

Artículos

Agricultural Factors as the Root Cause of Rural Migration from a Global Perspective*

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Abstract:

This article discusses rural migration from a global perspective and reveals the agricultural reasons for this kind of migration. Migration from rural to urban is a common phenomenon in the world and especially in the developing countries. There is a number of reasons that lead to this migration. The reasons are due to both rural and urban aspects. But, sourced from rural on the root causes of this migration are more pronounced. By 2050, over half of the population in the least developed countries will still live in rural areas. Three quarters of the extreme poor base their livelihood on agriculture or other rural activities. According to The World Bank data, the rate of the rural population in the world was approximately 66% in the 1960's, while this rate decreased to 44% in 2019. In the same report, it was determined that the rural population in the world increased from 2012 billion in the 1960s to 3397 billion in 2019. As a result, it can be said that although the rate of the rural population in the world decreases, it is a fact that it has a significant population in total. In short, the phenomenon of rural migration will continue to be important in the world and will be the determinant of the future economic and social policies. Based on this fact, this study aims to emphasize the importance of rural migration and to emphasize agriculture and rural development as the root cause of this kind of migration.

JEL Code: R10, R50, Q15

Keywords: agriculture, migration, rural, rural development, rural migration.

Factores agrícolas como causa de la migración rural desde una perspectiva global

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Resumen:

Este artículo analiza la migración rural desde una perspectiva global y revela las razones agrícolas de este tipo de migración. La migración del campo a la ciudad es un fenómeno común en el mundo y especialmente en los países en desarrollo. Hay una serie de razones que conducen a esta migración. Las razones se deben tanto a aspectos rurales como urbanos. Pero, desde el punto de vista rural, las causas de esta migración son más pronunciadas. En 2050, más de la mitad de la población de los países menos desarrollados seguirá viviendo en zonas rurales. Tres cuartas partes de los pobres extremos basan su sustento en la agricultura u otras actividades rurales. Según datos del Banco Mundial, la tasa de población rural en el mundo era de aproximadamente el 66% en la década de 1960, mientras que esta tasa se redujo al 44% en 2019. En el mismo informe, se determinó que la población rural en el mundo pasó de 2012 mil millones en la década de 1960 a 3.597 mil millones en 2019. En consecuencia, se puede decir que aunque la tasa de la población rural en el mundo disminuye, es un hecho que tiene una población importante en total. En definitiva, el fenómeno de la migración rural seguirá siendo importante en el mundo y será el determinante de las futuras políticas económicas y sociales. Partiendo de este hecho, este estudio pretende destacar la importancia de la migración rural y hacer hincapié en la agricultura y el desarrollo rural como causa fundamental de este tipo de migración.

Palabras clave: agricultura, migración, rural, desarrollo rural, migración rural.

Introduction

Migration is a truly global phenomenon, with movements both within nations and internationally across borders. Migration is a global phenomenon both nationally and internationally. It occurs especially in recent years, due to global economic crises, climate change, global epidemics such as Covid-19, terrorism, internal turmoil, political conflicts etc. Mass migrations occur due to such reasons and this situation turns into a tragedy. Migration after the Industrial Revolution is generally based on an economic basis. Economic differences between rural areas based on agricultural production and urban areas based on industrialization form the basis of such migrations. The relationship of the agriculture and industry sector with the population it hosts has also provided a general justification for theoretical explanations to rural migration. Todaro and Harris (1970), Todaro's (1969) model puts forward the reasons of migration within the framework of dual structure in the economy, including the industry sector and the agricultural sector. The most important assumption in the model is that rural migration will continue as long as the expected urban wage exceeds the rural wages (Aktaş & Şahin, 2019; Harris & Todaro, 1970).

Generally, rural migration is a concept used to describe migration from rural settlements to the city. While rural settlements have an agricultural, economic and social structure, urban settlements have mostly industrial and service sectors. Although rural migration entered the world agenda with the Industrial Revolution, this problem still manifests itself as a problem in the world, especially in developing countries. Understanding rural migration in the world will also provide an understanding of the socio-economic past and future of the world. In general, such migration is no longer a problem in these countries, as developed countries have largely completed rural migration (Ateş, 2008; Bairoch, 1993; Peker, 2004; Reliefweb, 2020). However, in developing countries, such migrations are still more serious and threatening. However, the problem of rural migration will continue to be a problem not only for developing countries but also for the whole world in a globalizing world (Davis & Henderson, 2003; Gollin, et al., 2016).

