



Factors of Agricultural Transformation in Nepal

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Abstract

The fundamental challenge of developing countries like Nepal is the need to modernize traditional agriculture in order to establish it as a key sector to kick off the growth of other sectors of the economy. Therefore, this paper has assessed the present state of agricultural development in Nepal to identify the major areas for reform. This paper adopted review and a descriptive analysis of the available official data from various government documents and research papers. The analysis has revealed that agricultural growth has been slow and that the contribution of the agriculture sector to GDP is also decreasing. The overall investment in the agricultural sector has been insufficient, resulting in numerous other issues, such as high productivity gaps, persistent food insecurity, and agricultural trade deficits. A concerted effort is required to achieve an agricultural transformation in Nepal, encompassing all the major sectors of agricultural growth. It is unlikely that the burgeoning problems of the Nepalese economy will be solved in the near future without the radical transformation of the agricultural sector.

Keywords: Agricultural Structural Transformation, Agricultural Trade, Investments, Labor Force, Land Reform, Productivity Gaps

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1. Introduction

The transformation of traditional and subsistence-oriented agriculture into a highly commercial and competitive sector is the fundamental challenge for many developing countries. The transformation of the agricultural sector goes beyond simply reorganizing the agricultural sector to meet the growing demand for more food production. It is more like a transformation of the traditional farming sector into a highly commercialized one capable of supplying raw materials for industrial expansion and boosting agricultural exports. The process of agricultural transformation thus encompasses a multitude of changes affecting the sector, including the existing socio-cultural, economic, political, and institutional framework of the economy. This requires the introduction of new and timely reforms. Some of these measures include land reform, resettlement plans, cooperative movement, access to credit institutions for rural finance, and integrated development programs and policies, to mention a few (Food and Agriculture Organization of the United Nations, 2003).

In Nepal, as in many other low-income and landlocked countries, the agricultural sector is one of the major contributors to the country's gross domestic product and provides livelihoods for much of the population. It is also the main source of raw materials needed for agro-based industries. However, this sector is in a low-development stage, evident by the fact that 60.4 percent of the population is engaged in this sector, which is not commensurate with the gross domestic product (GDP) contribution (27 percent) of this sector to the economy (National Planning Commission, 2020). This sector has poor productivity and competitiveness, and there is little uptake of new technology. A lot of people who work in agriculture are not able to escape poverty, and the nation's food security is not significantly improved, despite encouraging signs in some sectors such as dairy, poultry, tea, ginger, and fisheries (Basnett et al., 2014; Ministry of Agricultural Development, 2015).

2. Problem Statement

The need for transforming the agricultural sector in countries like Nepal is heightened by the fact that most of the poor population resides in inaccessible and remote rural areas and engages in subsistence farming. The agriculture sector is also plagued by various other issues, such as low land and labour productivity, poor technological knowledge of the farmers, low investment of institutional credit in the agriculture sector, land fragmentation, poor year-round irrigation coverage, poor physical and economic infrastructure, absentee landlordism, poor market infrastructure, and market linkages, and a lack of price policy for agricultural products. The

transformation of agriculture is therefore essential for a rapid change from a traditional and subsistence-oriented agrarian economy to a modern industrial and service sector, without which economic development is not possible (Thapa et al., 2019). Thus, a new dimension on traditional thinking regarding land use pattern, labor force, investment, productivity, and trade of agricultural products need to be discussed and analyzed.

3. Objective and Methodology

The objective of this paper is to examine the present state of agricultural development in Nepal (*Agricultural Structural Transformation, Agricultural Trade, Investments, Labor Force, Land Reform, Productivity Gaps*) and assess its effect on the long-term economic development of the country. The study analyzes and reviews the various areas of agricultural development using secondary data available from government publications and different research papers related to the study.

4. Theoretical Background

The historical evidence indicates that the agriculture sector accounted for a significant proportion of national output and employment during the initial stages of development. Most theories of economic development explicitly treat the agricultural sector because of its crucial role in kicking off the economic growth process. These theories have changed over time which were categorized into two schools of thought. First, traditional thoughts of agriculture as a passive contributor to economic growth during the 1950s and 1960s, and the agricultural-led industrialization modern school during the 1970s and 1980s.

