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# Contributions of Agriculture to the Rural Development in Mexico

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## Abstract

Maize is the most extensive crop grown in Mexico. It is estimated that 3 million farmers cultivate maize, 67 percent is grown on small farms mainly for self-consumption, 23 percent on medium-sized farms and only 10 percent on commercial farms. Thus, the study sought to examine the contributions of agriculture to rural development in Mexico. The study was literature-based and the findings were based on the findings from the previous studies. The study results show that agriculture is one of the critical factors that increase the economic development of a country. In most developing countries, agriculture is considered a back born for development. It was noted that in some the countries such as Mexico, agriculture contributes more than 13% to the GDP. The study noted that maize farming is one most practiced in Mexico. Concentrating and putting more effort into agriculture and rural development is necessary for making it possible for growing nations to tackle the essential concerns of food security, reducing poverty and economic growth. The study discovered that the increasing agricultural surplus triggered by improvement in agricultural production and productivity tends to boost social welfare, especially in rural areas. The study concluded that farming and particularly maize farming increases productivity. In addition, the study concluded that agriculture is a reliable driver for development and an essential basis for prosperous income for the majority of nations that depend on agriculture. Consequently, the study recommended that more efforts need to be put into farming. The government needs to increase subsidies to the farmers. The farmers need to be trained on the most effective inputs to be used during the farming. Proper measures are required to strengthen agriculture and attain greater development. The government and policymakers ought to start a diversity and increase appropriation in terms of budgeting for the farming sector. Also, there is a need to guarantee rural farmers a ready market for their agricultural products to avoid wastage and encourage them to do more in the agricultural sector.

**Keywords:** *Agriculture, rural development, Mexico*

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## 1.0 Introduction

In rural areas worldwide, agriculture represents the primary land usage and the main element of the viability of rural areas (Randelli & Martellozzo, 2019). Agriculture and other associated activities make up the fundamental fabric of rural life, contributing substantially to the general state of rural areas in regards to jobs and other business opportunities, infrastructure and quality of the environment. The level at which agriculture represents a portion of the rural economy, and its relative importance as a sector, shows its potential economic contribution to rural development. In many nations, agriculture can be a key economic activity of a certain area and assists most people with employment (Pan, Yang, Zhou & Kong, 2020). In those areas, it is obvious that total social and political stability is connected with the condition of the agriculture sector.

Agriculture in Mexico is a vital segment of the nation's economy traditionally and politically although it represents an extremely small portion of the country's GDP (Zahniser, Taylor, Hertz & Charlton, 2018). The country is among the cradles of farming with the Mesoamericans establishing domesticated crops like maize, beans, tomatoes, squash, cotton, vanilla, avocados, cacao and different other crops. In colonial times, the Spanish brought in more crops and the idea of animal husbandry, mainly livestock, steeds, donkeys, burros, goats and sheep, and barnyard animals like poultries and pigs. Agriculture from colonial time till the Mexican Revolution usually concentrated on huge private lands. When transformation occurred, these were left and the land redistributed. Mexico's major crops consist of grains like corn and wheat, exotic fruits and different vegetables (Prado-Vera, Franco-Navarro & Godinez-Vidal, 2018). Agricultural exports are necessary, specifically coffee, exotic fruits and winter vegetables and fruits. 60% of the country's farming exports go to the USA.

Sharp and Busse (2019) mentioned that agriculture's vital role is in the production, both food for the rural and the city residents and cash crops for the export market, to gain foreign currency. Through this process, demand is promoted for various other products or services, and employment opportunities arise to absorb society's workforce. Mexico exported agricultural products with a value of more than $45.5bn in 2016, about 13% of the nation's overall exports (Bennett & Basurto, 2020). Farming, which accounts for 5% of Mexico's GDP, expanded by 3% last year, even as the entire economy contracted by 9.4%. Mexico has exported food for many years.

