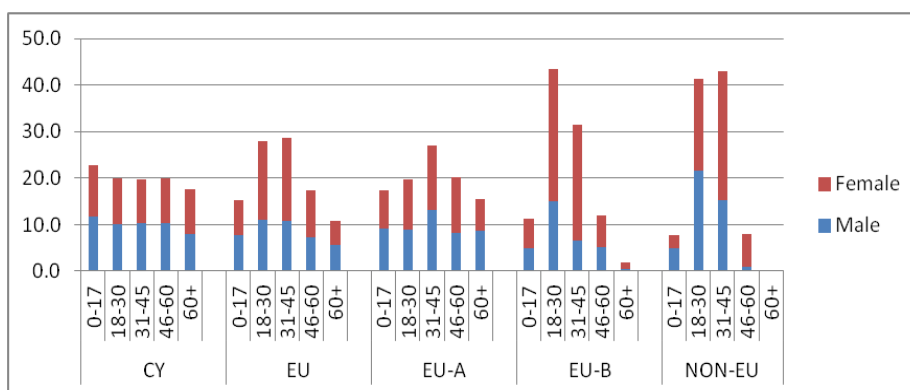
The ethnic groups are not homogeneous but characterized by distinct demographic differences that may be relevant to anti-poverty policymaking and, therefore, should be highlighted. For example, the international literature has shown that poverty risk varies between age groups. Children and elderly persons tend to be more vulnerable to poverty. Also, females tend to be at higher risk of poverty than males. As it will be demonstrated below, substantial differences in the age and gender distribution of immigrant and local populations exist in Cyprus, as do between different distributions of immigrant groups. For the purposes of the analysis in this paper we group immigrants according to three categories based on their country of origin, namely 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);
- Denoted by 'EU-B' are mainly immigrants from East-European countries (Bulgaria, Czech, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia) and Turkey.

As shown in Figure 1, 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 (84% of the population is aged between 18 and 40). The respective figures are: 28%, 28.6% and 17.3% for the EU immigrant group; 19.8%, 27.1% and 20.2% for the EU-A immigrant

group; and 43.4%, 31.5% and 11.9% for the EU-B group. About 17.6% of Cypriots are elderly, whereas the number of elderly immigrants is very small. In fact, none among the non-Europeans and only 1.9% among European immigrants are over 60. Furthermore, 22.7% of Cypriots are children, while the share of children in other ethnic groups is lower.

Figure 1: Age and sex by ethnic group



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

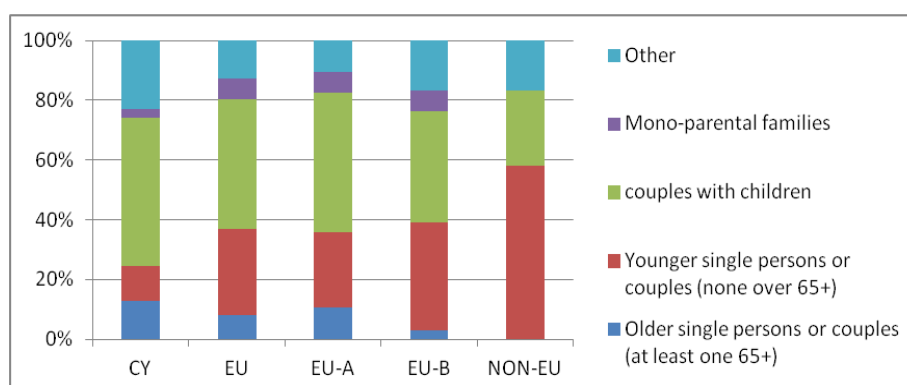
An interesting demographic feature of the immigrant population of Cyprus is that they consist disproportionately of females: almost 68% of immigrants from EU-B countries (Eastern Europe, Balkans and former USSR) and 56.8% from non-European countries are females. This demographic characteristic is due to the high demand for domestic workers by wealthy Cypriot households; and, to a lesser extent, to the demand for female personnel to fill vacancies in the tourism and restaurant sectors of the economy.