The traditional theorists, led by Arthur Lewis in the 1950s, contended that an agricultural sector overwhelmed by low productivity and the adoption of traditional technology could not achieve economic growth unless its factors of production, chiefly labor, were transferred to a modern industrial sector. In this approach, the contribution of the agricultural sector to economic development was deemed passive. The agricultural sector served primarily as a source of food for the expanding urban population and supplied surplus labor, rather than a catalyst for economic growth. Even though it was seen as passive, the agricultural sector nevertheless made a significant contribution to the economic transformation by guaranteeing a steady supply of food, preventing the industrial revolution from being threatened by rising food prices and real wages, and taking advantage of land, a major natural resource, as a free source of growth that would not compete with resources used for industrial growth and expansion. This theory produced a noticeable urban bias in investment and policy decisions during this time, despite

the fact that it was employed to justify the industrialization-led policies of many nations in the 1950s and 1960s (Blandford, n.d.).

Beginning in the early 1960s, there was a significant shift in development theory that emphasized the importance of agriculture in the process of economic growth, particularly in the early phases of industrialization. This approach viewed agriculture as having an active role, influenced by the emerging experience in Asia. There were two major contributions from the agricultural sector. Initially, the adoption of improved technology could transform traditional agriculture into a modern one, thereby facilitating a significant contribution to overall growth. Second, the strong linkages and multiplier effects of agricultural growth affect other sectors of the economy and contribute them to grow simultaneously. Agriculture is closely related to both the agricultural processing industry and the input supply industry through forward and backward linkages. According to Briones and Felipe (2013), economic growth is thereby aided by the robust forward and backward links that exist between agriculture in the rural sector and other economic sectors, particularly the manufacturing sector.

4.1. Situation of Agricultural Growth in Nepal

High growth in the agricultural sector results in a larger contribution to GDP. Again, the growth of GDP is crucial to increasing income, alleviating poverty, and improving family livelihoods of the Nepalese people (Gauchan, 2008). The country's growing population has higher demands for food and means of subsistence, and the sector's growth performance has not kept up with these demands. The average annual growth rate of the agriculture sector in the year 2018/19 was 4.2 percent compared to the growth in the non-agriculture sector, which was 8 percent (National Planning Commission, 2020). Besides, the rate of agricultural GDP growth in Nepal has been sluggish and highly erratic from year to year. In recent years, the contribution of the agriculture sector to GDP has been gradually declining every year. This indicates that the relative importance of agriculture in the country's economy in terms of generating national income is also declining. Low growth in agricultural GDP is insufficient to create a strong drive that could lead to structural transformation from subsistence to commercialization (Ministry of Agricultural Development, 2015). Low growth has a negative impact on the opportunity for profitable employment within Nepalese agriculture. The slow growth of the agriculture sector is primarily responsible for a substantial proportion of the most productive labor force seeking employment in other countries. The growth rate of the agricultural sector in poor countries like Nepal has a direct impact on poverty and living conditions in rural areas.

5. Discussion and Analysis

For better structural transformation of the agricultural sector, Nepal needs to discuss, analyze and find out the new dimensions of agricultural trade, investments, labor force, land reform, and productivity gaps of Nepalese agrarian economy of this century.