A strong agricultural economy brings social changes by enhancing productivity, employment and earnings (Duan, Ren, Wang, Zhang, Reis, Xu & Gu, 2021). Farming is the key driver of growth in the majority of rural areas. The need for staple foods, agricultural commodities and increasingly refined food is expanding in growing nations. Agriculture is regarded as the major source of the likelihood for the farmers or individuals residing in the rural regions. Agriculture particularly consists of forestry, fishing, animal production, and cultivation of crops, contributing about 4.1% to the country's GDP. The share has continued to be below 5% for over two decades. However, farming, or the main sector, plays an important function in indirect methods for the Mexican economy (Bustos & Moors, 2018). Mexico is among the main participant in worldwide agricultural trade. In 2020, Mexico's agricultural exports (to all nations) were valued at around $45.8 billion.

The highly profitable exotic crops are coffee and sugarcane. Coffee is sold to other nations whereas sugarcane is mainly consumed locally. The crucial exotic crops are fruits like bananas, vanilla,

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pineapples and mangos, cacao and rice. Cotton is a vital crop for exportation which is cultivated in Soconusco in Chiapas and the south parts of the country (MacLeod, 2021). Collaboration in rural advancement is an essential element for decreasing poverty cases. There are three significant reasons for this: most of the poor in the developing nations are people in the rural areas, most of the metropolitan poor are workers who have migrated to metropolitans from rural areas or former farmers that have left rural areas, and enhancements in the living and income standards in the rural areas will aid in curbing the flow of individuals from rural to metropolitan areas and will contribute to the improvement of social environments in metropolitan areas, and the stability and growth of rural communities (De Clercq, Vats & Biel, 2018).

The rural labor force is important even though it is reducing. Traditional agricultural techniques with small farms cultivated by families and small communities still occupy most areas, particularly those with a big native population. In some regions, the major crops are corn, beans and squash (Delgado & Siamwalla, 2019). Most farmers are still practicing subsistence farming gaining money by selling surplus crops in the nearby markets. A lot of the extremely poor around 79% stay in the rural areas. The rural extreme poor are different from the city extreme poor and the non-poor. Their earnings rely significantly on farming activities, from work on their farms, or in agricultural salary employment. This dependence on agriculture makes the rural severely poor and more susceptible to climatic shocks and weather conditions. While farming plays a huge role in their income and food security, the rural extreme poor additionally diversify their income sources in other non-agricultural areas (Abdelhedi & Zouari, 2020).

In most developing nations, individuals who are taking part in farming account for over half of their whole populations and a lot of them remain in grinding poverty (Malkerov, 2021). Additionally, the agricultural segment plays a vital duty in the nationwide economies of growing nations. Teamwork in agriculture and rural development is necessary for making it possible for growing nations to tackle the essential concerns of food security, reducing poverty and economic growth (Rahaman, Kumari, Zeng, Khalifa, Farooq, Singh & Aadil, 2021). Soil erosion from corn production has been an issue since Mesoamerican time. These and other sorts of ecological destruction have been regarded as the reason for the collapse of the Teotihuacan civilization. To develop new regions for agriculture, Mesoamericans harvested rainfall, developed lakeshore irrigation systems and developed new areas in the form of terraces and "chinampas" artificial floating islands in shallow waters.

## 2.0 Literature Review

Gowda, Steiner, Olson, Boggess, Farrigan, and Grusak (2018) conducted a study to get an understanding of the agriculture sector in rural communities. It is considered the main activity of the people and both males and females are engaged in this industry to maintain their incomes. The primary goal of farming laborers is to improve efficiency and profitability. To accomplish this purpose, they are utilizing scientific, modern technology and innovative techniques in the production processes. By using innovations and scientific approaches, improvements have been occurring in the production methods. On the other hand, there are little and few marginal farmers as well, that utilize old ways in improving productivity. The major regions that have been thought about in this study consist of, the importance of the development of the farming sector, agricultural

diversification towards high-value products and rural growth, and guidelines to increase agricultural productivity and problems of the farmers.

