

# Geography of poverty at the international level (comparative approach)

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**Abstract.** The present study aims to use an analytical approach to examine regional poverty as an ominous phenomenon and as one of the problems of unfair distribution of income generated among different regions of Asia and Oceania, South Asia, Middle East and North Africa, Latin America and the Caribbean, Europe, Central Asia, and the Desert of Africa. The phenomenon is investigated in the period 1990 to 2017 using pooled mean group (PMG) estimator and examining the presence or absence of regional and geographical nature of this phenomenon (the impact of the geographical situation of the region along with economic conditions on poverty in different regions). The research findings confirm the theories of political economists and Stiglitz trickle-down effect on poverty, stating that the phenomenon of poverty in different regions is an economic category (the high impact of the economic index on poverty confirms this claim) and other different approaches to poverty are ranked next in order of priority.

## 1 Introduction

One of the fundamental problems of today's societies, which is a serious obstacle to development and progress, is poverty. According to the 2030 Report on Sustainable Development of the UN, its elimination is one of the top 17 goals of sustainable development (Griggs et al., 2013). Poverty is a major concern for policymakers because its occurrence is directly related to population welfare (Chen and Ravallion, 2013). In addition to the economic aspects, the situation of poverty in any society is also important in the political and social dimensions, and any economic approach to poverty will inevitably have political and social consequences. Despite extensive studies on poverty, there is still no dominant consensus on the main factors influencing poverty (Galli and Hoeven, 2012). Poverty was first viewed from an economic point of view and attributed only economic approaches, considering the lack of income for individuals and households compared to basic living standards and later to acceptable global standards as its causes and even its concept (Zhou et al., 2018). But this concept has been defined differently since 1981 by the World Bank's definition of poverty as the loss of an opportunity and not gaining another opportunity as an alternative, including living, social, economic, and other conditions (World Bank, 1981). In

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his early studies in 1982 and 1985, Sen introduced the concept of poverty more comprehensively, according to which poverty is not only a lack of income, but also a lack of a fixed set of life skills that, in a way, refers to deprivation; of course, deprivation itself is a relative concept that has different meanings in different places and times (Sen, 1981 and 1985). Thus, with a deeper insight into poverty, this category includes all types of deprivation, including economic, social, political, cultural, etc. (United Nations, 2010). Consequently, because different regions are different in terms of these deprivation characteristics, the situation of poverty is also different in different societies.

This difference, especially economically, takes a more comprehensive approach. It is such that in countries with incomes lower than the average, people earning less than \$ 3.20 a day are on the poverty line, while in countries with incomes higher than the average, this figure is \$ 5.50. Also, in high-income countries, it is \$ 21.70 (World Bank, 2017); Therefore, a person who earns \$ 20 a day in a developed OECD country is considered poor, but the same person, even in a middle-income country, may be in a moderate to high or even good economic position. This factor reflects the notion that poverty is relative (poor relative to the average income of a society), as opposed to its absolute form (poor relative to access to the minimum basic needs). In addition, the difference is evident in the policies of governments, governing institutions, social approaches, and etc. It is such that, for example, the Scandinavian and Northern Europe countries, compared to many other countries with a similar situation in terms of economic development, have a much lower level of poverty (Oxley et al., 1997; Atkinson et al., 1995; Kim et al., 2010).

Based on these interpretations, on the one hand, the relative nature of poverty is presented on the basis of a specific region, and on the other hand, the effect of natural geography on poverty is raised. Therefore, the recent approach is rooted in the issues raised by thinkers, like Adam Smith (the father of economics), in relation to the effect of region and natural geography on economics (Smith, 1776). Both approaches have been criticized and analyzed by many proponents and opponents, but have not been analyzed comprehensively with a comparative approach.

This prompts researchers to discuss the impact of the region's geography on poverty. Another question raised here is “is poverty in the region a function of geography?” In other words, are the factors affecting poverty in different regions (depending on the geographical situation of that region) different, or is poverty an international phenomenon and the factors affecting it are the same everywhere in the world?

