Working Poverty and Quality of Employment: The Great Refugee Crisis in Middle Eastern Host Countries

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This paper focuses on the distribution of the working poor by income level across countries and examines how indicators such as the level of unemployment, the labour force, and the number of self-employed, impact that distribution. In addition, it also examines the impact of official development assistance and the massive influx of refugees as a result of the Syrian conflict. Four income levels of the working poor are analysed using the panel data technique. The sample includes the 5 main host countries (Egypt, Iraq, Jordan, Lebanon, and Turkey) for the period from 1991 to 2021. Our results confirm that unemployment is not a significant predictor for developing countries, so we recommend indicators of job quality. Moreover, our results confirm a low impact of refugees on the labour market in host countries. Furthermore, the effect of self-employment on the income level of the working poor is positive but limited.

Introduction

As is the case with all evolutionary theory, neo-Schumpeterian theory assumes the existence of heterogeneous individuals operating in an environment characterised by complete uncertainty, who are largely conditioned by the international context (Metcalfe, 2004; Horst & Pyka, 2007). These ontological assumptions are very appropriate for analysing the economic effects of different situations. Studying the impact of long-term international conflicts, such as the Syrian conflict, is useful for understanding changes in economic development, poverty, and labour market developments, especially at a time of major international refugee crises.

Traditionally, poverty in developed countries is explained by a lack of employment opportunities and insufficient social protection, such as for the unemployed and those not in the labour force (Gammarano, 2019; Eurofound, 2022). Accordingly, successful economic and labour policies are those that typically focus on increasing the total amount of employment or reducing the level of unemployment in an economy. However, this is not in itself a remedy for in-work poverty, especially for developing countries, where job insecurity tends to be particularly high (Banerjee & Duflo, 2008). Focusing on unemployment alone may increase in-work poverty if attention is not paid to the incomes of these workers and the households in which they live (Eurofound, 2022).

Employment should be a factor in lifting people out of poverty, but the most recent international labour trends reveal a growing deterioration in the quality of employment in terms of adequate income and decent living conditions (Burchell & Coutts, 2019), i.e. an increase in the number of employed people living below the poverty line in developing countries (but also in developed countries), also known as:

working poor, working poverty risk or in-work poverty. (ILOSTAT, 2022).

The link between employment and poverty risk is very relevant (Majid, 2001). Although efforts in the fight against poverty have reduced extreme poverty in recent decades, it is important to note that progress has slowed down in recent years, which serves as a reminder of the need for renewed efforts in this area. Moreover, for a significant proportion of the world's working people, having a job is no longer enough to keep them and their families out of poverty, which points to issues of job quality and insufficient incomes (ILOSTAT, 2022). The working poor are an increasingly important group in global poverty statistics and, for instance, are estimated to constitute 10 per cent of Europe's workers (Eurofound, 2022).

In addition, the latest ILOSTAT estimates of employment by income level reveal large disparities across regions in the shares of workers living in extreme poverty and those who are moderately poor. For instance, while overall the vast majority of employed persons were not poor in Europe and Central Asia (98 per cent) and the Americas (96 per cent) in 2018, 84 per cent of workers in the Middle East were living with their families above the poverty line (ILOSTAT, 2022). This also means that about 16 per cent of workers in the Middle East were extremely or moderately poor, calling for further work on labour market indicators in these regions.

Moreover, the risk of poverty among individuals seems to have increased since the Great Recession in developed countries (Eurofound, 2022). This is not a local problem anymore due to the increasing frequency of major international violent conflicts that force a large number of families and even entire communities to be displaced around the world, as in the recent case of Ukraine, but also due to long-lasting conflicts such as the major Syrian refugee crisis (World Bank, 2017).

Wars generate long-lasting and large-scale international forced displacement that gives rise to more fragile host countries because it has a disproportionately greater impact on their economic conditions and on social cohesion. This is a particularly significant issue in the case of developing countries (Borjas & Monras, 2017; Bache, 2019; Aksoy & Ginn, 2022).

Consequently, it is also important to understand the substantial impact of forced displacement on host developing countries, as well as to review quantitative and qualitative labour market indicators in the face of this context.

Thus, this research focuses on the five largest Syrian refugee-receiving countries in the Middle East, namely Egypt, Iraq, Lebanon, Jordan, and Turkey, which had to cope with one of the most severe international humanitarian crises to date. The analysis of records since 1991 on the inflow of refugees and the evolution of various labour market and economic indicators is a valuable resource that allows us to better evaluate and understand the role of labour indicators and trends, as well as the effects of mass forced displacement due to international violent conflicts.

Therefore, this research aims to understand the role of labour quantity and quality indicators in the main host developing countries in the Middle East and to analyse the impact of massive refugee arrivals on working poverty risk.

This paper contributes to the literature in various aspects. Firstly, our research provides evidence that allows us to compare unemployment and precariousness in employment as predictors of the level of poverty risk in developing countries.

It also examines the extent to which receiving a massive number of refugees may condition the quality of employment and the risk of in-work poverty in host developing countries. Evidence from many years of hosting refugees in Middle Eastern countries can be of tremendous value in the face of new international conflicts, such as the forced displacement of refugees to Europe. The importance of such evidence is to address one of the most central international issues, with significant implications not only for the refugees themselves but also for the host countries and the international community. This is especially true given that international violent conflicts are becoming more frequent and more likely to occur in any region, while their impact is becoming more far-reaching. Recent major conflicts provide a valuable learning experience that can be applied when similar situations arise in other regions of the world.

Secondly, despite the existence of studies indicating positive or negative effects generated by refugees in host countries, the impact on the labour market when their numbers reach massive proportions is not sufficiently explained, nor are the large disparities regarding developing countries. Hence, to fill this gap, our study focuses on labour indicators from the main host developing countries, and it deals with the impact of one of the major international refugee crises to date. In the context of poor labour market information in developing countries, the paper provides insight into employment developments, improving the dataset on trends in the number of employment indicators by incorporating the most recent indicators of job quality in the developing world by ILOSTAT (2022).

Thirdly, assessing the impact of refugees in host countries is a particularly complex issue. Therefore, we develop panel data models to analyse the role of the unemployment rate, the labour force, the number of own-account workers, the refugee ratio, and official development assistance (ODA). We use a large sample (1990 to 2021) from ILOSTAT and the World Bank and also take into account the working poor according to different income levels (World Bank, 2017).

The research is structured as follows: First, relevant contributions to the literature on labour indicators and refugees are reviewed. The literature review confirms how previous studies have dealt with the complex topic of the working poor in developing countries and also the impact of refugees in host countries. Second, four econometric models are developed to analyse the influence of refugees and other key labour market indicators in host countries for a sample that includes the main host Middle Eastern countries and covers a considerable number of years from the most recent period. Finally, we discuss the results obtained and present the main conclusions of this research.