Shmatkovska, Dziamulych, Vavdiiuk, Kutsai and Polishchuk (2021) performed a study to analyze the rural advancement in the Dobrogea area, where agriculture still has a vital duty in the structure of job creation. Account research is economical, making use of specific strategies and logical methods. As per the OECD categorization, the Dobrogea area has a strong rural element; however, it includes different degrees of advancement. The economic structure of both regions is different; Constanta Region is controlled by industry, trade and tourism, while Tulcea is controlled by farming practices. Challenges in the rural areas consist of: lack of proper distribution of land and accessibility to water and large conveyance losses, poor quality seed, soil issues (such as the decreasing of soil fertility and land deterioration), low productivity of crop agriculture, insufficient infrastructure, poor public-service delivery and lack of engagement by rural individuals in many public-sector growth programs. Going forward sustainable growth will be difficult without focusing these concerns through sustainable agricultural methods. Proper measures are required to strengthen agriculture and attain greater development. Reliable and equitable solutions for enhanced agricultural growth and reducing poverty consists of increasing existing yields and enhancing diversity to high value-added crops. Sustainable farming causes sustainable rural growth.

A study by Dimitrijević, Vržina and Leković (2020) reported that Serbia is a mainly rural country, as three-quarters of its land makes rural areas, and about half of the residents are residing in these rural regions. Serbian farming is the segment that is very vital for the overall economy of the nation in respect of resources, contribution to the GDP and employment along with significance for rural regions and residents. This is the only industry in the Serbian economy that reveals a positive international trade balance in the current years. There is a possibility of growth of agricultural entrepreneurship on one side, but on the other, there are constraints in the existence of a high number of small household farms whereas the huge share could not have a business account and could not live only from agricultural activities. The principle of multifunctional advancement of farming and rural regions still exists mainly in the scientific and political sphere without clear description or interpretation and ways of execution. Serbia's rural area is heterogenic and ravaged to various extents, and hence extremely complicated for planning multifunctional growth.

According to Cramb and Thepent (2020), the research agricultural industry is a leading propelling force for the development and advancement of the rural areas of Thailand, making the nation primarily an agricultural nation. Farming is the source of income for 50.4% of the nation's overall employed workforce. The current share in GDP is 19.7 %, and these contributed to more than 80% of the international exchange revenues of the nation by exporting resources and semi-processed and refined agricultural goods. Thailand is among the most populated nation worldwide with an overall population of 200 million in 2016. Around 70% of the overall residents stay in the rural regions and particularly rely on farming. According to this facts and numbers, the industry has been deemed the lifeline of the nation's economy. However, destitution in Thailand is mainly a rural sensation; for that reason, the growth of agriculture must be the primary propeller for easing rural poverty. Nation's farming is adversely influenced by different problems and constraints. These concerns, in turn, impact Thailand's activities, especially in the rural regions. It is thought

that the revitalization of rural growth may provide a perfect structure for broad-based faster economic development. In the study, an effort is employed to show that sustainable agriculture and alternative strategy are necessary to accomplish rural growth. The investigation concludes that sustainable farming causes sustainable rural growth.

Silva, Ferreira, Calijuri, dos Santos, do Carmo Alves and de Siqueira Castro (2021) articulated that accessibility, efficiency and affordability of agricultural data remain the significant obstacle to enhancing agricultural productivity among the small-scale farmers in Brazil. Recently information and communication technology has given a possible method to alleviate these situations. A range of developments that incorporates ICTs into the dissemination of agricultural information to farmers has been established at regional, nationwide and local levels. They have presently shown a promising area of new study and application in e-agriculture whilst bringing new resources of information and new instruments for local understanding circulation. The study evaluates the role of ICT and its functional contributions to farming and rural growth in Brazil. Information from different sources-Brazil's farming regions, ICT suppliers, NGOs and literature reviews were utilized. Outcomes show the use of ICTs specifically mobile phones are present all over the rural regions of Brazil. About one member of small-scale farming families has a smartphone. Extension provider has used this innovation by placing it into profitable usage in rural Brazil. Brazil Agricultural Commodity Exchange (BACE) has come up with a short message service in collaboration with mobile phone operators. Any farmer anywhere in the nation can access updated and reliable market details on prices and product offers at an inexpensive rate using their mobile phones. Up until now, the service is convenient to use, dependable, hassle-free and economical. The average monthly use of the service improved from 2,145 in 2008 to 30,784 in 2018, showing the subsequent efficiency and eagerness of farmers to investigate the market information and linkage systems. Farmers can get information on the appropriate Crossbreed Maize seeds to plant in their particular agroecological areas by way of texting Brazil Seed Company a significant seed representative in the South American region. The study advises fostering such innovations by organizations like Metrological Department to improve the arrangement of updated information on the environment for appropriate decision-making by agricultural farmers. The study is vital to boosting awareness of appropriate transferable modern technologies of the 21st century that are still suitable for varied cultural perceptions.