## 2 The concept of poverty

The system of stratification and social inequality have existed in all societies throughout history. Humans are not created equal in terms of creation and talent, nor do they have the same material and spiritual resources. The existence of social inequality in some societies can be considered as the division of existing rich and poor groups. In Moein dictionary, the term poor is defined as needy (Moein dictionary, 1997). Setting an objective definition of poverty is surprisingly difficult. The concept of poverty refers to absolutely low household incomes. Calculations of the minimum level of income necessary for physical survival show that if a person chooses this level, he is able to benefit very little and at an acceptable physical level (Gillis et al., 2000). Townsend (1979) explains the concept of poverty as follows: poverty can be defined objectively and on the basis of the concept of relative deprivation. Individuals, households, and groups that lack the resources they need to live in the community to obtain a proper diet, participate in activities, and have normal living conditions are poor. Dernofofski argues that poverty appears when people's needs are met to a lesser extent than necessary. This is the general definition of poverty, and most experts do not seem to have answered the question of how much needs must be satisfied and how it is determined

(Dernofski, 1996). Another careful consideration of the concept of poverty has been made by Rin (1970). He believes that no measurement of poverty is possible unless we define our view of poverty at the beginning of the concept of poverty. In his view, poverty should be considered in three general terms: the livelihood, inequality and exogenous concepts of poverty. In the livelihood concept of poverty, we pay attention to the minimum food needed to ensure health and maintain physical efficiency. In the inequality concept of poverty, the situations of income groups are considered, and in the exogenous concept of poverty, the consequences of poverty for other people in society (and not the needs of the poor themselves) are examined (Rin, 1970).

The phenomenon of poverty, like other sociological phenomena, has a temporal and spatial validity and changes with society itself, but it is certain that poverty is the product of two determinants of scarcity and possession. Due to the complex and multidimensional nature of poverty, there are different definitions of poverty in existing sources and research. However, everyone emphasizes the normality of poverty and believes that only with pre-determined definitions can the poor be separated from the non-poor. That is, poverty always indicates a comparison between an observation and a predetermined condition. The reason for these differences can be firstly due to the type of thinking about the philosophy of human existence, his social stratum, perception of the concept of social justice, belief in the individual or collective originality, ecological conditions and the like, and secondly the diverse human needs that the lack of each leads to a new definition of poverty. Human needs change according to time, place, stage of progress and civilization, technical conditions and cultural levels, and so on. (Hashmi and Sial, 2008). Material and spiritual needs of human beings, such as proper nutrition, education, housing, having a job and ensuring the security, each can be related to poverty. Therefore, it can be said that poverty is a social, economic and cultural phenomenon that results from the lack or inability to meet the minimum human needs, and the poor are those who do not have sufficient ability to meet the basic necessities of life. Sen (1981) points out the different definitions of poverty, all of which refer to a kind of deprivation. However, deprivation itself is a social concept and is determined by norms that may differ at different times and places. Etkinson (1989) also considers two concepts for poverty. In the first sense, poverty is defined as the lack of access to certain livelihoods, according to which if a person's total expenditure or consumption of goods is less than a certain level, he is considered poor. In the second concept, it is the right to social and economic resources and facilities that will not be accessible if one's income is below a certain level (Etkinson, 1989). The World Bank's development report defines poverty as nothing more than a lack of income or low human development. Poverty is the same as vulnerability, lack of power and expression of opinion. Being poor means being hungry, not having shelter and clothing, being sick and not being treated, being illiterate and not going to school, not having a job, being afraid of the future, losing a child because of not having access to clean water, and so on. All of these deprivations limit what is considered a person's ability in terms of age. The poor are vulnerable to inconsistent events outside their will, and most government institutions and society treat them badly (World Bank, 2016).

Therefore, given the diversity of views in this area, it can be said that poverty has very broad definitions. But since in a scientific study the presentation of any hypothesis is based on two principles of explanation and prediction, and also because our point of view is purely economic, our approach to poverty must be needs that are completely dependent on economic conditions. That is, material needs, which, of course, have been the subject of much debate, because the material needs of different people are fundamentally different. Material needs in economists' studies mainly include food, clothing, housing, health, education, transportation, family formation, sports, and leisure, the minimum of which that includes the various biological aspects of human beings is defined as the minimum acceptable standard of living. In this regard, poverty is defined as the insufficiency of income and resources in general to

provide this minimum acceptable standard (Heltberg, 2002). One of the most recent theories on poverty is the multidimensional poverty theory of the United Nations Development Program, developed by Alkire and Foster (2010). The index was first calculated in 2010 for 104 countries and has three dimensions: education, health and standard of living, which are measured using ten indicators that have equal weights. The index measures household deprivation in different indicators and the severity of poverty. As a result, it states that people who are poor by multidimensional poverty criteria are not necessarily poor in terms of income (Alkire and Santos, 2010).