Literature Review

One of the most notable differences between developed and developing economies is that in the former, middle-class status is the most common status, with the majority of the population enjoying a reasonable standard of living, while about half of the population in developing countries remains extremely poor (Kapsos & Bourmpoula, 2013; World Bank Open Data, 2022).

Higher productivity levels facilitate higher average labour incomes in developed countries (Banerjee & Duflo, 2008; Mihi-Ramirez *et al.,* 2022). Thus, there is a direct relationship between labour productivity and the middle-class standard of living enjoyed by most of the population in the developed world (Henley, 2022; Kapsos & Bourmpoula, 2013). Moreover, growth is strongly linked to faster rates of poverty reduction (African Development Bank, 2019).

In this context, achieving middle-class living standards is one of the main aspirations of most households and individuals in the developing world. However, in these countries, low productivity and incomes lead to a level of consumption far below the average seen in the developed world, and achieving middle-class status remains a difficult aspiration (Ciccone & Hall, 1996). Rather, the immediate concern for the populations of developing countries is to move out of poverty and its associated deprivations and to achieve a status entailing a higher and more secure standard of living, enabling them to access better healthcare and education, and to provide for the well-being of their families (Kapsos & Bourmpoula, 2013).

This stresses significant differences between developing countries and the developed world. Despite the consensus that policies in developed countries focusing on reducing unemployment are important for poverty reduction, it is still not clear how to reduce poverty in developing countries.

In this sense, in most developed societies, poverty and unemployment seem to be mostly the same thing, and social protection systems are therefore designed to support a minimum income floor that encompasses official unemployed status (Kapsos & Bourmpoula, 2013). However, informal employment is the most widespread in developing countries (Saget, 2001; Alshwawra, 2021; Yerrabati, 2023).

In developing countries, social protection systems are often inefficient and, in practice, the working poor have to rely on themselves and their families. Furthermore, the use of unemployment statistics in the design of anti-poverty policies usually ignores people in precarious employment (Ghose, 1999; Majid, 2001; Henley, 2022).

For international comparability, extreme poverty in absolute terms is defined using the international poverty line of $1.90 per day in purchasing power parity (PPP) (United Nations, 2012). This determines poverty status in relation to a fixed income or consumption threshold (the amount considered necessary to afford a minimum standard of living). Whereas the relative poverty line is defined as the income of the rest of the reference population, e.g. a relative poverty line is 60 per cent of the median income (Chun, 2010; Gammarano, 2019).

It is clear that if we apply the international standard of absolute poverty in the most developed societies there would be no poor people, but if we set a higher poverty line that encompasses what a developed country would consider poverty, then a large number of the employed population in developing countries would be considered poor (Majid, 2001; Yerrabati, 2023). Thus, as pointed out by Ghose (1999) and Majid (2001), we can find some research pointing out that unemployment rates tend to be higher than poverty levels in middle-income countries and that poverty rates tend to be higher than unemployment in low-income developing countries.

To better approximate conditions in developing countries, it should be noted that the absence of a social protection mechanism means that all those who survive below a theoretical social minimum, i.e., below a poverty line, must by definition work to survive and support their families. Therefore, in developing countries, along with indicators on the quantity of employment, such as labour force participation and the unemployment rate, it is crucial to enhance this analysis by incorporating measures of the quality of employment, i.e. the distribution of employment by income level, especially given the scarcity of information on the quality of jobs (Majid, 2001; Banerjee & Duflo, 2008; Kapsos & Bourmpoula, 2013; Gammarano, 2019; Burchell & Coutts, 2019).

Considering the above, we examine the following research question:

How does the level of unemployment impact the conditions of the working poor in developing countries?

In developed countries, formal/regulated productive activities prevail, where workers pay taxes and have rights such as holidays, compensation for working extra time, severance pay, etc.

According to neoclassical models, in this context, the lower the wages, the lower the unemployment rate (or alternatively: employment would be an inverse function of wages, Jarmolowicz & Knapinska, 2011). Hence, the implementation of social protection subsidies and a minimum wage might lead to a higher level of unemployment and a transfer of unskilled workers into the informal labour market, with more precarious wages and working conditions (Saget, 2001).

However, theories pointing to labour market segmentation, i.e., the idea of limited access to certain labour market sectors, show that the mobility of the labour force is actually low and restricted (Jarmolowicz & Knapińska, 2011). Among these theories are the dual labour market theory and the internal-external labour market theory. Similarly, both theories establish two main sectors. The primary sector, which includes stable well-paid jobs, and the secondary sector, which includes lower-prestige jobs. Access to the primary sector is limited, and the secondary sector includes immigrants, young workers and other collectives who have been pushed into it (Doeringer & Piore, 2020).

Likewise, according to the human capital theory, the division of the labour market is made on the basis of universal and specific skills of the labour force (Jarmolowicz & Knapinska, 2011). Employees with general skills more often get jobs that do not require specialisation and that are related to the execution of simple tasks. However, if workers had specific skills, they could get more prestigious, stable and better-paid jobs.

In addition, according to the monopsony theory, firms with certain market power can influence the minimum wage level. These firms control the retail price of products and can set wage levels according to these market prices, which are much lower than in other sectors. Thus, low labour mobility allows these firms to ensure a high number of workers with low wages, as is often the case in agriculture in developing countries (Saget, 2001).

Moreover, the effect would be greater in developing countries since informal economic activities are rife in most sectors of their economies. Indeed, this causes lower official levels of the labour force, unemployment and wages (Maarek & Orgiazzi, 2020).

Furthermore, the theory of wage efficiency (Agenor & Aizenman, 1999) posits that, in the short run, a low wage level would attract more low-skilled workers from informal sectors into the formal labour market. More productive and sophisticated activities require more skilled workers who should be compensated with higher wages, so the economy tends to be more labour-intensive in these countries. (De Fraja, 1999). This could be another explanation for the large share of low-productivity, low-wage activities in developing countries.

Therefore, in order to study this issue in detail, we propose research question 2:

How does the labour force affect the income level of the working poor in developing countries?

Although get-rich-quick entrepreneurs are often in the newspapers, they are unusual (Burchell & Coutts, 2019). The fact is that self-employment is often a widespread way of coping with precarity and various barriers to entry into the labour market, hence much of the literature focuses on this area (Raheim, 1997; Danson *et al.,* 2021).