5.1. Agricultural Trade in Nepal

According to the Ministry of Agricultural Development (2015), Nepal's agricultural import and export trade accounts for approximately 15.6 percent of its total trade. In addition to the import of fruits, grains, vegetables, beans, dairy products, meat products, and raw materials for processing and manufacturing, the agricultural trade is primarily driven by the export of tea, cardamom, ginger, and aromatic and medicinal plant products. India is the country from which most imports are sourced, and it is also the primary market for Nepalese agricultural exports. Even though Nepal is an agricultural nation, there is currently a deficit in its agricultural trade. According to the Ministry of Agricultural Development (2015), there was a significant and expanding deficit for food and agricultural products in 2010—more than \$350 million. Nepal's agriculture is not very competitive, as evidenced by the significant and expanding deficit in food and agricultural trade. Low competitiveness is caused by a number of issues, including bad governance, regulations, credit availability, and infrastructure. The Nepal-India trade treaty, along with the open and porous border between the two countries, has created *de facto* free trade in agriculture products and also in the input market between Nepal and India. Furthermore, Indian agricultural products outcompete most of the Nepalese products in the domestic market because of differences in technology, scale of operation, and magnitude of government support. The imports of agricultural products from India, despite their positive impact on price stability, have displaced Nepalese products in the market, as evidenced by the consistently rising share of imports of food items in food consumption.

The World Trade Organization, the South Asian Free Trade Area, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, and the bilateral trade treaty between Nepal and India are among the agreements to which Nepal is a signatory. Vegetables, fruit, dairy products, meat, and beverages have a lot of room for import substitution. Some high-value agricultural commodities may also be exported. However, it has been challenging for Nepalese farm products to meet international quality standards due to subpar farming and manufacturing practices. Nepal currently exports agricultural products in their primary forms with no significant value addition. The result is that Nepalese products face non-tariff

barriers in the form of sanitary, phytosanitary, and technical standards in export markets. There is a serious need to increase agricultural productivity, improve quality, and devise appropriate policies and plans to improve the agricultural trade.

5.2. Agricultural Transformation

The fundamental development challenges faced by third-world countries, including Nepal includes poverty, growing inequality, high population growth, rising unemployment, growing urbanization, migration, etc. One of the factors contributing to the genesis of these issues is the stagnation of the rural agricultural sector. This implies that development must take place in rural areas in general and in the agricultural sector in particular, given that most of the poor population lives in rural areas and adopt agriculture as their main occupation.

Nepal has a very low growth rate for its agriculture sector, which creates a demand for a big push for structural transformation of the economy. Despite the majority of the population engaged in this sector, a large part of the population is still malnourished and faces food insecurity every year. Food trade deficits have become a common problem, which has been caused by the shrinking size of farms and lower agricultural productivity, among others. The low competitiveness of the agricultural sector and slow growth rate have led to a growing number of young people moving to foreign countries in search of employment opportunities. Both public and private sector investments are important in order to change the situation and accelerate the pace of agricultural development. However, neither the public nor the private sector are investing enough in Nepal at the rates needed to make this sector of the economy grow quickly.

The current economic situation necessitates a complete overhaul of the agricultural sector and rural economy in Nepal. The overall development of rural areas is intended to improve the quality of life of rural people. The primary factor influencing its development is the advancement of small farmers in the agricultural sector. Even the literature says that the main idea of structural transformation since the 1970s has seen agriculture as an engine of growth that has strong growth links with the rest of the economy (Byerlee et al., 2009). Owing to that, the green revolution started in the 1960s diffused quickly throughout many parts of the Asian region in the 1970s and 1980s. After that, the agriculture revolution helped in the structural transformation of the economy in these countries (Briones & Felipe, 2013).

The path to a successful agricultural transformation in Nepal must begin with addressing the underlying structural issues. This includes scientific land reform program. The trend of land fragmentation and loss of agricultural land due to

urbanization must be stopped, and fallowing should be discouraged. Agricultural productivity must be significantly increased by increased investments in research and development by both the government and the private sector. It is imperative that there is a continuous provision of high-quality inputs and a guaranteed market for the output produced at a fair price for both producers and consumers. The youth population should be encouraged to develop their skills and become involved in the agriculture sector, including in the areas of production, processing, and marketing of agricultural inputs and outputs. Some of the agricultural commodities that have a comparative and competitive advantage in the country should be promoted through strategies for import substitution and export promotion. It is also essential to consider the accessibility, affordability, and utilization aspects of food security in order to ensure food security for all citizens of the country.