In today's world, it is accepted that there are an estimated 270,000,000 international migrants (3.5% of the world population) and 963,000,000 internal migrants (12.3% of the world population). These figures are quite striking. According to the World Bank data, approximately 60.40% of the world population lives in rural areas, while this ratio increased to 63.40% in 1970, 60.80% in 1980, 57.97% in 1990, and 53.97% in 2000. It was determined that it fell to 47.89% in 2010 and 44.87% in 2019. However, in the same period, while the world population had a rural

population of 2012 billion in 1960, this figure increased to 7397 billion in 2019. In short, while the ratio of the rural population to the total population in the world decreases over the years, this population continues to increase in quantity (IOM, 2020; The World Bank, 2020a). These data will maintain the importance of the issues related to agriculture and rural development, which are accepted as the root cause of rural population, rural migration and naturally this migration in the world, both politically, economically and academically. Rural migration is a key component of the rapid and unplanned growth of cities in developing countries. This situation is a common feature of developing countries. Although the causes of rural migration vary from country to country and from region to region, problems such as agriculture and rural development are accepted as the main reasons. However, the problems caused by rural migration, especially the abnormal growth of cities and the economic and sociological problems experienced with this growth have become a global problem (Mazumdar, 1987).

Migration is often a deliberate decision and an important component of household livelihood strategies. The main reasons for people who decide to leave rural areas are poverty and food insecurity, lack of employment and income-generating opportunities, inequality, limited access to social protection, climate change and environmental degradation, and depletion of natural resources due to climate change. In short, there is a close relationship between rural migration and agriculture and rural development, and defining this relationship will lead to a better understanding of the root causes of rural migration (Brown & Moore, 1970; Davis & Wrigley, 1985; Özdemir, 2003).

Many scientific studies are conducted on rural migration. However, most of these studies are local studies. Therefore, they provide a negative meaning that rural migration is only a problem of the countries where this migration is experienced. However, rural migration is a global problem and this problem concerns the whole world. Consequently, many international organizations, especially Food and Agricultural Organization (FAO), are interested in this problem and are working on it. From this point of view, this study has been designed to bring a global perspective to rural migration, aiming to reveal the root causes of this migration and anticipating that it will make an academic contribution in this field (FAO, 2006, 2018).

Methodology

The main causes of global rural migration are discussed herein in terms of agricultural factors. In addition to the data of international organizations such as FAO, IFAD, ILO for the infrastructure of the study, scientific studies and reports on the subject have been made suitable for the study by using the literature review method. By paying attention to the international validity of the data on rural migration, the data of international institutions were reviewed and it was ensured that the study was carried out in a secure data environment. The literature review, which is widely used in the field of social sciences, was prepared within the framework of the subject integrity of the study and the appropriateness of each article or scientific study was reviewed.

Rural Population Change in the World

Population is one of the most important values a country has. In the economy, population is accepted as a factor that determines not only labor, which is a production factor, but also consumption. In the past, many countries such as Germany had serious economic problems due to their declining population caused by various reasons such as war. In the face of this situation, it is known that they took various measures to revive their labor-intensive economy

and reactivate their country. This situation was experienced not only in Germany but also in Italy. (Bertola & Garibaldi, 2003; Gümüş, 2010; Şahintürk & Bulut, 2017).

There are many studies focused on the analysis of the relationship between population growth and economic growth (Becker et al., 1999; Savaş, 2008; Sibe et al., 2016; Schober & Ebner, 2011). However, there is no consensus among researchers about whether population growth has positive, negative or no effects at all on economic growth. One of the most important debates on this subject was set out by Thomas Malthus. In his 1798 book *An Essay on the Principle of Population*, Malthus observed that an increase in a nation's food production improved the well-being of the populace. But the improvement was temporary because it led to population growth, which, in turn, restored the original per capita production level. In other words, humans had a propensity to utilize abundance for population growth rather than for maintaining a high standard of living. However, considering that the economy of the period in which Malthus lived was based on agriculture, it can be said that this thought was correct. Anyway, this idea will not have sufficient evidence to be extrapolated to an economy based on industry and informatics. Confucius's idea that the overpopulation increase put forward in the 500s BC will decrease labor productivity, reduce the standard of living and cause social conflict, is also an important intellectual base on this issue. One should not forget about Mercantilism, which encourages the population and makes it very valuable in the History of Economic Thought (Malthus, 1798; Rahman, 2019). Although the relationship between population and economic growth and development is suggested in various aspects, the structure of an economy is the most important value that determines this. While increasing population is seen as a threat in an economy based on agriculture, in an economy based on industry this can be considered as a weakness. The quality of a country's population is as important as the quantity of that population. The population of a country that has a skilled workforce is considered a value for that country. Countries with dense rural population in their total population are considered as underdeveloped countries. This situation can be explained by the poverty resulting in[from?] agriculture-population relationship. In an economy based on agriculture, the concentration of rural population puts the country in the trap of poverty and it is known that countries like this cannot get out of the Poverty Circle for a long time (Castañeda et al., 2016; Greinner & Sakdapolrak, 2012; UNPA, 2014).