Regarding this topic, developing economies typically have large numbers of own-account workers producing goods and services where labour regulations often do not apply and where formal employment contracts are scarce (Agenor & Aizenman, 1999). In this context, job insecurity is widespread, wages are volatile, and workers receive very few benefits from their employers (Yerrabati, 2023). These conditions lead to self-employment and the segmentation of the labour market. Own-account workers are mainly in the "low-wage" sector and do not have full access to jobs in the "high-wage" sector (what segmentation theories call the "second sector"). This could partly explain the existence of labour market barriers and why poverty is prevalent (Lee & Parasnis, 2014; Maarek & Orgiazzi, 2020).

Moreover, this labour market segmentation would imply persistent income differentials for similar workers (Agenor & Aizenman, 1999; Saget, 2001; Doeringer & Piore, 2020). One of the models that best explain labour market segmentation in developing countries is by Harris and Todaro (1970), who analysed long-lasting rural-urban migration (despite high unemployment in urban areas) because of persistent differential income (Gupta, 1984; Harris & Todaro, 1970).

Self-employment, thus, offers an alternative to the entry barriers in more conventional wage employment in developing countries (Raheim, 1997; Rupasingha & Goetz, 2013; Satchi & Temple, 2009; Yerrabati, 2023).

Likewise, being an own-account worker somehow allows one to cope with the lack of social insurance protection and also has a low entry cost (Raheim, 1997; Satchi & Temple, 2009; Burchell & Coutts, 2019).

Besides, for those in the "second sector", there are all kinds of barriers that make wage employment inaccessible, such as for refugees, so self-employment can provide them economic independence and flexibility, as well as an option to earn a living income (often the only choice), which the labour market may not provide (Raheim, 1997).

Therefore, to explore this issue we propose research question 3:

How do own-account workers affect the income level of the working poor in developing countries?

On the other hand, the migration literature initially pointed out that immigration has only negligible effects on labour market performance in host countries. The explanation could be that in the short term, barriers such as lower skills, poor language skills, and a lack of networks mean that they cannot immediately match the needs of the host labour market. Therefore, the impact on the domestic labour markets would be low, and could only appear in the long term, when their adaptation has already taken place (Pischke & Velling, 1998).

Subsequently, the idea has spread that immigrants may be better substitutes for natives than early studies suggest, and therefore the effects on the labour market are greater (Ceritoglu *et al.,* 2017). This idea is based on the voluntary nature of migration, whereby greater preparation and the existence of networks in the selected host country can help to better overcome entry barriers (Mihi-Ramirez et a. 2020).

Faced with this continuous migratory flow that fluctuates according to economic cycles — as a consequence of growing international conflicts — there is a forced movement of refugees to host countries, which, compared to conventional migration flows, becomes sudden, abrupt and massive and could have a significant impact on the receiving country (Aksu *et al.,* 2022; Khawaldah & Alzboun, 2022; Ryu & Paudel, 2022).

Approaches to the study of forced migration are based on this distinction between involuntary migrants (refugees) who have needs that are different from those of the resident population, expatriates and economic migrants, who affect the economy, the organisation of the labour market or the provision of basic services, among other aspects of public management in the host country. (Aksu et al., 2022).

In this regard, migration for labour reasons presents important differences with respect to forced migration and consequently implies a more complex process of integration into the labour market in host countries, although it tends to improve over time (Bakker *et al.,* 2017; Alshawwra, 2021; Araci *et al.,* 2022). This is what the literature calls the "refugee gap" (Bakker *et al.,* 2017).

Along with the impact of the Great Recession, international conflicts have led to an exponential increase in the number of refugees, far beyond the capacity of host countries, especially in the case of developing countries (Baloch et al., 2017). The effect of such a tremendous influx of people on the host community, especially on their labour market, is a matter of extraordinary importance and debate (Araci *et al.,* 2022). Thus, Del Carpio & Wagner (2015) studied a sample of Syrian refugees in Turkey for the period from 2011 to 2014. They claim that the inflow of refugees caused a labour supply shock in the informal sector and a demand shock in the formal sector; an inrush of refugees could be predicted to displace natives from the informal sector and lower wages.

Akgunduz et al. (2018) pointed out that there is a negative relationship between refugee inflow and economic growth. According to these authors, the increasing number of Syrian refugees to Turkey led to an increase in the demand for goods and services, therefore increasing inflation and subsequently affecting economic growth.

Organiściak-Krzyszkowska (2017) explained the connection between refugees and unemployment in the following way: unemployment evolves as an influential factor aggravating the overall economic situation and, thus, lowering the means of living of the concerned population and weakening economic growth.

Since 2016, the number of Venezuelans living in neighbouring countries has rapidly increased as more people have left this country due to economic and social turmoil. Muñoz-Mora et al. (2022) found that such immigration from Venezuela increased self-employment rates.

However, Taylor et. al. (2016), in their study of refugees in Rwanda, concluded that the growth in refugee numbers increased host-country incomes (via remittances and international aid), but also increased spending.

Hartnett (2018) pointed out that higher ratios of Syrian refugees did not have negative effects on national household wealth, suggesting that Syrian labour does not directly compete with the host-country labour force.

Workers with refugee status have limited employment opportunities, often as low-skilled labour, and are often

dependent on limited work permits issued by the host government (David *et al.,* 2020; Alshwawra, 2021). As a result, the informal economy grows, where there are more job opportunities for refugees (Khawaldah & Alzboun, 2022). This sharp growth of the informal economy leads to a decrease in government tax revenues, which leads to a reduction in government spending on public goods and services (Ryu & Paudel, 2022). Governments, in turn, often raise indirect tax rates to compensate for increased spending, although this results in an increased burden for the entire population (Aksu *et al.,* 2022).

In addition, as a result of the massive influx of refugees, the increase in the labour force may push down wages, especially in low-skilled jobs in the informal sector. Consequently, this will have a negative impact on the poorest workers, who will be exposed to worsening working conditions (Alshwawra, 2021).

However, the literature has shown mixed or no evidence on the impact of forced migration on national labour markets (Ceritoglu *et al.,* 2017; Clemens & Hunt, 2019; David *et al.,* 2020; Khawaldah & Alzboun, 2022).

Therefore, we have formulated research question 4:

How do growing numbers of refugees affect the income level of the working poor in developing countries?

Methodology

As indicated above, although in medium and highly developed countries the unemployment rate is often considered an explanatory factor for extreme or moderate poverty, this is not the case in areas of Africa or the Middle East where poverty risk is commonly linked to jobs with precarious working conditions and, generally, to low pay (African Development Bank, 2019). Moreover, in the last two decades, job insecurity has also been increasing in developed countries, in what is known as the gig economy[1].