### **3 Experimental studies on the factors affecting poverty**

Madzingira (1997) used probit to investigate the factors influencing poverty in Zambia. Research has shown that in Zambia, several population groups are more likely to be poor than others. These include people over the age of 60, women and residents of rural areas. The study found that there were fewer poor people in the urban sector, but it was significant that even urban residents with higher incomes than rural areas were classified as poor because the standard of living in urban areas was higher than rural areas. Rural areas are higher. Azberg and Xu (1999) used a relative poverty line as a percentage of the median - 50% of the median - to calculate the poverty line for the Canadian provinces. Research shows that poverty in the province of Ontario declined in the late 1980s to the level of Northern Europe. Dat et al. (2000) examined the determinants of poverty in rural areas of Mozambique and found that increasing investment in education, continuous economic growth, use of growth patterns, increasing productivity of the agricultural sector, improving infrastructure, reducing birth rates and dependence rate in households are among the factors reducing poverty levels. Heltberg (2002) carried out a research study on the effects of economic growth on child malnutrition elevation, concluding that economic growth has little effect on child malnutrition elimination. He conducted this research using an intergracial regression method with the help of dummy variables for different regions of the world. Fosco (2003) differentiated between the one-dimensional (traditional) and multidimensional view of poverty, acknowledging that in the one-dimensional view of poverty, there is a variable such as income or consumption; but variables, such as education, health and well-being are effective on multidimensional poverty. The results of this study through the application of the above two perspectives showed that being one-dimensional will only be effective for deciding to reduce poverty in the short term. But the multidimensional scale is used for socio-economic structures and long-term poverty decision-making. Genkeniz and Lambert (2004) used basic needs in their research entitled "Poverty Dominance and Poverty Line in the United Kingdom between 1979 and 1989". In this study, the most popular definitions of poverty in health, education and the most popular subcategories such as area, tribe and gender were used. The results showed that the female population is most affected by poverty and the male subgroup has the largest share of the global poverty index. Geda et al. (2006) examined the determinants of poverty line in Kenya in an article using binominal and multiple logit models. This study shows that the poverty situation in urban and rural households is related to the level of education, household size and employment in the agricultural sector. These results in binominal logit models are similar to order logit model results, except that these factors are more important in binominal logit models. Hashemi and Sial (2008) used a logistic method in enumeration for investigating the determinants of rural poverty in Punjab, Pakistan. In this study, the poverty line from was estimated 1980 to 2002 and the factors affecting it were examined. The results showed that the probability of households becoming poorer increases with increasing household size and dependency ratio, and decreases with increasing level of education, the number of household animals and farming. In addition, socio-economic opportunities that have been explored in terms of access to infrastructure in

the residential area play an important role in reducing household poverty. Ferira and Ravallion (2008) reviewed global poverty and inequality. This study uses the basic needs to address different dimensions of poverty through sectors, tribes, and socioeconomic groups in countries. In their observations, they concluded that absolute poverty was still a major problem in developing countries, where four-fifths of the world's population lived. Also, about one billion people with a per capita income of less than a dollar a day live in developing countries. Chang et al. (2017) examined the factors affecting nutritional poverty, calorie deprivation and other nutrients in rural China during the period 1990-2015 using the panel data method. The results showed that improved food intake had a significant effect on rural wages and the possibility of eliminating food poverty while reducing poverty in rural China.