As several empirical studies have demonstrated, household structure is related to poverty. For example, poverty tends to be higher among single-parents than couples with children. The presence of a large number of children in a family can also increase the risk of poverty. Figure 2 reports the proportion of individuals by ethnic group 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 1.5%). The comparison with the immigrant groups reveals several differences and similarities.

- The demographic 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-A countries; and even more so when compared with non-EU immigrants.

The prevalence of young adult households (single persons or couples) among immigrants is not surprising, given that the bulk of them come to Cyprus for work and the law governing the issue of work permits is geared towards attracting low-educated and/or inexperienced workers. Furthermore, the large number of households with a young adult head among the non-EU immigrant group is due to the large proportion of housemaids that may be classified as single-person households, although they cohabit with Cypriot families.

Figure 2: Family composition by ethnic group

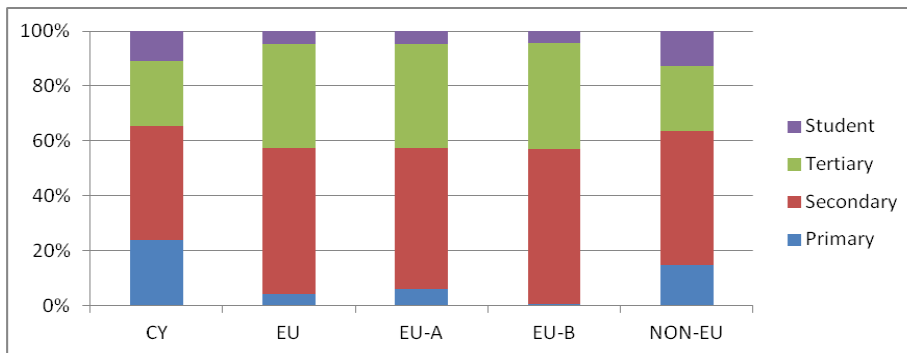


Source: FES 2008/9, Author's own calculations.

Figure 3 reports 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 old age 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: (i) many university graduates in these countries seek temporary employment in Cyprus until they find a job matching their qualifications in their own country; and (ii) the educational qualifications are not always comparable between countries, e.g. medicine and other degrees from East-European universities are not officially recognised. In other cases highly educated

immigrants may not be able to practice their profession due to language/ethnic barriers. Notably, the large proportion (12.7%) of students among immigrants from non-European countries is probably due to many of them enrolling in private educational institutions offering further education to obtain a residence permit allowing them to work (often illegally).

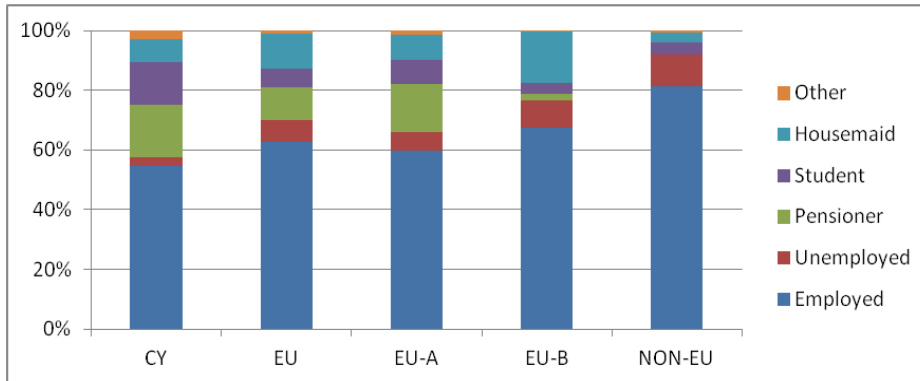
Figure 3: Education by ethnic group



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

Figure 4 considers all individuals aged above 14 and provides a picture of the participation of the population in the labour market by ethnic group. It is clear from the figures reported in this Figure that the main motivation for immigrating to Cyprus is employment. The employment rate 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, with employment rates 62.6, 59.9% and 67.4%, for EU, EU-A and EU-B, respectively. A similar pattern is observed for the unemployment rate: lowest 3.1% among Cypriots and increasing among immigrants from EU and non-EU countries, in that order. Again, this can be attributed to the impermanent nature of employment among immigrants, especially those working in the tourism sector. It is noteworthy that 8.5% and 17.1% of immigrants from EU-A and EU-B countries, respectively, are housemaids. The respective proportion for those from non-EU countries is only 3.2%.