A study by Diehl, Oviatt, Chandra and Kaur (2019) noted that because of rapid urbanization and the development of the trade and industry market, the contribution of the farming industry has been lowered in the NCT of Delhi. Additionally, the rapid development of the services industry is making agriculture and rural economic activities much less attractive. Because of this, the contribution of agriculture and allied tasks to the Gross State Domestic Product at existing rates in Delhi has decreased from 2.14 % in 2010-011 to 1.15% in 2018-19. According to demographics of 2019 rural residents in Delhi was 5.01 Lakhs (3.58% of the overall residents of 212.21 lakh). About 19% of the overall location of NCT, as per the 2019 census, was in rural and the remainder 81% in metropolitan areas. The number of rural villages in Delhi decreased from 198 in 1998 to 80 in 2016. Farming being a state subject, the key responsibility for enhancing farming production and performance, making use of untapped potential and increasing the income of the agricultural people and the rest with the state government.

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Wang, Vo, Shahbaz and Ak (2020) conducted a study to analyze the importance and contribution of agriculture to rural development by the use of cross-section information. The significant result of the study is that agricultural development, while strongly connected to rural development over the advancement process, contributes to total economic development with its beneficial effect on overall variable productivity. In fostering productivity, the role of agriculture seems to be no less essential than that of export performance. The empirical proof puts more effort into the debate that farming and rural development ought to be given priority and be correctly sustained in a general growth approach.

Qaisrani, Umar, Siyal and Salik (2018) study agricultural activities primarily depend on rural regions; whereby the poverty rate in rural regions is relatively high from 2015 to 2018. The poverty level is 20.15% -9.84%. Even though the poverty rate reduces but is still more than in the metropolitan areas which are about 9.67% -6.56% (within the same time). The goals of the research are: to approximate the duty of the farming industry on local performance and to describe qualitatively the connection of the agricultural industry to poverty. The study makes use of the Input-Output (IO) approach with a non-survey strategy. The information utilized for the evaluation is IO information from 2008 and 2018 originating from Badan Pusat Statistik (BPS) Indonesia. The analysis reveals that the function of the farming industry in regards to need and supply is still small in the economic growth of East Java. Generally, the duty is still extremely small contrasted to the industrial area and other areas. Moreover, poverty still builds up in rural areas, where rural areas have a high relation with the farming industry. This reveals that the farming market has no strong interconnectedness and association with the industrial sector. Therefore the sector has not depended highly on the farming industry in East Java. This is among the reasons why poverty is high in rural East Java.

Enokela (2021) reported that farming is a panacea for rural development. The fight for long-term rural development is either won or lost in the farming sector. Nonetheless, how this way births rural prosperity has been the topic of arguments among economists and advancement scholars. The research empirically investigates the effect of the farming industry on the rural development of Japan, utilizing time-series data from 1995 to 2018. Results exposed that actual GDP, farming output and oil rents have a long-term balance association. Vector error improvement design outcome indicates that the rate of modification of the factors towards their future equilibrium way was reduced, although farming output had a favorable effect on rural development. It was advised that the government and policymakers ought to start a diversity and increase appropriation in terms of budgeting for the farming sector.