Urbanization in the world, especially after the Industrial Revolution, together with the increasing number of people, caused the rural population to decrease proportionally. According to the reports prepared by international organizations such as the United Nations and the World Bank, the world population has increased continuously after 1950's. Although the amount of the rural population within this population increases, its proportional share in the total population is gradually decreasing. On the other hand, the world population is increasingly concentrated in urban areas (Figure 1). Today, 55% of the world's population lives in urban areas, a proportion that is expected to reach 68% by 2050. Projections show that urbanization, the gradual shift in residence of the human population from rural to urban areas, combined with the overall growth of the world's population could add another 2,500,000,000,000 people to urban areas by 2050, with close to 90% of this increase taking place in Asia and Africa, according to a new United Nations (UN) data set launched today (Christiaensen et al., 2013; UN, 2018; Tacoli et al., 2015).

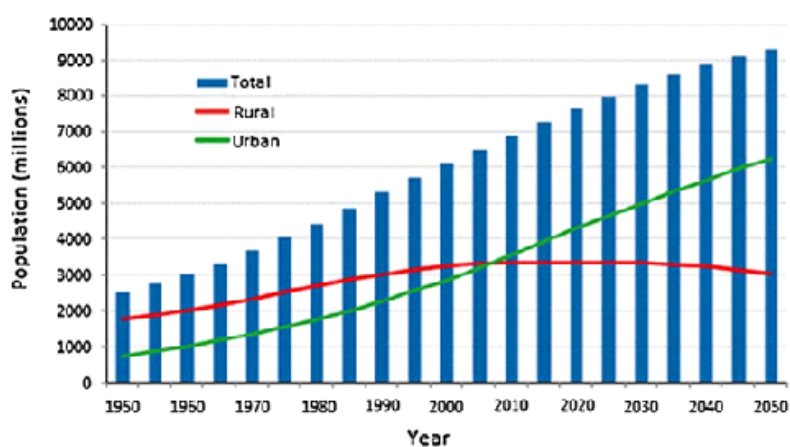


FIGURE 1

THE CHANGE OF THE TOTAL, RURAL AND URBAN POPULATION. IN THE WORLD (1950-2050)

SOURCE: OWN ELABORATION

It is not worthy that the rural population in the world is still high in quantity and relative. Is there a relationship between the rural population and the development levels of the countries? Many scientific studies have been conducted to find the answer to the questions. However, in countries with a high rate of rural population in general, it is observed that per capita income and Human Development Index [HDI] are quite low as compared to developed countries. According to the data of the World Bank, this fact can be seen more clearly when the 6 countries with the highest Human Development Index [HDI] and the 6 countries with the lowest per capita income and Rural Population Rate [RPR] are compared (table 1).

TABLE 1

THE CHANGE OF THE TOTAL, RURAL AND URBAN POPULATION IN THE WORLD (1950-2050).

Countries	HDI	RPR (%)	GDP (\$)
Norway	0.954	17.38	81,807
Swiss	0.946	76.02	82,839
Ireland	0.942	36.60	77,450
Germany	0.939	22.62	48,196
Austria	0.938	41.49	51,513
Sweden	0.937	12.29	54,112
Eritrea	0.434	59.29	1,147
Mali	0.427	56.86	901
Burundi	0.413	86.63	412
South Sudan	0.412	68.20	453
Cad	0.401	74.72	730
Central African Republic	0.381	68.20	510
Niger	0.377	76.0	389

SOURCE: OWN ELABORATION

When the rural population rates of 6 developed and 6 underdeveloped countries selected according to HDI and GDP are compared, it is seen that the rural population ratio is higher in underdeveloped countries. While the average RPO of 6 developed countries is 34.40%, the RTO of 6 underdeveloped countries is 67.59%.