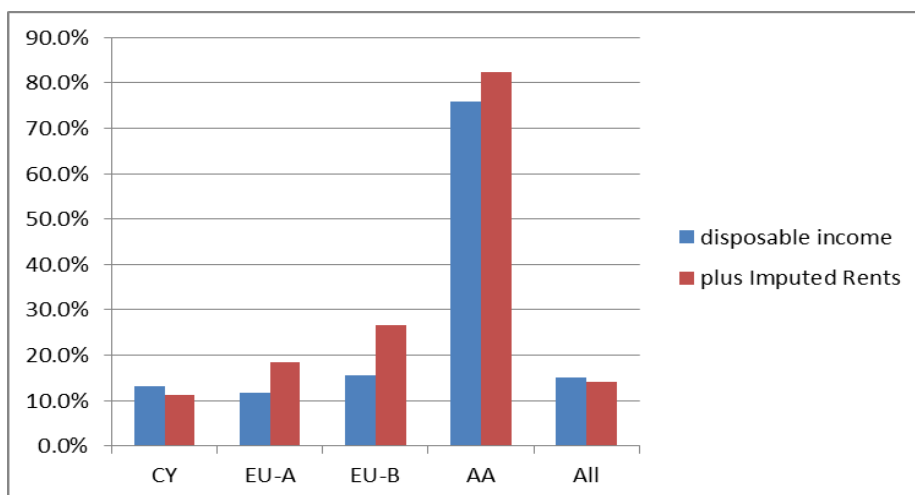
Figure 4: Labour market participation by ethnic group



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

Finally, Figure 5 measures the poverty risk of population when divided by ethnic group. In order to measure poverty we use two definitions of income: a) disposable income; b) disposable income plus imputed rents. Overall poverty is 15%, but poverty risk varies across ethnic groups. If we employ disposable income as a proxy of economic well-being, we observe the lowest poverty risk for EU-A migrants (11.6%) and largest for Asians and Africans at 75.8%. In between stand Cypriots (13.2%) and EU-B (15.6%). When we add imputed rents in the concept of resources, overall poverty risk is reduced thus confirming a common finding in many European countries, that homeownership exerts an equalizing effect on the income distribution, (Yates, 1994; Frick and Grabka, 2003; Frick et al, 2010). Yet what is 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 82.3%. These changes 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, local population is more probable to own a dwelling than the migrant population and therefore Cypriots' relative income position improves vis-à-vis other population groups when we take into account the income advantage of homeownership.

Figure 5: Poverty risk by ethnic group for alternative definitions of income



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

The extremely high risk of poverty among Asians and Africans is sensitive to the methodological treatment of domestic workers. Admittedly monetary income is a questionable proxy of their economic well-being since they enjoy many noncash benefits and their cost of living is not strictly comparable with other workers. Excluding them by the sample yields a lower poverty rate for Asians and Africans (58.3%) which is still well above the national average.

4. THE DETERMINANTS OF POVERTY RISK

High risk and/or depth 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 risk and/or depth of poverty by estimating:

(i) 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:

$$P(y_i = 1|x_i) = \Phi(x_i'\beta) \quad (1)$$

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 household, while Φ stands for the cumulative density function of the standard normal distribution.

Deleted: P_i

(ii) An OLS model relating the same factors to the depth of poverty. The econometric specification of the model is:

$$d_i = \beta x_i' + \varepsilon_i \quad (2)$$

Deleted: P_i

Where $d_i = |\ln y_i/z|$ if $y_i \leq z$ is defined as the depth of poverty for those experiencing it.

In both cases we have included immigrant status as an explanatory variable. The remaining variables included in the probit and OLS models that explain the incidence and intensity of poverty 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 ratio⁷. We have calculated two versions for each of the above models differentiating the definition of income. In the first version (Table 2) we define poverty using monetary income as a proxy of economic well-being. Then, we perform the analysis by adding imputed rents (i.e. the fictitious rent that homeowners would have paid if they weren't homeowners) in the concept of resources (Table 3). The results of the baseline model are presented in Table 2. The second column reports 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 of the table; and, the fourth column, the parameter estimate showing the corresponding change in the depth of poverty. The intermediate columns report the p-values.