Eslami (2000) examined the poverty line and the effect of the elimination of subsidies for basic goods. In this paper, the criteria for providing calories and protein for human needs and using the calories of proteins in the basic goods and the price of these goods, as well as taking into account subsidies paid to basic goods for each household have been used to calculate the absolute poverty line. According to this research, the absolute poverty line for a family of five in 1998 in urban and rural areas was 9.4 and 9.5 million rials, respectively. According to the sample size and statistical population of the country in the same year, the number of people living below the poverty line in urban and rural areas is estimated to be 24.5 and 27.9 percent, respectively. In this year, 6866 billion rials were needed for people below the poverty line to come above the line, while the total subsidy for basic foodstuffs for this year has been about 5806 billion rials. However, the effects of eliminating the subsidy of basic goods on increasing their prices have not been considered, and if this factor is taken into account, the gap will deepen. In another study, Souri (2001) examined the effect of economic growth on income distribution and poverty during the years 1990-1997. In this study, two methods of Kakevani and Dono of data of household income statistics were used. The findings of this study show that in the period under review, poverty has decreased overall, and despite the adverse effects of economic growth on income distribution, such growth can reduce poverty. Piraei and Shafiei (2001) studied and measured poverty in urban households in Mazandaran province during the years 1990-96. In this paper, the poverty dimension curve is used to measure poverty. This curve can show the relationship between dimensions and important indicators of poverty by measuring the impact, severity and inequality of poverty and calculating its important indices. The results obtained from the calculations between the dimensions of poverty and its important indicators for urban households in Mazandaran province indicate that the severity and impact of poverty has increased; While income inequality among poor people has not changed significantly. Kashi and Bagheri (2002) used four methods of calorie requirement, percentage of household expenditure median, percentage of mean household expenditure, and reverse Engel coefficient to investigate the distribution of poverty among households by various economic and social characteristics. Research has shown that the share of poverty in rural communities is higher than in urban communities. The time trend of poverty in urban communities has been increasing and in rural communities has been declining. Mahmoudi (2002) measured poverty in Iran using new techniques. The desired period is from 1989 to one year after first five-year plan. The results showed that poverty increased throughout the country and in rural areas during this period; However, despite the increase in the poverty rate in urban areas, the situation of the poorest poor in this area has improved. Raghfar and Ebrahimi (2006) have estimated the amount and severity of the poverty line in order to calculate the poverty line. In this study, using the statistics of household expenses and income, poverty in urban and rural areas during the years 1989 to 2004 has been measured. The results showed that the poverty rate in rural areas was higher than in urban areas. Also, the overall trend of indicators in urban and rural areas has been declining, meaning that the percentage of the population below the poverty line and the poverty gap has decreased over the years under study. Mohammadi et al. (2007) used linear

expenditure system to measure the minimum wage in urban areas of Ilam. The status and trend of indicators of the ratio of income, income gap, income inequality between the poor, and the index of Kakevani based on the calculated minimum wage showed improvement of the status of poor people during the period 1995-2005. Also, the comparison of these indicators in the years of the second development plan with the years of the third plan shows that the poverty situation in the third development plan has improved compared to the second development plan. However, the results indicate that the minimum wage in the third development plan has increased compared to the second plan. Abu Nouri and Maleki (2007) estimated household poverty line and poverty indicators in Semnan province in urban and rural areas during the first, second and third development programs with the help of cost information, price indicators and raw statistical data of urban and rural households in the province using the linear expenditure system with iterated non-related regressions. The results showed that the ratio of poor people and the depth of poverty in urban and rural areas of Semnan province has increased, which shows the inefficiency of poverty alleviation policies in the first and second economic development programs. Also, during the second and third economic programs, the ratio of poor people and poverty depth in urban and rural areas of Semnan province has decreased, which indicates the appropriateness of poverty alleviation policies.

Zaranejad and Mousavi (2007) have determined and analyzed the poverty line in Khuzestan province by estimating the system of linear expenditures based on the Stone-Geary utility function and using household budget data. The results of the study in the study period showed that the urban households of Khuzestan are less than the average of the country and the urban households of Mazandaran province and higher than the urban households of Sistan and Baluchestan in terms of Rial poverty. The minimum required expenditures of rural households in Khuzestan from 1981 to 1990 was higher than the average of the whole country, and from 1991 to 2003 was lower than that. The present study differs from previous research in terms of spatial domain or time domain or criteria. In this study, in addition to estimating the rural and urban poverty line, the Gini coefficient is also estimated and income inequality is examined at the provincial level.