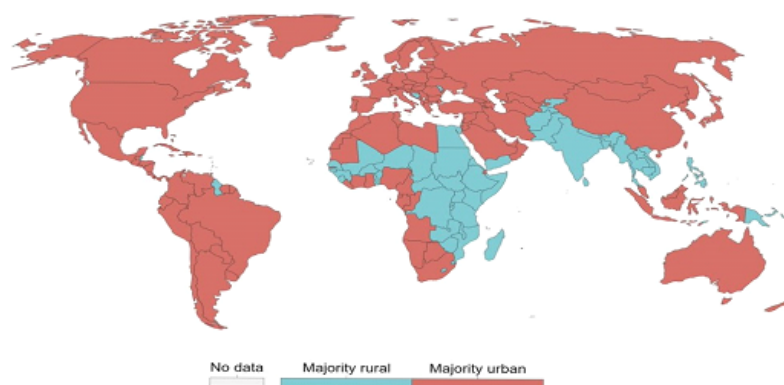


FIGURE 2
RURAL POPULATION IN THE WORLD
SOURCE: OWN ELABORATION

Figure 2 shows that there are approximately 7,600,000,000,000 people in the world as of 2018, and 4,200,000,000,000 of them live in urban areas and 3.4 billion in rural areas. It is estimated that by 2050, the global population will increase up to approximately 9,800,000,000,000. It is estimated that 6,700,000,000,000 people living in urban areas and 3,100,000,000,000 people will live in rural areas. In short, although the share of the rural population in the total population in the world decreases proportionally, it is estimated that it will still be a high figure in total.

The main reason for the decrease in the rate of rural population in the world is rural migration. However, the excess of the rural population in the world and in various regions of the countries will also trigger backwardness and poverty. In order to fully understand the change in the rural population, the causes and consequences of rural migration should be well understood. It is especially important to understand agriculture and rural development, which are the basis of rural economy.

Agricultural causes as the root causes of rural migration in the world

In general, the phenomenon of migration is accepted as a complex and multifaceted global problem that is becoming more and more important in the world. In particular, the refugee problem is a political, economic and social problem that has global effects. Understanding migration is as important as understanding human history. Migrations are the basis of many political, economic and social events, developments and tragedies in the world from past to present from Tribes Migration between 350-800 A.D., to the Syrian problem, which started in 2011 and whose dramatic consequences still affect the whole world, all global or regional migrations have deeply affected the economic and social life of the world. However, among these migrations, rural migration has a special

and important place. Because rural migration is a phenomenon that describes the Industrial Revolution, the Agricultural Revolution, the agriculture-industry-population relationship, migration theories have delved into the economic and social development and rural development with its causes and consequences (Grigg, 1977; Nori & Farinella, 2020).

As rural migration is a multifaceted issue, its reasons are also multifaceted. After the Industrial Revolution, with the economic and social developments in the world, a movement started in the rural society. This mobility has been in the form of resistance and escape from poverty. Rural society's orientation towards cities is actually defined as a kind of escape from agriculture and rural life. In order to understand rural migration, the scientific world has also put forward various theories. One of the most important is the theory known as the Harris-Todaro Model (Nagashima, 2018).

Harris and Todaro, studied the migration of workers in a two-sector economic system, namely, rural sector and urban sector. The difference between these sectors is the type of goods produced, the technology of production and the process of wage determination. The rural sector is specialized in the production of agricultural goods. The model, the equilibrium is reached when the expected wage in urban areas (actual wage adjusted for the unemployment rate), is equal to the marginal product of an agricultural worker. The model assumes that unemployment is non-existent in the rural agricultural sector. It is also assumed that rural agricultural production and the subsequent labor market is perfectly competitive. As a result, the agricultural rural wage is equal to agricultural marginal productivity. In equilibrium, the rural to urban migration rate will be zero since the expected rural income equals the expected urban income. However, in this equilibrium there will be positive unemployment in the urban sector (Harris & Todaro, 1970). The model explains internal migration in China as the regional income gap has been proved to be a primary drive of rural-urban migration, while urban unemployment is local governments' main concern in many cities. The rural migration in Harris-Todaro Model, urban wages increase in the urban sector increasing the expected urban income and agricultural productivity decreases, lowering marginal productivity and wages in the agricultural sector decreasing the expected rural income (Neary, 1981).