⁷ 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.

Table 2: Multivariate analysis of at-risk-of-poverty rate and depth of poverty

Variables	At-risk-of-poverty		Depth of poverty	
	Marginal effect (df/dx)	P> z	Coefficient	P> z
Ethnic group of head (compared to Cypriots)				
EU-A	0.015	0.67	0.024	0.67
EU-B	0.278**	0.00	0.001	0.99
AA	0.754**	0.00	0.530**	0.00
Sex of the head				
Female	0.123**	0.00	0.193**	0.00
Age of the head (compared to 18-30)				
31-45	-0.015	0.72	0.012	0.88
45-60	0.016	0.72	-0.036	0.61
60-75	0.006	0.92	0.030	0.75
75+	0.100	0.13	0.025	0.80
Household type (compared to single person)				
Couple w/out children	-0.056	0.13	-0.106	0.18
Couples with children	0.006	0.87	-0.191**	0.00
Mono-parental	-0.051	0.25	-0.247**	0.01
Other	-0.069**	0.01	-0.140**	0.02
Education level of head (compared to primary or less)				
Secondary	-0.100**	0.00	-0.048	0.15
Tertiary	-0.180**	0.00	-0.060	0.42
Labour market participation of head (compared to employed)				
Unemployed	0.283**	0.00	-0.013	0.92
Pensioner	0.120**	0.00	-0.206**	0.00
Other	0.279**	0.00	-0.022	0.73
Rural	-0.041**	0.01	-0.039	0.12
Dependency ratio	0.101**	0.01	-0.150**	0.01
Constant	-	-	0.527**	0.00
	Obs: 2,865	R2=0.3486	Obs:735	R2=0.4627

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

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 incidence of poverty is the gender of the head, his or her educational and labour market status 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). Finally, the sign of the variable for the location of

the household is unexpected. The OLS findings also show that the depth of poverty is increasing steeply for immigrants from AA countries, but not for other immigrants. The immigrant variable is also statistically significant. Other variables significant for explaining the intensity of poverty are the gender of the household head, the household type, labour market participation as well as the dependency ratio of the household head. These empirical findings suggest that immigrants are vulnerable to poverty, even when controlling for factors contributing to low income such as low education or the dependency ratio. This is an indication that immigrants in Cyprus are possibly subject to labour market discrimination attributed to linguistic, cultural and other (often unobserved) labour market barriers⁸.

In the above analysis, we employ a monetary definition of income for identifying the poor. However, as empirical studies in the distributional effects of non-cash incomes have shown, (Smeeding et al, 1993) omitting certain non-cash incomes may contaminate the analysis with biases. These biases may be more important when the analysis is targeted to specific population groups that may benefit disproportionately from non-cash incomes than other groups. In our setting, we found as particularly relevant the effect of homeownership. In particular, if the homeownership rates between natives and immigrants (or among the migrant groups) vary considerably, then the exclusion of imputed rents (i.e. the fictitious cash flow that stems from owning a house) from the definition of income will result to underestimating the economic well-being of those groups that enjoy higher rates of homeownership. For that reason, we add imputed rents in the concept of income and re-estimate the model. The results are reported in table 3 and 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 0.015 (Table 2) to 0.136 (Table 3) and EU-B coefficient increases from 0.278 to 0.815. When we move to the effect of migrant status on depth of poverty, we find that it is increased for EU-B migrants but not for Asians and Africans. The latter is due to the fact that an imputed rent is attributed to domestic workers (because they benefit from free accommodation) and thus their relative income position slightly improves.

⁸ This, however, needs to be verified by further analysis correcting for potential differences in the quality of educational qualifications across countries.