Hence the need to look more closely at the quality of employment. Thus, we analyse the distribution of employment across economic classes using four employment groups developed by ILOSTAT according to the level of per capita income in developing countries. The great advantage of this classification is that it allows a large number of countries to be compared. The four employment groups, as a share in total employment (ILOSTAT, 2022), are:

Class 1 Extreme working poor: below USD1.90 per day
Class 2 Moderate working poor: between USD1.90 and USD3.20 per day
Class 3 Near-poor workers: between USD3.20 and USD5.50 per day
Class 4 Emerging middle-class workers: between USD5.50 and USD13 per day

According to the Millennium Development Goals (MDGs) (UN, 2012), the in-work poverty rate in developing countries captures the percentage of employed people living in poverty despite being employed. It is equivalent to the median poverty line among a sample of national poverty lines in developing and transition economies. This measure is used to show households whose members are poor, but who still meet basic human needs, such as an acceptable daily caloric intake.

To further complement the study of working poverty risk, Banerjee & Duflo (2010) defined the working middle class in developing countries as those living on between USD2 and USD10 per day. The last update would be USD1.90 to USD13 according to ILOSTAT (2022).

To compare the characteristics between those at the lower and upper ends of this range, Banerjee & Duflo (2010) posited two groups: the moderate working poor and near-poor workers. They found considerable differences between these two groups. The proportion of casual wage workers in the groups "1) very poor" or "2) moderate working poor" were remarkably high, addressing widespread informality and vulnerability as a higher risk of working poverty. In addition, many poor workers were own-account workers engaged in low-productivity activities.

Likewise, focusing on developing countries in Asia, Chun (2010) observed that a large part of the working poor in group "2) moderate working poor" had a high degree of vulnerability to poverty, while those in group "3) near-poor workers" were able to live beyond the subsistence level, consuming non-essential goods, and had the possibility to save some money.

The African Development Bank (2011) also used the same classification to analyse the working poor as Chun (2010). They pointed out that group 2) constitutes a sort of "fluctuating class", with consumption only slightly above the poverty line and a high vulnerability to falling into poverty.

Above USD13 per day in PPP was considered the poverty line in the United States of America in 2005 or the beginning of the middle class in the "Western" developed economy. Also, in the context of the developed world, Kharas (2010) defined the working middle class as individuals living in households with a daily per capita consumption between USD10 and USD100 in PPP.

In addition, this research attempts to explain these economic classes of employment by considering a set of quantitative labour variables such as the unemployment rate, the number of own-account workers, and the labour force.

Likewise, this study also analyses the impact of the flow of refugees on the labour market of the host countries, which makes them recipients of official development assistance (ODA). Accordingly, both variables were included in the analysis. In this case, the volume of refugees has been expressed as a percentage of the total population of each country.

These variables are defined as follows:
"The labour force participation rate is the number of persons in the labour force as a percentage of the working-age population. The labour force is the sum of the number of persons employed and the number of persons unemployed" (ILOSTAT, 2022, 1).

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[1] Refers to the proliferation of temporary and part-time positions filled by casual workers, freelancers, and self-employed workers, rather than full-time permanent employees. The best example is digital online work platforms, where these workers are matched with customers to sell their products and services. For instance: Uber drivers, Deliveroo delivery drivers, freelance website developers, and social media influencers.

Persons in employment are defined as all those of working age who, during a short reference period, were engaged in any activity producing goods or providing services for pay or profit. Workers can have four different employment states. Employees receive a wage or salary for their work, in contrast to the self-employed, who receive their income from selling their produce. The self-employed who also pay employees to conduct work for them are called employers, while own-account workers do not have employees. Contributing family workers do not directly receive an income, but contribute to the output, and hence benefit from the income, of a family member (employer or own-account worker) (ILOSTAT, 2022).

- "Unemployment refers to the share of the labour force that is without work but available for and seeking employment. The unemployment rate expresses the number of unemployed as a per cent of the labour force" (ILOSTAT, 2022, 1).

- "Refugees are people who are recognized as refugees under the 1951 Convention Relating to the Status of Refugees or its 1967 Protocol. People are recognized as refugees by the UNHCR statute. They are persons who find themselves outside their country of origin owing to a well-founded fear of persecution on account of their race, religion, nationality, membership of a particular social group or their political opinion" (Hakovirta, 1993; World Bank, 2017; UNHCR, 2022, 1).

- "Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25 per cent (calculated at a rate of discount of 10 per cent)" (World Bank Open Data, 2022, 1).

As for the data sources[2], in this case, we have focused on the data provided by the World Bank for the flow of refugees and the ODA (World Bank Open Data, 2022), and also on the International Labour Organization (ILOSTAT, 2022) for those variables related to employment. According to the United Nations High Commissioner for Refugees (UNHCR, 2022), the main countries receiving refugees in the Middle East are Egypt, Iraq, Jordan, Lebanon and Turkey. The available data covers 31 years (from 1991 to 2021), and the World Bank data includes the total number of refugees from different conflicts.

The variables analysed are as follows:

Refugee ratio (as a percentage of the total population of each country); official development assistance.

Quantitative labour market indicators: unemployment rate, labour force, number of own-account workers.

Qualitative labour market indicators: distribution of employment by income level in developing countries.

We use panel data models as they provide more information when collecting a variety of different spatial units at different moments in time, making them especially useful in international socio-economic analyses addressing long-term problems such as poverty or unemployment (Arellano & Bond, 1991; Islam, 1995; Magrini, 1999; Andrés, 2005; Elhorst, 2014; Ayala *et al.,* 2017).

Previous studies have used this methodology for the analysis of different labour market issues in the countries of the Middle East (Hamia & A, 2016; Awan *et al.,* 2020; Bawazir *et al.,* 2022).First, an analysis of Pearson's bilateral correlation coefficients was carried out to determine the possible interdependencies between the study variables (Elhorst, 2014).

Table 1

Pearson's Correlation Coefficients. Macroeconomic Variables, 1991-2021

Daily income level	Unemployment rate	Labour force	Own-account workers	Refugee ratio	Official Development Aid (ODA)
Less than 1.90 USD	-0.112	-0.201**	-0.038	-0.221***	0.772***
1.90 to 3.20 USD	-0.186**	-0.149	-0.275***	-0.465***	0.160**
3.20 to 5.50 USD	-0.144	-0.104	-0.306***	-0.546***	-0.063
Over 5.50 USD	-0.081	0.621***	0.564***	0.198**	-0.260***

Notes:
*- Significance of bilateral correlation, *** at level 1 %, ** at level 5 %.*
- Labour variables are expressed as percentages and ratios concerning the total population (except the unemployment rate).