Sadeghi and Masaeli (2008) have examined the relationship between economic growth and income distribution with the poverty trend in Iran using fuzzy approach. In this paper, fuzzy logic and Matlab software have been used to create a time series of annual poverty in Iran during the period 1989 to 2004. Calculations showed that in general, the poverty rate in Iran was declining and the highest and lowest poverty rates occurred in 1991 and 2003, and in 1993 and 2001, it had the maximum and minimum relative rate, respectively. The results showed that the poverty line has been increasing during three development programs in urban and rural areas, and one of the main reasons for this increase has been the high rate of inflation. The poverty line in urban areas has always been higher than in rural areas. Poverty in urban and rural areas of Semnan province has increased in the first economic development program, but it has decreased relatively during the second and third economic development programs. Omrani and others (2009) studied the factors determining poverty and also the welfare changes of rural households in Zabol city during the period 1997-2004. In this study, the age of the head of the household, the age composition of the children of the household, and also the squared household dimensions have been identified as the most important determinants of poverty in rural areas of Zabol city. Piraei and Shamsavar (2009) have studied the poverty situation in urban and rural areas of Fars province during the years 1995 to 2007. In this study, the relative poverty line is determined based on 50% of household expenditures median and poverty indicators, such as census ratio, income gap ratio, poverty intensity, age index and Kakevani index are introduced and calculated for urban and rural areas of this province. The results of calculating these indicators showed that the annual absolute poverty line of households in urban areas is higher than rural areas and the trend of poverty indicators

in urban and rural areas shows the declining trend of poverty in these areas during the period. Shoushtarian (2009) used a probit model to investigate factors affecting the probability of a family to be poor. The results of the study showed that membership in rural cooperatives reduces the likelihood of household poverty. Also, households with at least one member in women's rural cooperatives are less likely to be in the poor group than other households. Mohammadzadeh et al. (2011) examined poverty and its determinants among urban families in Iran. In this study, using the expenditure and income plan data of urban households during the years 1994-2004 and the linear expenditure system, the poverty line has been estimated and the criteria for measuring poverty have been calculated. The results show that the highest probability of poverty in urban households is related to the education of the head of the household and the gender of the head of the household. Also, the age of the head of the household, the ratio of the number of people with income in the household, and the size of the household are effective in reducing the probability of poverty in households. Abu Nouri and Shahrazi (2017) estimated the absolute poverty line based on the food poverty line using mathematical planning in urban areas of Mazandaran province. The results showed that the food poverty line and the absolute monthly poverty line of urban four-person households in Mazandaran province in February 2015 were about 311,000 Tomans and 1,350,000 Tomans, respectively. In another study, Jalili Kamjoo and Nadimi (2019) examined and evaluated the relationship between groundwater extraction and rural poverty in Iran during the period 1985-2014 with the Markov method. The results of the model estimate showed that rural poverty in the Iranian economy has two low and high poverty regimes, and the low poverty regime has a longer life than the high poverty regime. Also, the extraction of groundwater resources in the high rural poverty regime has a non-linear and threshold effect on the absolute rural poverty index.

#### 4. Research method

In the present paper, poverty and the factors affecting it have been studied in different regions and according to different geographical conditions. The method used in the research to provide comparative models is ARDL panel method in Eviews 9 and the research data has been extracted from the World Bank. Currently, panel data, which has a relatively large time series section, is widely used. In this case, you can run N time series regression and then calculate their average. With the pooled mean group (PMG) estimator, the data can be combined to assume that their slope and variance coefficients are similar. Pesaran, Shin, and Smith (1997) developed this method by developing the ARDL method. In this method, long-term slope coefficients are assumed to be similar, but short-term slope coefficients and their standard deviation are allowed to change between cross-sectional units. Pesaran et al. (1997) examined the hypothetical characteristics of this estimator when the time dimension goes to infinity, both in the static state of the variables and in the unit root state of the variables when the number of cross-sectional units is constant. This study first examined the impact of factors affecting poverty on a large scale internationally and for different regions, then, by analyzing the impact of each region on international poverty, it examined the issue of the poorest regions in the world between 1990 and 2017. The model used in the present study, based on theoretical foundations and based on the Donou–Adonsou and Sylwester (2016) model, is as follows:

$$Pov_{it} = \beta_{it} + \beta_1 Fd_{it} + \beta_2 GDP_{it} + \beta_3 X_{it} + \varepsilon_{it}$$