5.3. Land Reform in Agriculture

The term agricultural land refers to the land area that is either arable, under permanent crops, or under permanent pastures. Due to the low level of available arable land and the difficult topography, which includes mountains, hills, and terai, agricultural land is one of the scarcest natural resources in Nepal. Only 28 percent of the total land area of Nepal is arable, and 21 percent is currently under cultivation (Ministry of Agriculture and Livestock Development, 2023). Of the total 30,91,000 ha of land under cultivation, only 15,09,427 hectares (48.83 percent) of land have been irrigated (Ministry of Finance, 2022). In Nepal, the proportion of agricultural land per capita is progressively declining due to the combined effects of several factors, including inheritances, urban development in the productive agricultural land, and the degradation of soil fertility. The existence of smaller and more fragmented farms pose a challenge in achieving economies of scale and generating a sufficient income for the families of smallholder farmers.

Most households have a farm size less than 0.5 hectare, and the average farm size is only about 0.7 hectare (Ministry of Agricultural Development, 2015). Around 80 percent of the land that is grown is covered with cereal crops. Strict implementation of the land use policy and scientific land reform is a key element in the transformation of traditional agriculture. The land reform process in Nepal, which began in the 1950s, has not been completed. There are still lots of lands that are larger than what is permitted by law. A further secondary effect is the increasing trend of leaving land fallow in order to avoid the negative effects of landowner-tiller conflicts, which hinder the growth of land productivity and fuel social unrest. One potential solution to this problem can be the land lease policy and legislation, but till date there has been no progress in this area.

Agricultural land sizes become unsustainable economically as a result of the traditional inheritance law in Nepal, which causes agricultural land to become more fragmented over successive generations. Concerns about land plotting, which involves turning agricultural lands into residential ones due to rapid urbanization, are also becoming more prevalent. The growing urban population needs to be fed. Peri-urban agricultural land is under increased strain due to increased urbanization. Some of the most productive agricultural land in peri-urban areas across the nation has been lost due to rapid urbanization. The degradation of agricultural land poses a serious challenge to the farming sector in Nepal.

5.4. Labor Force in Agriculture

Most of the labor force in Nepal is employed in the agricultural sector. The Nepal labor force survey 2017/18 estimates that one in every five people who had jobs in Nepal are employed in agriculture (Central Bureau of Statistics, 2019). However, their productivity is low relative to the labor productivity of the rest of the economy. The labor productivity estimates for agricultural labor in Nepal in 2010 was \$794, which was approximately one-fourth of the productivity in the rest of the economy. According to the Ministry of Agricultural Development (2015), the productivity of non-agricultural labor is \$3130. The agricultural labor productivity growth of Nepal is 2.29, which is one of the lowest compared to other South Asian countries (Imai et al., 2019). The primary manifestation of low development is the low level of labor productivity. The weak performance of the agricultural sector resulted in low labour productivity in this sector. Therefore, strong incentives have been created in the agriculture sector for a large part of the most productive labor force to seek employment in foreign countries. Labor productivity is the key to agricultural commercialization and the foundation of agricultural trade.

The recent demographic and economic development in Nepal has seen a gradual shift in the structure of labor, from traditional agriculture to modern manufacturing and tertiary services. The agricultural work force is experiencing declining growth rate. Increasing urbanization and employment opportunities in non-farm-based activities, new technologies, increasing competition of agricultural resources with other economic sectors, and foreign employment opportunities are some of the factors driving this trend. In this context, Kharel and Pasa (2021) suggested local government to encourage and mobilize more people, including educated/skilled youths in the farming sector through good networking of agriculture service delivery practices.

Nepal's rural youth are increasingly opting for employment opportunities in foreign countries due to attractive income opportunities. Labor shortages in the agricultural

sector during the peak season of labor demand is influencing higher wages, resulting in a high production cost, lowering competitiveness, and increasing the need for mechanization. Until the agriculture sector undergoes a transformation into a commercial and competitive industry, it cannot attract additional investment and attract a greater number of educated and skilled youth seeking employment in this sector. Women constitute the predominant portion of the agricultural labor force in Nepal; however, there are wage differentials between men and women.