A look at ODA shows a relationship between its correlation coefficient and the level of income per day: the higher the correlation coefficient, the lower the ODA coefficient, which would be positive for jobs in extreme and moderate poverty, and negative for others. In other words, the higher the relative importance of jobs in extreme and moderate poverty, the higher the ODA.

With regard to the refugee ratio, apart from its significance for all levels of employment, the most striking feature is the positive sign for the group with the highest daily income, a circumstance that is also observed for the ratios of the labour share and the own-account workers. These coefficients do not so much indicate a causal relationship between these ratios and the different levels, but rather show that for the poorer workers, the above ratios are mainly negative, which could be the result of the transfer of workers between the formal and informal sectors (Agenor & Aizenman, 1999; Lee & Parasnis, 2014). Lower-paid jobs and self-employment have a lower entry cost and are an alternative for subsistence incomes in the absence of social protection insurance (often the only one).

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[2] The authors have compiled the following dataset: Mihi-Ramirez, A., Melchor-Ferrer, E. & García-Rodríguez, Y. (2022). "dataset on Refugees and labour market at Middle East countries" http://dx.doi.org/https://doi.org/10.5281/zenodo.7436115

Finally, regarding the unemployment rate, there is generally a low correlation, only 5 per cent for moderate-poverty employment.

As for the specification of panel data models for each employment group, different specifications can be used (Baltagi, 2021), among which we highlight the linear models estimated by ordinary least squares (OLS), in which the error term is decomposed into the sum of unobservable effects that differ between countries but not in time, unquantifiable effects that vary in time but not between countries, and the purely random error term (see equation 1).

When we consider the first effect as being non-existent, we are faced with "one-way" fixed effects models of equation 2, in which it is assumed that there are temporal fixed effects models. However, including individual effects in the error term when using OLS results in a biased estimate in which the parameter estimates are not consistent. To avoid

this, OLS is applied to the "within" transformed variables that are obtained by subtracting the averages (temporal or spatial, depending on the type of fixed effect) on each of the sides of the equation to be estimated.

Finally, a third type of panel data model is that of random effects (estimated by generalised least squares or GLS): in this case it is considered that the individual effects are randomly distributed, and their differences affect the explained variable (equation 3).

$$Y_{i,t} = \alpha_{i,t} + \beta_k X_{i,t} + u_{i,t},$$
$$\text{where} \quad u_{i,t} = \mu_i + \delta_t + \varepsilon_{i,t} \tag{1}$$

$$Y_{i,t} = \alpha_t + \beta_k X_{i,t} + u_{i,t},$$
$$\text{where} \quad u_{i,t} = \delta_t + \varepsilon_{i,t} \tag{2}$$

$$Y_{i,t} = \beta_k X_{i,t} + (\alpha_i + \varepsilon_{i,t}) \tag{3}$$
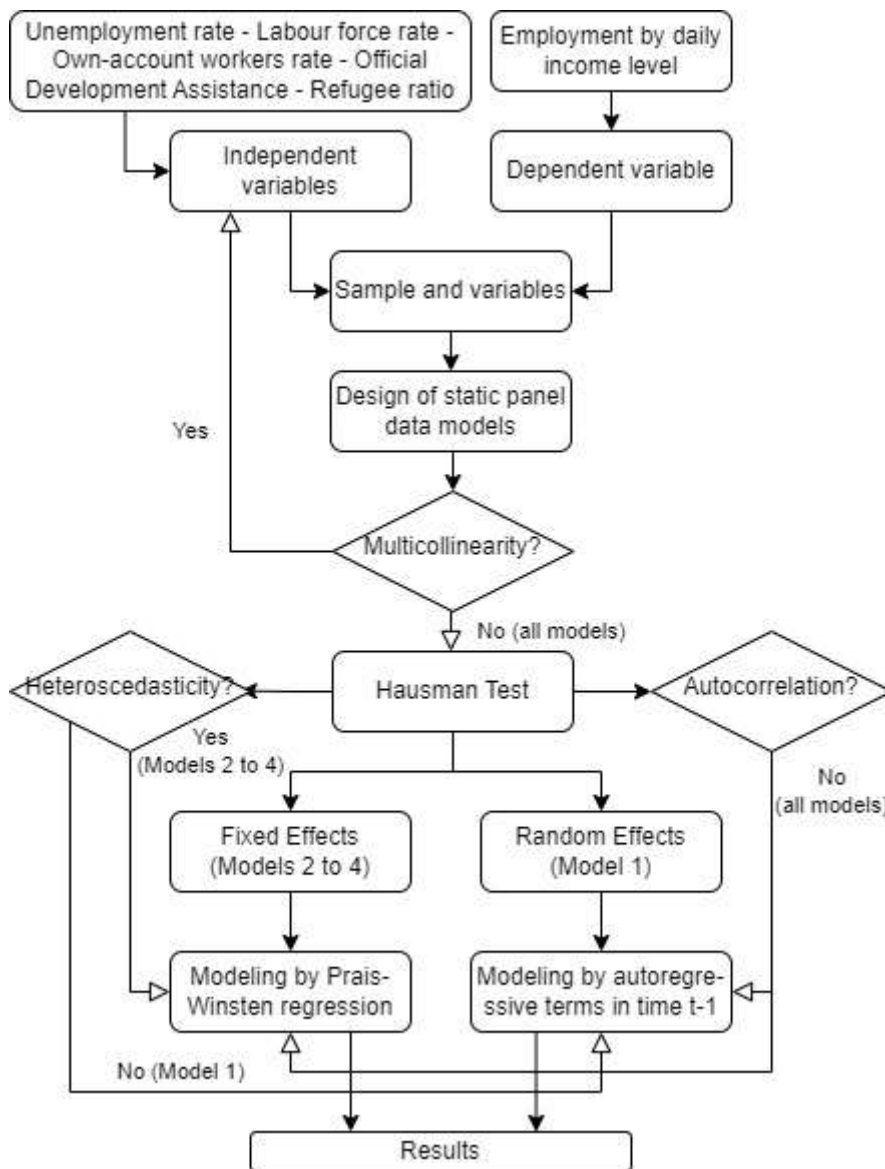

Figure 1. Summary of Research Methodology

Where i is the country code and t refers to the year of the period considered, $Y_{i,t}$ is the vector of the independent variable, $X_{i,t}$ is a vector of k dependent variables for

different countries and years, β_k is a vector of coefficients to be estimated of the k variables $X_{i,t}$ to be estimated, $u_{i,t}$ is the error term, μ_i and δ_t are vectors of variables that vary

only by country and year, respectively. Finally, $\varepsilon_{i,t}$ is the random disturbance term.