The large majority of migrants worldwide, about 763,000,000, move within their own countries rather than abroad. They move from one rural area to another or from rural to urban areas. People decide to migrate for many reasons. Often though, the prime motivation is to escape situations of distress caused by poverty, food insecurity, lack of jobs, increased competition for scarce land and water resources, and so on. In the coming decades, demographic forces, globalization and climate change are likely to increase migration pressures both within and across countries. The root causes of rural migration are listed below:

Rural Poverty and Food Insecurity

More than 75% of the poor and people with food insecurities in the world live in rural areas whose economic structure is largely dependent on agricultural production. The poor living in these regions and especially those working in small agricultural enterprises with no land and very little land are facing significant difficulties in accessing credit, services, technology and markets that will increase their agricultural production and help them increase the productivity of their labor. Therefore, poverty in rural areas continues as a vicious circle and a chronic problem (Kawuwa & Yusuf, 2019; Reardon & Vosti, 1995).

Rural migration has become an important part of the livelihood improvement strategies of rural households. Climate change, population growth, inefficient markets, unsustainable use of natural resources and consumption patterns are converging to put pressure on current and future food availability and access. The 2030 Agenda for Sustainable Development puts forward a transformational vision recognizing that our world is changing, bringing with it new challenges that must be overcome if we are to live in a world without hunger, food insecurity and

malnutrition in any of its forms. The Agenda is a commitment to eradicate poverty and achieve sustainable development by 2030 worldwide, ensuring that no one is left behind. The adoption of the 2030 Agenda was a landmark achievement, providing for a shared global vision towards sustainable development for all (UNa, 2020; UNb, 2020).

Overall, there are strong indications that living in a rural area increases the likelihood that a person would suffer from poverty and deprivation, under the political economy frameworks prevailing in most developing countries. This is supported by the fact that the global poverty rate in rural areas (17.2%) is more than three times that in urban areas. Rural poverty is closely related to the economic and social life of rural residents. There is more poverty than industrial areas, especially due to the agricultural-based economic structure of rural areas, climate change and the pressure of the rural population. This poverty is not sustainable poverty. It should be known that this bad situation can be overcome with rural development and smart interventions in the agriculture. In short, if a solution to rural poverty cannot be found in rural areas, this poverty will be transferred to other regions along with rural migration. This will be called the transfer of poverty. If this situation continues, it will spread ruthlessly around the world like an epidemic. In the report published by the World Bank in 2016, it was found that approximately 95% of the rural poor live in East Asia, South Asia and Sub-Saharan Region (IFAD, 2016; The World Bank, 2020b) (Figure 3).



FIGURE 3
THE RURAL POOR LIVING IN THE WORLD (2016)
SOURCE: OWN ELABORATION

In its report prepared in 2019, Food Safety and Nutrition Status (SOFI) drew attention to this dramatic increase by emphasizing that there are 821 million chronically malnourished people in the world and this number was 811 million last year. Hunger continues to be a serious problem in the world and it has been emphasized that one in five people in Africa is hungry. Hunger continues to rise in West Asia as well. Despite various measures taken to alleviate hunger in the world, food insecurity and malnutrition continue to be serious problems in many countries. Although it is desirable to ensure food security regardless of the political system and socio-economic conditions, this situation continues to be a priority in the developing regions of the world where the increasing density of environmental events such as floods, drought, climate change and population growth combine. The agricultural sector plays a strategic role in increasing food availability and ensuring food security. However, while there is a general agreement on the expected growing global food demand in the coming decades, uncertainty remains about the capacity of global agriculture to serve this demand through the expansion of the food supply. In short, there is a close relationship between rural poverty and food insecurity. Food insecurity is experienced in every region where rural poverty is experienced. This situation continues to be among the determining and permanent reasons of rural migration (SOFI, 2020).