5.5. Investment in Agriculture

The government of Nepal has recognized the importance of agriculture and has prioritized it in its periodic and annual plans, policies, and programs. However, the proportion of the budget allocated to the agricultural sector in the national budget is not in line with its contribution to the national economy. The national budget allocates approximately 3.37 percent towards agricultural development, which is insufficient to foster adequate agricultural growth and ensure food security for a growing population (Ministry of Finance, 2023). Increased investment in agriculture is essential for reducing poverty, achieving sustainable development goals, and enhancing food security. Public investment in the agricultural sector includes both capital and recurrent expenditures. Capital expenditure is a small share of total agriculture sector budget allocation, and its actual expenditure is generally lower than allocated. Such capital expenditure involves expenses made in infrastructure development, construction, and other fixed assets that help generate real capital in the sector in the future. This tendency has numerous implications for the economy. It slows down the current and potential growth potential of the agricultural sector while discouraging private and foreign investments and aid in this sector.

There has been little private sector investment in the agriculture sector, partially due to risk and an unfavorable investment climate, as well as partially due to an unstable political climate. Private-sector investment is fueled by the availability of credit from financial institutions. However, the availability of credit to the agricultural sector is constrained by various factors, such as poor coverage, high interest rates, unfavorable repayment terms, and collateral requirements. In recent years, there has been encouraging the growth of formal rural financial services in rural areas through banks, finance companies, micro-credit organizations, cooperatives, etc., but the credit growth in the agriculture sector has not been satisfactory. Experts in this sector relate this to poor availability and quality of collateral, market price volatility of agricultural commodities, and poor insurance coverage. Financial institutions find it risky to invest in the agriculture sector. The Agricultural Development Bank of Nepal, which was initially tasked with supporting this sector, has shifted its focus

away from agricultural lending, and commercial banks have yet to fill the gap. The government has attempted to increase private sector investments in this sector, but the amount of loans from formal financial institutions remains low. The government has also attempted to increase investment in the sector through policies of priority sector lending from banks and financial institutions. Mid-year estimates of agriculture sector loans provided by commercial banks, development banks, and finance companies during the year 2022 were NRs. 350134.8 million, 31529 million, and 6563.5 million, respectively (Ministry of Agriculture and Livestock Development, 2023). The investments made by development banks are considerably lower than those made by commercial banks. Withstanding this fact, the government is using subsidies as a strategy to address the issue of farmers' inability to obtain financial resources. Subsidies are primarily aimed at the provision of modern inputs such as chemical fertilizers, technology, hybrid seeds, irrigation, and transportation to remote areas. However, the use of subsidies has not been consistent or effective in achieving policy goals, and there are no clear benefits for the agricultural sector or farmers.

5.6. Productivity in Agriculture

The agricultural productivity in Nepal is low. The data presented by the Ministry of Agricultural Development (2015) presents a huge productivity gap in agriculture. For instance, the current and potential production of paddy are 2.72 and 12 mt/ha, vegetables are 12.8 and 17 mt/ha, fish are 3.6 and 10 mt/ha, and buffalo milk is 900 and 2000 liters/ lactation. Productivity is low right now for a variety of reasons. Some of these factors are declining soil fertility, a weak integration of research and extension with the agricultural education system, a high incidence of pests and diseases, an ineffective and inadequately funded system of agricultural research and technology transfer, a lack of efficient mechanisms for tying research, extension, and farmers together, and a lack of year-round irrigation availability. Many issues also exist in the input supply and distribution systems. Access to sufficient quantity, quality, price, and timeliness; knowledge and efficiency of use of the available inputs; environmental sustainability; fair competition in the distribution system; an assured domestic supply system; and subsidies for agriculture inputs remain persistent problems. This has resulted in a significant productivity gap between current and potential production (Karki et al., 2022). There is high potentiality for increasing agriculture productivity in Nepal. The key factors that contribute to harnessing this potential and bridging the productivity gaps include the availability of reliable and stable extension services, dependable markets for both quality inputs

and farm outputs, easy credit facilities to overcome financial constraints, and insurance mechanisms to mitigate risk.