Where,

POV<sub>it</sub>: Poverty index of region i in the time period t (in the present study, the percentage of people with a daily income of less than \$ 1.9 is known as the poverty index);

$FD_{it}$ : Financial development index of region  $i$  in the time period  $t$  (CPIA Financial Development Index is used as this indicator);

$GDP_{it}$ : growth rate gross domestic production (in terms of purchasing power parity) of region  $i$  in the time period  $t$ , indicating the wealth level of the study area;

$X_{it}$ : control variables of region  $i$  in the time period  $t$ , including inflation rate (INF), trade ratio to GDP (TRADE), and unemployment rate (UE). So the final model will be as follows:

$$Pov_{it} = \beta_{it} + \beta_1 Fd_{it} + \beta_2 GDP_{it} + \beta_3 Inf_{it} + \beta_4 Trade_{it} + \beta_5 Une_{it} + \varepsilon_{it}$$

The study included 50 countries in Latin America and the Caribbean, East Asia and Oceania, South Asia, the Middle East and North Africa, Europe and Central Asia, and the African Desert.

## 5 Estimation of model and data analysis

In order to estimate the research model, the stationary state of the present research variables is first examined using Levin and Lynne test, the results of which are presented in Table 1.

**Table 1.** Results of the unit root test for the variables of the model.

Region		Variables					
		POV	UE	INF	TRADE	FIN	GDP
Asia Pacific	Level	10.45 (0.00)	13.25 (0.00)	2.76 (0.67)	11.34 (0.00)	14.9 (0.00)	19.12 (0.00)
	First-order difference	-	-	10.33 (0.00)	-	-	-
South Asia	Level	23.45 (0.00)	9.34 (0.00)	2.34 (0.89)	12.45 (0.00)	14.32 (0.00)	31.45 (0.00)
	First-order difference	-	-	8.85 (0.00)	-	-	-
Middle East and North Africa	Level	12.34 (0.00)	12.6 (0.00)	2.34 (1.00)	14.67 (0.00)	10.78 (0.00)	14.8 (0.00)
	First-order difference	-	-	9.67 (0.00)	-	-	-
Latin America and the Caribbean	Level	9.45 (0.00)	8.67 (0.00)	5.6 (1.00)	13.7 (0.00)	9.87 (0.00)	12.67 (0.00)
	First-order difference	-	-	9.56 (0.00)	-	-	-
Europe and Central Asia	Level	13.9 (0.00)	15.8 (0.00)	2.9 (0.84)	10.6 (0.00)	15.7 (0.00)	13.46 (0.00)
	First-order difference	-	-	9.56 (0.00)	-	-	-
South African desert	Level	9.5 (0.00)	9.56 (0.00)	3.2 (1.00)	12.45 (0.00)	16.23 (0.00)	12.14 (0.00)
	First-order difference	-	-	9.56 (0.00)	-	-	-

Source: research findings.

Based on the results of Table 2, it is clear that all variables in the study are either significant at level I (0) or become stationary through one-order differentiation I (1).

Table 2 presents the results of estimating the long-term relationship.



**Table 2.** Estimation of long-term relationship.

Region	UE	FIN	GDP	TRADE	INF
Asia Pacific	(0.093)*	(-0.412)*	(-0.412)*	(-0.1904)**	(0.209)*
South Asia	(0.083)**	(-0.302)**	(-0.302)**	(-0.189)**	(0.189)*
Middle East and North Africa	(0.153)**	(-0.64)	(-0.285)*	(-0.058)*	(0.241)*
Latin America and the Caribbean	(0.054)**	(-0.189)	(-0.189)**	(-0.068)***	(0.138)**
Europe and Central Asia	(0.067)	(-0.213)**	(-0.213)**	(-0.117)**	(0.098)**
South African desert	(0.189)***	(-0.032)	(-0.126)**	(-0.028)	(0.286)*
Whole model	(0.148)***	(-0.0953)**	(-0.202)**	(-0.106)**	(0.1609)**

Source: research findings (\*: significant at 1%; \*\*: significant at 5%; \*\*\*: significant at 10%).

Table 3 also presents the results of estimating the error correction relationship.