The application of different tests has allowed us to determine the most appropriate model following the modelling process shown in Figure 1: time-period fixed effects or random effects and the estimation method selected depending on the presence of problems of heteroscedasticity and/or autocorrelation. After confirming the absence of multicollinearity, we have estimated both fixed and random

effects panel data models to subsequently apply the Hausman test to determine the consistency of the random effects estimator in comparison with the fixed effects estimator (as indicated by a p-value greater or lower than 0.05, respectively). Table 2 shows that in most cases the fixed effects model is more appropriate than the random effects model, with the sole exception of the model in which the explained variable is the share of employment in extreme poverty.

$$\begin{aligned} Employment < \$1.90\ USD_{i,t} &= \beta_1\ Unemployment\ rate_{i,t} + \beta_2 Labour\ Force \\ &+ \beta_3\ Own\ account\ employment_{i,t} + \beta_4\ Refugees_{i,t} + \beta_5\ ODA_{i,t} + (\alpha_i + \varepsilon_{i,t}) \end{aligned} \tag{4}$$

$$\begin{aligned} Employment\ \$1.90 - \$3.20\ USD_{i,t} &= \alpha_t + \beta_1\ Unemployment\ rate_{i,t} + \beta_2 Labour\ Force \\ &+ \beta_3\ Own\ account\ employment_{i,t} + \beta_4\ Refugees_{i,t} + \beta_5\ ODA_{i,t} + u_{i,t} \end{aligned} \tag{5}$$

$$\begin{aligned} Employment\ \$3.20 - \$5.50\ USD_{i,t} &= \alpha_t + \beta_1\ Unemployment\ rate_{i,t} + \beta_2 Labour\ Force \\ &+ \beta_3\ Own\ account\ employment_{i,t} + \beta_4\ Refugees_{i,t} + \beta_5\ ODA_{i,t} + u_{i,t} \end{aligned} \tag{6}$$

$$\begin{aligned} Employment > \$5.50\ USD_{i,t} &= \alpha_t + \beta_1\ Unemployment\ rate + \beta_2 Labour\ Force \\ &+ \beta_3\ Own\ account\ employment_{i,t} + \beta_4\ Refugees_{i,t} + \beta_5\ ODA_{i,t} + u_{i,t} \end{aligned} \tag{7}$$

Table 2

Test of the Modelling Process in Panel Data Models for Employment by Daily Income Level

	Extreme working poor: below USD1.90	Moderate working poor: between USD1.90 and USD3.20	Near-poor workers: between USD3.20 and USD5.50	Emerging middle-class workers: between USD5.50 and USD13
Hausman's test	8.31 (0.140)	163.13 (0.000)	148.36 (0.000)	6605.96 (0.000)
Breusch-Pagan heteroscedasticity test (random effects)	0.000 (1.000)	-	-	-
Wald heteroscedasticity test (fixed effects)	-	1162.33 (0.000)	12.860 (0.025)	45.460 (0.000)
Wooldridge test for autocorrelation	435.50 (0.000)	20.531 (0.011)	25.34 (0.007)	62.014 (0.001)

Notes:
- If the p-value of Hausman's test is higher than 0.05 the random effects estimator must be used, otherwise fixed effects must be used.
- Regarding the heteroscedasticity test, we must use the Wald test in fixed effects and Breusch-Pagan test in random effects. In both cases, if the p-value is higher than 0.05 there is no heteroscedasticity.
- If the Wooldridge test is higher than 0.05 there is autocorrelation within the model.

Once we have selected the type of effect that is most appropriate for each employment level in the above static models, the second step is to determine the presence of estimation problems in terms of autocorrelation and heteroscedasticity (see Table 2). The results of the test show a remarkable difference between the extreme working poor estimation and the other income level groups. In the first case, the model used to estimate is random effects, and heteroscedasticity is not detected but autocorrelation is detected. This problem can be solved by controlling what happens in the immediately preceding time (modelling by autoregressive terms in time t-1). For all other cases autocorrelation and heteroscedasticity are detected with a fixed effects estimator for which Prais-Winsten regressions have been used (Moreno-Brieva; He & Merino 2019).

Results

Model 1. Extreme working poor

Hausman's test suggests that the individual effects appear to be uncorrelated with the regressors and, therefore, the random effects estimator is consistent. In this case, the high determination coefficient (0.631) is noteworthy, i.e., the model can explain 63.1 per cent of the variability in the extreme poverty employment group. Moreover, as the Wald test's p-value is lower than 0.05, it allows us to reject the null hypothesis that the estimated coefficients are equal to zero.

The unemployment rate is not a significant factor for the working poor in extreme poverty.

Similarly, the labour force is of low significance and the estimated coefficient is very low.

If we pay attention to the value of its estimated coefficient, we can confirm that when ODA increases by 1 per 100 (*ceteris paribus*) in the sample of countries analysed during the period from 1991 to 2021, this is accompanied by

an increase in the group of employees in extreme poverty by 0.068 per 100.

Conversely, the estimated coefficient of the refugee ratio takes a value of -0.025, indicating an inverse relationship between the refugee ratio and the number of working poor in extreme poverty.

Model 2. Moderate working poor

For the second model, although the estimated coefficients of the labour force, own-account workers, and ODA ratios are significant at 1 per cent, the determination coefficient is the lowest of all the estimated models, at 0.26.

The coefficient on the ratio of own-account workers is positive and shows a value of 0.584. This means that when own-account work grows by 1 per cent, the number of jobs in moderate poverty grows by slightly more than half a percentage point. However, the labour force ratio is negative, so the expansionary effect linked to self-employment would be partially limited by the changes in the labour force size for the group of moderate working poor.

As own-account employment represents a smaller share of the labour force compared to employees, this would indicate that the increase in own-account workers in Middle Eastern countries translates into a lower impact on the pool size of the moderate working poor over time, i.e., this type of employment is associated with lower pay levels and poorer conditions.