Table 3: Multivariate analysis of at-risk-of-poverty rate and depth of poverty (extended definition of income)

Variables	At-risk-of-poverty		Depth of poverty	
	Marginal effect (df/dx)	P> z	Coefficient	P> z
Ethnic group of head (compared to Cypriots)				
EU-A	0.136	0.00	0.001	0.98
EU-B	0.413**	0.00	0.163**	0.02
AA	0.815**	0.00	0.374**	0.00
Sex of the head				
Female	0.092**	0.00	0.066**	0.00
Age of the head (compared to 18-30)				
31-45	-0.046	0.19	0.005	0.91
45-60	-0.007	0.86	-0.017	0.67
60-75	0.017	0.71	0.068	0.18
75+	0.169**	0.01	0.098*	0.09
Household type (compared to single person)				
Couple w/out children	0.010	0.81	-0.065	0.22
Couples with children	0.072**	0.04	-0.034	0.40
Mono-parental	0.075	0.22	-0.068	0.35
Other	-0.034	0.26	-0.031	0.30
Education level of head (compared to primary or less)				
Secondary	-0.101**	0.00	-0.031	0.20
Tertiary	-0.153**	0.00	-0.039	0.40
Labour market participation of head (compared to employed)				
Unemployed	0.191**	0.00	0.033	0.53
Pensioner	0.060*	0.05	-0.025	0.64
Other	0.170**	0.00	0.147**	0.03
Rural	-0.037**	0.02	-0.020	0.30
Dependency ratio	0.076*	0.06	-0.100**	0.02
Constant	-	-	0.246**	0.00
	Obs: 2,865	R2=0.315	Obs:654	R2=0.387

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

4.1 SENSITIVITY ANALYSIS

As we discussed earlier, our analysis treats domestic workers as separate households. Yet, it could be argued that this methodological treatment may exaggerate the true risk and depth of poverty among immigrants from Asian countries (mostly young females). While the cash income of these immigrant groups is low, 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 the frequent remittances of these workers to their destination countries. This means that despite their monetary earnings are very low, they still manage to save money due to the other noncash benefits they derive. Nevertheless, it is very difficult in practice to estimate the monetary value of these noncash items and include them in the analysis. For this reason, in Tables 4 and 5 we test the sensitivity of our results by excluding domestic workers from the sample and repeating the calculations. Indeed, the immigrant status from Asian countries is now associated with a smaller increase in the probability of being poor. However, our main findings still hold:

(a) Immigrant status has a statistically significant effect on the probability of being poor and on the depth of poverty in the case of the second version of the model (augmented definition of income).

(b) The omission of imputed rents in the concept of income underestimates the effect of migrant status on poverty risk.

Table 4: Multivariate analysis of at-risk-of-poverty rate and depth of poverty (domestic workers are excluded)

<i>Variables</i>	<i>At-risk-of-poverty</i>		<i>Depth of poverty</i>	
	Marginal effect (df/dx)	P> z	Coefficient	P> z
Ethnic group of head (compared to Cypriots)				
EU-A	0.008	0.80	-0.011	0.85
EU-B	0.241**	0.00	-0.046	0.52
AA	0.545**	0.00	0.035	0.65
Sex of the head				
Female	0.075**	0.00	0.098**	0.00
Age of the head (compared to 18-30)				
31-45	-0.025	0.54	-0.064	0.40
45-60	0.002	0.97	-0.077	0.26
60-75	-0.001	0.98	0.036	0.69
75+	0.091	0.14	0.055	0.55
Household type (compared to single person)				
Couple w/out children	-0.019	0.61	0.102*	0.09
Couples with children	0.020	0.55	0.044	0.38
Mono-parental	-0.017	0.70	-0.071	0.34
Other	-0.059*	0.04	-0.048	0.24
Education level of head (compared to primary or less)				
Secondary	-0.092**	0.00	-0.050	0.13
Tertiary	-0.161**	0.00	0.000	0.99
Labour market participation of head (compared to employed)				
Unemployed	0.282**	0.00	0.138	0.18

Pensioner	0.129**	0.00	-0.015	0.79
Other	0.275**	0.00	0.036	0.53
Rural	-0.033**	0.03	-0.011	0.69
Dependency ratio	0.093**	0.02	-0.174**	0.00
Constant	-	-	0.354**	0.00
	Obs: 2,701	R2=0.288	Obs:571	R2=0.254

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

Table 5: Multivariate analysis of at-risk-of-poverty rate and depth of poverty (domestic workers are excluded/extended definition of income)