**Table 3.** Error correction estimate.

Region	dUE	dFIN	dGDP	dTRADE	dINF	Ecm
Asia Pacific	(0.158)*	(-0.234)*	(-0.301)*	(-0.153)**	(0.119)*	(0.298)**
South Asia	(0.110)**	(-0.126)**	(-0.187)**	(-0.083)**	(0.143)*	(0.143)**
Middle East and North Africa	(0.307)**	(-0.014)	(-0.204)*	(-0.032)*	(0.261)*	(0.093)**
Latin America and the Caribbean	(0.173)**	(-0.057)***	(-0.146)*	(-0.263)	(0.176)**	(0.117)***
Europe and Central Asia	(0.053)	(-0.128)**	(-0.103)	(-0.075)**	(0.042)**	(0.287)**
South African desert	(0.212)**	(-0.036)	(-0.009)**	(-0.074)	(0.173)*	(0.0211)***
Whole model	(0.171)**	(-0.087)*	(-0.054)**	(-0.137)**	(0.1409)**	(0.078)**

Source: research findings (\*: significant at 1%; \*\*: significant at 5%; \*\*\*: significant at 10%).

According to the results obtained for the 7 study areas, it is clear that:

All estimated models are at the significance level, and the results for most of their coefficients are very significant. Only the variable of financial development in most models is not significant, which indicates the ineffectiveness of the financial development index on poverty in some areas (mostly less developed). From another point of view, the reason for the insignificance of this index is the underdevelopment or, in other words, the inefficiency of the financial sector in the Middle East, North Africa and South African Desert. The sign of all the coefficients related to the independent variables of inflation rate, international trade, GDP growth, financial development and unemployment are similar in all models, except for models in which the index is not significant. In other words, increase in inflation and unemployment in all regions (regardless of geographical location) increases poverty. At the same time, improving financial development, economic growth and international trade reduces poverty. In terms of error correction, the estimated ecm coefficient for developed countries is higher. This means that if there is a shock to poverty, it will more quickly return to its long-term trend in mostly developed countries than less developed countries. This is likely due to greater economic stability in countries with higher levels of development than

less developed countries.

## 6. Conclusion and suggestions

Poverty is an undesirable phenomenon that is one of the most important consequences of the unfair and unequal distribution of income among people in each region. The existence of this phenomenon in any society indicates the wrong performance of income distribution in the society and causes disorder in the regions. Accordingly, the need to pay attention to this socio-economic category is very important and requires a lot of planning at the national and international levels. However, the important issue in this regard is the various definitions of poverty, which varies depending on different approaches including its regional nature, and this raises the question of whether the phenomenon of poverty (for example, based on this approach) is in fact a regional and geographical issue, in other words, whether the factors affecting poverty are different in different regions (depending on the geographical location of that region) or is poverty an international phenomenon and are the factors affecting it the same everywhere in the world?

To this end and to answer these questions, the countries of the world were divided into 6 regions based on different geographical conditions. By modeling and using the PMG method in the period 1990 to 2017, these questions were answered. The research findings indicated that:

The variables of economic growth, international trade, inflation, unemployment and financial development are the most important factors affecting the poverty index in all countries of the world and the mentioned regions. However, indicators of inflation and unemployment increase poverty and improvement of financial development, economic growth and international trade reduce poverty.

Meanwhile, the negative impact of the economic growth rate on poverty in all regions confirms Stiglitz trickle-down effect theory that economic development reduces poverty.

It is argued that economic development and increasing the growth of the country's production have increased the wealth of the rich, and in the process, part of the increase in their wealth is gradually being transferred to the poor. For example, as the wealth of the rich increases, the demand for the factors of production, especially the labor force of the poor, increases, and as employment increases and unemployment decreases, poverty decreases (a direct link between the unemployment rate index and poverty also confirms this).

The variables of economic growth, unemployment and inflation have the greatest impact on poverty in different regions. In other words, poverty in different regions is more an economic category, and other different approaches to poverty are important in later stages. In addition, this issue, along with the different impact of governments on poverty in different regions, is a good confirmation of the theory of political economists in relation to poverty at the international level, stating that poverty in societies focuses on the interrelationships between politics and economics, and the role of governments, and on a large scale, the role of human action, and especially the economic and political leaders, in the poverty of the regions.

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