Table 3

Estimation of Panel Data Models for Employment by Daily Income Level

	Extreme working poor: below USD1.90	Moderate working poor: between USD1.90 and USD3.20	Near-poor workers: between USD3.20 and USD5.50	Emerging middle-class workers: between USD5.50 and USD13
	Random effects	*Fixed effects*	*Fixed effects*	*Fixed effects*
Constant	1.142***	7.116***	-0.479	-5.270
	(2.66)	(3.05)	(-0.25)	(-1.46)
Unemployment rate	-0.217	-0.045	-0.062	-0.164**
	(-0.99)	(-0.87)	(-1.48)	(-2.07)
Labour force rate	-0.008	-0.253***	0.054	1.152***
	(-0.55)	(-3.12)	(0.81)	(9.18)
Own-account workers rate	-0.061*	0.584***	1.145***	-1.757***
	(-1.83)	(3.66)	(8.72)	(-7.11)
Refugee ratio	-0.025***	0.022	-0.031	-0.012
	(-4.69)	(0.56)	(-0.96)	(-0.20)
Official development assistance (ODA)	0.068***	0.032***	-0.037***	-0.062***
	(15.68)	(3.46)	(-4.90)	(-4.35)
R^2	0,631	0.26	0.433	0.584
F-test independent equal terms		10.19 (0.000)	22.12 (0.000)	40.74 (0.000)
F-test $u_{i,t}=0$		36.62 (0.000)	123.38(0.000)	96.82 (0.000)
Wald test (χ^2) p-value	312.30 (0.000)			
Observations	155	155	155	155
Groups	5	5	5	5

Notes:
- *Significance of estimated coefficients, *** at 1 per 100; ** at 5 per 100; * at 10 per 100; t-statistic in parentheses.*
- *For F-tests and χ^2, the p-value is in parentheses.*

In contrast, there is an inverse relationship when considering the labour force participation ratio, a fact that is probably due to wage employment, which is paid either by the public sector or by private companies. In both cases, the existence of more stringent labour regulations (in the form of collective agreements, minimum wages, etc.) guarantees a certain minimum income and, therefore, the higher the labour force ratio, the smaller the group of workers in moderate poverty. It is probable that they are increasing their labour participation in the informal sector.

Finally, a more detailed analysis of the coefficients shows a positive but small value for ODA (0.032, around half of model 1 for extreme poverty), which is consistent with what was discussed above for the extreme poverty

model about an inverse relationship between ODA and the level of poverty in the countries.

Model 3. Near-poor workers

When the pay level of jobs is between USD 3.20 and USD 5.50, it is observed that the evolution of the percentage share of this employment can be explained with a significance of 1 per cent by the ratio of own-account workers and by ODA, although the determination coefficient R^2 stands at 0.433, i.e., 43.3 per cent of the variance of the proportion of employment in low poverty is explained by these variables alone.

Concerning the ratio of own-account workers, all of the above could be applied to this model 3, with the only

exception of the value of the estimated coefficient which would be higher than that corresponding to model 2 of moderate poverty.

Regarding the estimated ODA coefficient, a positive relationship can be observed in poorer groups. However, the estimated coefficient decreases steadily, to the point that from the third model it becomes negative (-0.037). In other words, the higher the ODA in the Middle Eastern countries analysed, the smaller the employment group in low poverty, which is consistent with the greater importance of ODA for the groups of workers in extreme and moderate poverty.

Model 4. Emerging middle-class workers

Model 4 analyses jobs which, although above the poverty line, are still vulnerable to poverty because the risk of falling back into poverty persists.

Changes in working conditions, access to finance, and health and life insurance can bring this population closer or further away from the poverty line (Kapsos & Bourmpoula, 2013).

As can be seen in Table 3, the estimation of the fixed effects model provides a determination coefficient of 0.584, which is probably because four of the five explanatory variables are significant at 1 or 5 per cent. The only exception is the refugee ratio which, as mentioned above, would only be significant in the estimation of the model for extreme poverty.

Perhaps the most relevant in model 4 is the 5 per cent significance of the unemployment rate. The negative sign of the estimated coefficient indicates that the lower the unemployment rate, the larger the size of the high-income population, and vice versa. The emerging middle-class population has conditions that are more similar to those in developed countries, i.e., it is sensitive to changes in the unemployment rate, as unemployment begins to be a factor that increases the likelihood of poverty. Nevertheless, the small value of the estimated coefficient (-0.164) points to a limited incidence of poverty. However, in relation to this, the relationship between unemployment and the risk of poverty in countries with higher income levels has been observed in several studies (Ghose, 1999; Majid, 2001; Chun, 2010; Aksoy & Ginn, 2022).

Furthermore, the labour force tends to be higher for groups with a higher level of income because further up the household income distribution, individuals are more likely to actively participate in the labour market (Hall & Petrosky-Nadeau, 2016; Bula et al., 2023). In this case, the probability of being unemployed is lower, so increases in the labour force translate into an expansion of middle-class employment in greater proportion than for the rest of the groups; not surprisingly, the estimated coefficient is greater than 1.

While the estimated coefficient of the own-account worker ratio was positive for lower-income employee groups, when employment is above USD 5.50 the ratio is negative and takes a value of -1.757, which would indicate an inverse relationship with the share of higher-paid employment. This means that when the self-employment ratio is increased by 1 per cent, the emerging middle-class workers are reduced by 1.76 per cent, mainly due to the increased participation of own-account workers at lower pay

levels and, therefore, to the increasing relative importance of salaried workers in the middle classes.

Finally, regarding ODA, its estimated coefficient is negative and significant at 1 per cent, although its amount is very small (-0.062), which shows that this type of aid is more substantial and specialised for situations of extreme or moderate poverty. As the share of the population above the poverty line increases, ODA decreases. Therefore, in this case, rather than speaking of a causal relationship between ODA and the relative importance of middle-class employment, it would be necessary to confirm the existence of a correlation between the two, which is consistent with the Pearson coefficient shown in Table 1 for both variables.

Discussion

Concerning research question 1 "How does the level of unemployment impact the conditions of the working poor in developing countries?", the non-significance of the unemployment rate as an explanatory factor for the working poor in extreme poverty confirms the different perceptions of the unemployment variable in developed and developing countries. While in the former, being unemployed is a determining factor when it comes to being in a situation of extreme poverty, in the latter it is not. It is therefore not surprising that our results also show that the unemployment rate is only significant in the emerging middle-class employment group, which would have working conditions closer to those of workers in developed countries. These results confirm the importance of labour quality indicators and add evidence to previous studies such as those by Ghose (1999), Majid (2001) and Henley (2022).

Regarding research question 2, "How does the labour force affect the income level of the working poor in developing countries?", if we examine the percentage of the labour force as a percentage of the total population, we find that it is of low significance and the estimated coefficient is very low, except for the moderate working poor (negative sign) and emerging middle-class workers (positive sign).

In this sense, the efficiency wage theory addressed the greater presence of low-wage workers in developing countries in the short run. Our results provide evidence for a cross-section long-run sample of developing countries. Higher wage levels attract more skilled workers, but also, in line with the labour market segmentation theories and the human capital theory, if there is a rise in the minimum wage, those workers who remain employed in the formal sector will earn more, which in many cases will allow them to escape poverty.