Lack of Employment, Low Income and Lack of Income-Generating Opportunities

The agricultural sector is a sector that is more limited with innovation and development as compared to other sectors. Because of the production rules in the agricultural sector that is a living and biological production, there are important secrets related to the biology. Since the production structure of the agricultural sector is biological, it is directly under the influence of natural conditions. Therefore, climate, soil conditions and genetic structure are determining factors in agricultural production. In short, it can be said that production in the agricultural sector is limited, seasonal and intermittent (Hart, 1973; Switlana & Gridin, 2020). This situation causes them to be the main determinant of the income of those working in agriculture. Therefore, agricultural income is also limited, seasonal, and discrete income that is not reflected throughout the year. This biological production phenomenon in agriculture directly affects agricultural income. With the increasing population, low agricultural income and the decrease in per capita income cause poverty in agriculture. This poverty creates a vicious circle in agriculture and it stands out as the only way out of this cycle as rural migration (Ellison et al., 2019). One of the main determinants of agricultural production rules is natural conditions. These conditions are also the main determinants of the mode of production, the amount and, therefore, the producer's income in agriculture. This situation leads to the emergence of a traditional production and naturally a static way of working in agriculture. In addition, the seasonality of agricultural jobs causes limited income and low numbers of employees in that sector. Therefore, there is both open and hidden unemployment in agriculture and this situation can lead to poverty in a short, medium and long term (Belletti, & Leksinaj, 2016; Kołodziejczak, 2019).

The reasons such as the routine functioning of the agricultural sector and its low relations with the market partially close the sector to innovations and opportunities. All of these, of course, vary from country to country and from region to region. Most current jobs in agriculture are associated with low and unstable income, poor safety and health conditions, gender inequality in wages and opportunities, and limited social protection. The more attractive prospects in rural areas may be limited, due to limited access to education, financial and extension[reach-out?] services and processing facilities.

Productive employment provides a way out of poverty. In rural areas, there is a big challenge with the large number of decent jobs faced by rural workers. These include low pay, low-quality jobs that are not legally recognized and protected, widespread underemployment, lack of rights at the workplace, inadequate social protection, and a lack of a representative voice. Efficient labor markets can contribute to increase the quantity and quality of employment; nevertheless, improving the functioning of rural labor markets remains a major challenge. This chapter examines the nature and distinctive features of rural labor markets and provides insights into how they can be done to function more efficiently. While in many countries it is badly neglected, new approaches have been developed that show that developments can be grasped if there is a political will by others. (Chand, 2019; Güreşci, 2013)

In theoretical studies directly and indirectly related to rural migration, the relationship between rural migration and rural income has been tried to be revealed by comparing it to the industrial sector (Lewis, 1954; Brettel et al., 2015). Some of these are briefly as follows;

- a) The first scholarly contribution to migration consisted of two articles by the nineteenth century geographer Ravenstein (1885, 1889), in which he formulated his "laws of migration". He saw migration as an inseparable part of development, and he asserted that the major causes of migration were economic.
- b) As Lewis put forward in 1954, Neo-classical migration theory sees rural-urban migration as a constituent part of the whole development process, by which surplus labor in the rural sector supplies the workforce for the urban industrial economy.
- c) Todaro (1969) and Harris and Todaro (1970) elaborated the basic two-sector model of rural to-urban labor migration. This influential "Harris-Todaro model" has remained the basis of neo-classical

migration theory since then. The original model was developed in order to explain the apparently contradictory phenomenon of continuing rural-to-urban migration in developing countries despite rising unemployment in cities.

Inequality of Rural and Insufficient Service

All over the world, people living in rural areas have always had problems in accessing basic human services. There are two main reasons for this. The first is that these services are concentrated in cities and the other is that these services are insufficient in rural areas. Although it is a rational idea to collect services in certain centers, it is not a rational service at all that it is a problem to access these services. Compared to their urban counterparts, rural and remote inhabitants experience lower life expectancy and poorer health status. Nowhere is the worldwide shortage of health professionals more pronounced than in rural areas of developing countries (Wang et al., 2019).