Variables	At-risk-of-poverty		Depth of poverty	
	Marginal effect (df/dx)	P> z	Coefficient	P> z
Ethnic group of head (compared to Cypriots)				
EU-A	0.117**	0.00	-0.020	0.65
EU-B	0.379**	0.00	0.167**	0.03
AA	0.678**	0.00	0.267**	0.00
Sex of the head				
Female	0.054**	0.00	0.038	0.12
Age of the head (compared to 18-30)				
31-45	-0.048	0.12	-0.020	0.77
45-60	-0.015	0.66	-0.032	0.60
60-75	0.012	0.77	0.072	0.28
75+	0.158**	0.00	0.115	0.11
Household type (compared to single person)				
Couple w/out children	0.045	0.26	0.044	0.49
Couples with children	0.086**	0.01	0.103	0.12
Mono-parental	0.118*	0.06	0.042	0.64
Other	-0.023	0.44	0.028	0.52
Education level of head (compared to primary or less)				
Secondary	-0.093**	0.00	-0.044	0.13
Tertiary	-0.135**	0.00	-0.026	0.69
Labour market participation of head (compared to employed)				
Unemployed	0.191**	0.00	0.080	0.13
Pensioner	0.072**	0.01	0.069	0.28
Other	0.167**	0.00	0.163**	0.01
Rural	-0.029**	0.03	-0.012	0.59
Dependency ratio	0.072*	0.06	-0.111**	0.03
Constant	-	-	0.150*	0.06
	Obs: 2,865	R2=0.315	Obs:490	R2=0.1564

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

5. CONCLUSION

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 have been examined by scholars, the poverty risk of immigrants 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 certain immigrant groups from East Europe and former USSR countries also face considerably risk of poverty. 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 processes.

The case of domestic workers is interesting from a methodological standpoint. It is contestable whether their true economic welfare is accurately approximated by their income. If they are treated as members of the household they are employed by, then their true welfare is overestimated. On the other hand, it is not straightforward whether they should be treated as separate households. Nevertheless the basic conclusions of the study were not found to be sensitive in the treatment of this group.

The analysis has implications that move beyond the Cypriot context. Inter alia, we demonstrated the importance of the definition of income for measuring the determinants of poverty risk among immigrants. In particular, we adopted an extended definition of income that included the monetary value of the services derived from homeownership, what is known as imputed rents. The extended definition of income increased the robustness of our findings. Immigrants' poverty gap increases as well as the estimated ethnic discrimination effects. This is because homeownership rates differ considerably between native and non-native population. Cypriot residents are more probably to own a house than immigrants who are usually renters.

Following the EU accession, the Cypriot society has undergone major economic and social transformations as a consequence of which the institutional framework concerning migration has been substantially upgraded. The formal institutional framework in Cyprus, at least in principle, protects all residents against racial discrimination. Nevertheless, racial discrimination in the labour market still exists as it is implied by our empirical analysis and as it is also documented by media

reports. The phenomena of xenophobia and racism could spread further. It has been observed that in similar situations (harsh economic conditions), immigrants often serve as scapegoats for the economic and social consequences of problems such as rising unemployment or criminality. These phenomena call for a systematic approach on behalf of government. Examples of activities that could be part of this approach are: programmes informing the public about immigrants; extra curricula activities in schools that raise human rights awareness; public campaigns against xenophobia and racism; more active promotion of the civic participation of immigrants; and upgrading of the role of NGOs that offer psychological and legal support to victims of discrimination. The social inclusion of immigrants is a complex issue. First, it should be made clear that the capacity of the Cypriot welfare state is limited due to the recent fiscal adjustment efforts. This means that there should be more efficient use of the economic sources. Second, the government should deal also with the problem of illegal migration. Illegal migrants move at the margins of the welfare state and, by default, their social assimilation is very difficult. And lastly, the government strategy should be oriented towards exploiting the long-term benefits of migration. Cyprus is an ageing society characterized by low fertility rates (well below the natural replacement rate) and high life expectancy. These demographic factors are expected to put a strain on the pension system. The rate of population ageing may be modulated by migration. The participation of migrants in the labour market and their social inclusion are prerequisites toward this end.

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