The prevalence of relatively high levels of employment and low wages in these countries could also be explained by the greater informality and precariousness of labour markets in developing countries. It is very complex to incorporate the real number of workers spread across most informal sectors of activity in labour participation statistics, which limits the predictive capacity of employment quantity indicators for the design of public policies.

This is why we include some indicators of the quality of employment in our analysis, together with indicators of the quantity of employment. Furthermore, in line with previous research (Majid, 2001; Kapsos & Bourmpoula, 2013; Gammarano, 2019), our results show it is appropriate to

consider differences between countries and to include trends in the quality of employment in the design of public labour policies on the distribution of employment across job classes, especially in the fight against poverty, which is based on different thresholds and criteria depending on the level of development of each country.

Considering the ratio of own-account workers, the results highlight the importance of self-employment in extreme conditions, as it is a way to at least guarantee a minimum income in the absence of adequate social protection policies, which may even lead individuals to move away from the most extreme levels of poverty over time. The literature points to the widespread increase in recent years of job insecurity in developed economies. In this respect, works such as Henley (2022) and Burchell & Coutts (2019) found that, for developed countries, self-employment reduces the risk of poverty. In the case of developing countries, our results show that own-account workers are concentrated in groups with incomes below the poverty line, so that if the worker has a salaried job that allows them to improve their situation and escape poverty, self-employment decreases considerably.

In addition, our results are in line with previous work such as that of Satchi & Temple (2009) and Yerrabati (2023), who point to greater benefits of self-employment on intermediate incomes in economies and sectors with some diversification of activities beyond agriculture.

Refugee status does not usually allow access to the formal labour market and therefore we would expect they subsist for the first few years on development assistance programmes, and over time, as the chances of return diminish, they move into informal sectors of activity. Indeed, although it is significant at 1 per cent, its value is very small, so its impact on employment in extreme poverty is very limited. The result is in line with recent literature about the impact of refugees (Ceritoglu *et al.,* 2017; Clemens & Hunt, 2019; David *et al.,* 2020; Khawaldah & Alzboun, 2022), in this case for a sample of 5 host Middle Eastern countries and 31 years. This is why this inverse relationship should be interpreted in conjunction with other variables such as the ratio of own-account workers, since after a more or less long period of settling in the host country, refugees will eventually regularise their situation and cease to appear in the statistics as refugees. Their only option is to take up self-employment, usually in low-productivity activities and in very precarious conditions.

In addition, it can be seen that both the independent term and the estimated coefficients for the refugee ratio and ODA are significant at 1 per cent, although in the latter two cases with different signs (negative and positive, respectively).

In the case of ODA, the positive sign of the estimated coefficient indicates a direct relationship between the volume of ODA and the share of employment in extreme poverty, which is consistent with the fact that countries with higher levels of extreme poverty have fewer resources and therefore have to rely more on ODA.

Conclusions

This research contributes to the literature on working poverty risk through the analysis of some key quantitative labour market indicators in developing countries (labour force, unemployment, own-account workers), and their effects on four economic classes of working poor.

It also studies how the arrival of massive refugee flows and development aid affect the quality of employment of these groups in the main host countries in the Middle East.

The development of our models allows us to consider several issues of crucial importance to development economics.

Firstly, while the literature traditionally points to unemployment as a crucial determinant of poverty in developed countries, and, consequently, poverty lines and levels of social protection in these countries focus on the unemployed population, our research, on the contrary, after analysing different income levels of workers for a sample of developing countries from 1991 to 2021, shows that the level of unemployment has no significant impact on the number of working poor below the poverty line. Only a slight influence in the case of the emerging middle-class working poor is found. This is precisely why our analysis incorporates indicators of the quality of employment alongside indicators of the quantity of employment.

Based on these results, our recommendation is to include the segmentation of employed workers according to their income level in the design of labour policies and tools for the fight against poverty.

It would also be interesting to further explore mobility between industries (and formal-informal sectors) according to the skill level of workers, although the availability of data is rather limited in the case of developing countries.

Related to this, our research adds empirical evidence to previous work on the working poor by the International Labour Organization and the World Bank, which pointed to the biases that occur when applying the same economic levels to the implementation of social protection measures or labour policies (Majid, 2001; Banerjee & Duflo, 2008; Kapsos & Bourmpoula, 2013).

Secondly, our results show that refugee arrivals and the number of working poor in host developing countries have an inverse relationship, which is only significant in our study for the group of workers in extreme poverty. This result adds empirical evidence to the migration literature. Several studies confirm that migration flows have little impact on host countries, especially because these are dynamic situations that depend on various factors and circumstances that are constantly adjusting and changing. For this reason, as performed in this research, it is important to conduct analyses and statistical techniques that allow scholars to examine samples of a large number of years and that allow them to make international comparisons. In this sense, our study adds evidence in the case of forced migration for a long range of years and the main host countries of the major international refugee crisis in the Middle East. Moreover, forced migration is markedly different from economic or labour migration, where decision-making is voluntary and where there are, a priori, more options to choose from.

Thirdly, self-employment is also confirmed as an important means of subsistence in situations of precariousness, often as the only option, as in the case of refugee migrants who, after several years, finally manage to regularise their situation in the host country. Nonetheless, as

the literature has previously pointed out, in developing countries and also in the case of immigrants, the precariousness associated in this case with own-account workers differs from the case of entrepreneurship in developed countries.

The results show that the increase in the number of own-account working poor in developing countries has a limited effect on improving the quality of employment, as they are mostly workers with very low incomes, below the poverty line and, as previous research points out, in conditions of precariousness and temporariness.

Furthermore, these results could also help us to become aware of the consequences of the rise of the so-called "gig economy" in developed countries, which are also associated with greater precariousness and situations of working poverty in these countries. The nuance lies in the fact that for developing countries, job insecurity has been a problem for many years and is highly detrimental to their economic development, while in the case of developed countries, where the majority of employed people used to belong to the middle class, for some years now they have been suffering a growing deterioration in their working conditions that threaten the level of welfare and the progress achieved.

In relation to this observation, the literature suggests that access to quality healthcare, finance and education is essential in any country to lift the population above poverty levels and maintain the level of development achieved (Kapsos & Bourmpoula, 2013). It also enables workers to engage in higher-productivity activities, which ultimately leads to economic growth.

Finally, official development assistance (ODA), is confirmed as being higher and more specialised the lower the income level of the workers. The data shows a medium and long-term reduction in the number of workers among the working poor, especially those in extreme poverty in all the countries in the sample, which confirms the effectiveness of this aid and the work of NGOs in the fight against poverty.

Acknowledgment

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