Around the world, the health status of people in rural areas is generally worse than in urban areas. Despite the huge differences between developing and developed countries, access is the major issue in rural health around the world. The social determinants of health the conditions in which people are born, grow, live, work and age – are mostly responsible for health inequities, defined as the unfair and avoidable differences in health status seen within and between countries. In disadvantaged rural areas, the drivers of poverty are also the drivers of ill health. The health system, a determinant of health, is often not sufficiently equipped in rural areas to fulfil the needs of the population, thus contributing to rural-urban health inequities. A variety of elements contribute to these problems in rural areas, including a declining population, economic stagnation, shortages of physicians and other health care professionals, a disproportionate number of elderly, poor, and underinsured residents, and high rates of chronic illness. Rural communities have long ago struggled to maintain access to quality health care services, but it cannot be said that the world has come to a good place in this regard. International Labor Organization [ILO] report shows huge differences in health care access between rural and urban areas worldwide. ILO report shows huge differences in health care access between rural and urban areas worldwide; it shows that 56 per cent of people living in rural areas worldwide do not have access to essential health-care services – more than double the figure in urban areas, where 22% are not covered. The report reveals major health access disparities between rural and urban areas around the globe, particularly in developing countries. It is a fact that people living in rural areas in the world have serious and urgent health problems. Especially in the recent Covid-19 pandemic, even the extent of this epidemic in rural areas cannot be measured sufficiently. In other words, it cannot be said that enough tests are done in rural areas. There are several reasons for this. However, among the most important reasons are that the people living in these regions do not have sufficient and balanced nutrition, cannot access sufficient and healthy water and cannot receive adequate health care (ILO, 2008, 2015).

In addition to health problems in rural areas, education is also an important problem. In these regions, especially in developing countries, many children are not able to attend school at all or even get a basic education. In these regions, many children cannot receive education due to problems such as child labor, child fighters, civil turmoil, civil war, and refugee status. Today, education remains an inaccessible right for millions of children around the world. More than 72,000,000 children of primary education age are not in school and 759,000,000 adults are illiterate and do not have the awareness necessary to improve both their living conditions and those of their children (UNICEF, 2020; Zhang et al., 2020).

Rural poverty is often a product of poor infrastructure that hinders development and mobility. Rural areas tend to lack sufficient roads that would increase access to agricultural inputs and markets. Without roads, the rural poor are cut off from technological development and emerging markets in more urban areas. Poor infrastructure hinders communications, resulting in social isolation among the rural poor, many of whom have limited access to

media and news outlets. In rural areas, there is not only a shortage of education and health services, but also serious problems in transportation and communications. These problems lead to an increasing poverty in rural areas of the world and this poor population migrates to cities. About 73% of the world population has no adequate access to social protection. The majority of lives in the rural areas of developing countries face difficulties in managing social, economic and environmental risks (Khan, 2001).

Climate Change and Its Impact on Agriculture

Climate change is defined as the global warming driven by human emissions of greenhouse gases. The greenhouse gas with the greatest impact on warming is water vapor. But it remains in the atmosphere for only a few days (Adams et al., 1988; Mahato, 2014).

Carbon dioxide (CO₂), however, persists for much longer. It would take hundreds of years for a return to pre-industrial levels and only so much can be soaked up by natural reservoirs such as the oceans. Most man-made emissions of CO₂ come from burning fossil fuels. When carbon-absorbing forests are cut down and left to rot, or burned, that stored carbon is released, contributing to global warming. Climate is determined by many factors that influence flows of energy through the climate system, including greenhouse gases. Global climate varies naturally over time scales from decades to thousands of years and longer. These natural variations can originate in two ways: from internal fluctuations that exchange energy, water and carbon between the atmosphere, oceans, land and ice, and from external influences on the climate system, including variations in the energy received from the sun and the effects of volcanic eruptions. Human activities can also influence climate by changing concentrations of CO₂ and other greenhouse gases in the atmosphere, altering the concentrations of aerosols and altering the reflectivity of Earth's surface by changing land cover (Goudriaan & Unsworth, 1990; Fuhrer, 2003).

Smallholder family farmers, small-scale fishers, forest-dependent communities and pastoralists are most hardly hit by weather related disasters, which are increasing in frequency and intensity. Droughts and related food price volatility increase poverty and hunger, and the need to find viable options elsewhere. Mitigation is a response strategy to global climate change, and can be defined as measures that reduce the amount of emissions (abatement) or enhance the absorption capacity of greenhouse gases (sequestration). The total global potential for mitigation depends on many factors, including emissions levels, availability of technology, enforcement, and incentives. In many situations, the efficiency of agriculture can be improved at a low cost. However, when low cost, incentives are unavailable, policy-making becomes quite important. The following is a short summary of key points from this section (Barrios et al., 2006).