5.7. Current Status of Food and Nutritional Security in Nepal

Food and nutritional security are complex concepts that encompass elements such as food availability, accessibility, food consumption and utilization, and stability. While not the sole factor, domestic agricultural production plays a major role in determining food security. To ensure food and nutritional security, a more diverse agricultural production system is required, with a larger contribution from horticultural and animal products in addition to food grains. The Nepal Demographic and Health Survey Report of 2016 presents a worrying picture of food and nutritional security in Nepal (Ministry of Health, 2016). According to the report, only 48 percent of Nepalese households have year-round access to food and are food secure.

Twenty percent of the households experiencing food insecurity are classified as mildly food insecure, twenty-two percent as moderately food insecure, and ten percent as severely food insecure. In a similar vein, urban households are more likely than rural households (39 percent) to be food secure (54%). The lowest wealth quintile (30%) and a sizable portion of province 6 households (42%) both fit into the category of moderately food insecure households. Additionally, the lowest wealth quintile (22%) and province 6 (18 percent) have the largest percentages of severely food insecure households. The reports also show that, over the previous five years, households' overall food security has essentially stayed unchanged. Between 2011 and 2016, the percentage of households experiencing mild food insecurity rose from 12 to 20 percent, whereas the percentage of severely food insecure households fell from 16 to 10 percent. Furthermore, there is still a significant prevalence of malnutrition in Nepal, especially among young people. The percent of young children under 5 years of age for stunting was 32 percent, the percent of underweight children was 24 percent, and wasting was 12 percent in the year 2019 (National Planning Commission, 2021). The primary factors contributing to chronic malnutrition in Nepal include inadequate feeding and care practices, inadequate nutrition intake, high rates of infection, and teenage pregnancy.

The data obtained from the food balance sheet published by the Ministry of Agriculture and Livestock Development in 2017 (Ministry of Agricultural Development, 2017) shows that overall, there is a deficit of 71,399 mt of food. The food deficit was more pronounced in the hills (-88,644 mt) and the mountain region (-86,417 mt) than in the Terai region (103,662 mt). This implies that concern regarding food availability exists not only at the aggregate level but also that substantial disparities exist between geographical regions. Furthermore, the ongoing

shifts in food consumption patterns point to a future demand for foods other than cereals.

6. Conclusion

The Nepalese economy relies to a large extent on the growth of the agriculture sector. It contributes significantly to the gross domestic product, employs much of the workforce, and is a major source for foreign exchange. It also supplies the bulk of essential nutrition and supports livelihoods and other income for a substantial portion of the population. The agriculture sector holds a significant role in the Nepalese economy, and economic reform in Nepal is mostly about modernizing and transforming the agriculture sector.

Without a radical transformation of the agricultural sector, it will be hard to solve the growing challenges of the Nepalese economy. Economic growth originating in agriculture can help reduce poverty, hunger, and income inequality. Growth in agricultural productivity generally increases the incomes of poor farm households and those of landless laborers, who mostly depend on agricultural wages. Increasing employment and incomes in agriculture stimulates demand for non-agricultural goods and services, boosting non-farm rural income. The strong growth linkage between the farm and non-farm sectors can lead to wider economic growth. This growth-linkage effect is strongest when the agricultural sector is dominated by a large number of small farms. Furthermore, increased agricultural productivity can help achieve industrialization through the expansion of the market for domestically produced goods and services. Therefore, high growth rates in the non-agricultural sectors depend on a rapidly growing agricultural sector, especially during the initial stages of development.

In most developing countries, including Nepal, the main goal of development is to improve the stagnant agricultural sector and rural standards of living. This is achieved primarily through boosting the outputs, productivity, and incomes of small farmers. It is therefore important to identify the main drivers of agricultural growth and the basic conditions for its achievement. In this context, the sustained and accelerated growth of the agriculture sector is identified as the key to economic growth and a potential solution to many socio-economic issues in Nepal. So, the major issues of agricultural development i.e. *Agricultural Structural Transformation, Agricultural Trade, Investments, Labor Force, Land Reform, and Productivity Gaps* on the long-term economic development of the country should be addressed and recommended for future research.

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