Kobayashi, Higa, Higashiyama and Nakamura (2020) discovered that for the last forty years have experienced unanticipated rural development and quickly increasing food demand in Japan. The study gives an overview to readers with useful information summarizing the growth of Japan's farming industry and the change in its rural economy over the four decades of economic reformations. Nevertheless, it is difficult to use all facets of this current and abundant background in a particular study concern. Nonetheless, we anticipate that these documents will resolve one of the most fundamentally vital and informative areas consisting of land reform and rural growth; innovation progression and productivity development; alternating food consumption patterns; rural education and human capital accumulation; and poverty reduction.

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Kyaw (2018) performed a study to analyze the contributions of farmers' organizations to rural development, especially in the South East Farmers' Organization (SOEFOR). The research was done from February to December 2015 in the Agricultural Department of the South East Area of China. 251 farmers of SOEFOR were interviewed utilizing a semi-structured questionnaire and 35 managers were interviewed. The information gotten was evaluated by making use of SPSS. The results reveal that SOEFOR plays an important duty in the mobilization of resources from the state and external benefactors. The quantity of exterior help improved with time from 954.000 to 334.257.578 FCFA. The contribution of SOEFOR to the assistance of specific efforts of farmers was all positive as 63% of the recipients had raised revenue and 52% employed labour for farming. As per the t-test analysis utilized to examine the contribution of SOEFOR to participants, there is a substantial disparity between the levels of income of the recipient and non-beneficiary farmers. The contribution of SOEFOR to the provision of inputs to farmers was all positive as 80% of the beneficiary participants had agricultural instruments and inputs in their areas. The strengthening of the institution all at once was positive since it permitted SOEFOR to use technical staff, and boost subscription and group advertising, specifically to 10 staff, 3582 members and 1051 group sales. The contribution to the growth was favorable, given that 24.64, 20.32, 20.48, 9.11, 20.86 and 9.75% of the participants, respectively shared complete satisfaction for better structuring, increased leaders' capability, mobilized capital, new techniques in position, increased market accessibility and excellent administration in the company. The research concluded that farmers' organizations are key for farmers and their rural areas.

## 3.0 Findings and Conclusion

The contribution of agriculture to rural development in various nations differs. The increasing agricultural production is triggered by improvement in agricultural production and productivity tends to boost social welfare, especially in rural areas. Farming offers employment opportunities for rural individuals in underdeveloped and established nations. It is an important source of income in rural areas. Putting more efforts and resources into rural development is an essential element for decreasing poverty cases. The rapid development of the services industry is making agriculture and rural economic activities much less attractive. Agriculture and other associated activities make up the fundamental fabric of rural life, contributing substantially to the general state of rural areas in regards to jobs and other business opportunities, infrastructure and quality of the environment

The study concluded that agriculture is a reliable driver for development and an essential basis for prosperous income for the majority of nations that depend on agriculture. Challenges in the rural areas consist of: lack of proper distribution of land and accessibility to water and large conveyance losses, poor quality seed, soil issues (such as the decreasing of soil fertility and land deterioration), low productivity of crop agriculture, insufficient infrastructure, poor public-service delivery and lack of engagement by rural individuals in many public-sector growth programs. Going forward sustainable growth will be difficult without focusing these concerns through sustainable agricultural methods. Proper measures are required to strengthen agriculture and attain greater development. Reliable and equitable solutions for enhanced agricultural growth and reducing poverty consists of increasing existing yields and enhancing diversity to high value-added crops. Sustainable farming causes sustainable rural growth.

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## 4.0 Recommendations

The study recommended that more efforts need to be put into farming. The government needs to increase subsidies to the farmers. The farmers need to be trained on the most effective inputs to be used during the farming. Proper measures are required to strengthen agriculture and attain greater development. The government and policymakers ought to start a diversity and increase appropriation in terms of budgeting for the farming sector. Also, there is a need to guarantee rural farmers a ready market for their agricultural products to avoid wastage and encourage them to do more in the agricultural sector. Subsidy needs to be given to farmers in the rural areas to encourage them to continue with agriculture. The farmers should be given capacity building to increase their knowledge on production efficiency.

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