Climate change drivers and risks such as tropical cyclones, heavy rains and floods, droughts and desertification, and sea-level rise are among the causes of migration from rural areas. Climate change is causing or contributing to an increase in the frequency and intensity of these events and their adverse effects. The convergence of climatic risks with other socioeconomic stressors increases vulnerability and contributes to the loss of livelihoods. This situation can trigger migration from rural areas. In developing countries, the agriculture sectors (crops and livestock, fisheries and aquaculture and forestry) absorb 26% of the total damage and losses from climate-related disasters. Between 2008 and 2015 an average of 26,400,000 million people were displaced annually by natural-hazard-induced and climate-related disasters – and this trend is rising. It is difficult to accurately estimate the number of migrants as a result of climate change. Given the complex drivers of migration, estimates of climate-related migration vary greatly (Hertel, 2016). This is due in part to a lack of data and the difficulty in isolating climate change as a driver of migration. Overall, migration associated with climate change is growing, and more likely to be in the form of internal mobility within a country. Climate change can exacerbate the degradation of agricultural assets, decrease

production and drastically reduce livelihood opportunities in rural areas. Combined with food insecurity and poverty, these impacts contribute to drivers of migration (Hallegatte & Rozenberg, 2017).

Migration is at the forefront of international discussions on social and economic development. Food and agriculture are central to people’s well-being and linked to why many people migrate, especially where existing hardship is compounded by climate-related impacts. However, the connections between migration, agriculture and climate change are often overlooked or ignored (Arbuckle et al., 2013; Hatfield et al., 2011).

The impact of global climate change is seen all over the world. This effect directly affects the agricultural sector—which is directly related to the climate—as agricultural production is alive and this vitality takes place in suitable climatic conditions. If suitable climatic conditions disappear, agricultural production will be adversely affected. Among the climatic values that agricultural products are directly related to include temperature, humidity, precipitation etc. With the change, adaptation of agricultural products to them cannot be at the same speed and balance. Therefore, it is expected that agricultural products that cannot adapt to global climate change will decrease in quantity and type or even disappear. This decrease or disappearance will affect the employees in this sector negatively. Thus, they will leave agricultural production and migrate from these regions. As a matter of fact, this is one of the developing and expected results of global warming. However, with global warming, the transformation of new opportunities into opportunities with decreasing agricultural products is a separate issue (Abid et al., 2016).

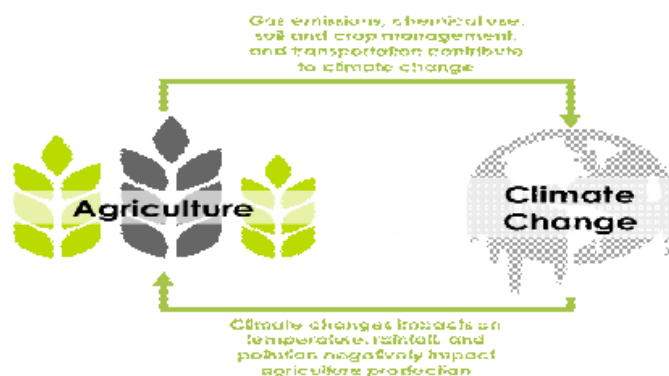


FIGURE 4
 AGRICULTURE AND CLIMATE CHANGE
 SOURCE: OWN ELABORATION

Discussion and Conclusion

Rural migration is a multi-faceted socio-economic event experienced after the Industrial Revolution. If rural migration cannot be understood together with its causes and consequences, neither the past nor the future of the world will be understood. In the world of the future, more poverty, more pollution, global epidemics such as Covid-19, civil war and refugee problems will arise. In this vein, understanding rural migration also means understanding agriculture, food, nature, environment and health. Although the main reason for rural migration varies from country to country, the general reason is agriculture and agriculture-related reasons. The kind of migration should be planned and controllable, especially in order to address poverty that will be created by the agriculture-population relationship. The Covid-19 pandemic has taught all humanity the importance of health and agriculture.

Rural migration is an escape from poverty as well as a development that can be caught in new opportunities. Therefore, the opportunity aspect of rural migration needs to be addressed as well as the problem aspect. In agricultural production, the obstacle arising from the intensity of the soil-human relationship caused by rural migration to produce more and higher quality will be removed. Reorganizing the agricultural infrastructure with the Mansholt Plan made by the European Union in the 1960's will only be possible with a decreasing rural population.

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Notes

- * Research article.