Financial Effects of Expanding Tax Net to Agricultural Income in the Underdeveloped Economy

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Abstract

The objective of this article is to explore the effects of the Agricultural Income Tax on Household Welfare and Inequality in Pakistan. A case-in-point analysis is performed to examine the implementation of the tax in the country. The CGE model was used to analyze the various economic effects of the proposed tax on agriculture income. It also aims to analyze its benefits at the household and macro levels. The study was conducted to determine if the implementation of the tax on agricultural income would be feasible in Pakistan. The variables that were analyzed in this study included the implementation of the tax on agricultural income and the reduction in the sales tax rates. The results of the study revealed that the implementation of the tax on agricultural income would have beneficial effects on the country's economy-wide welfare indicators. The paper also noted that the implementation of the tax on agricultural income could help improve the country's household utility and economic indicators at the micro level.
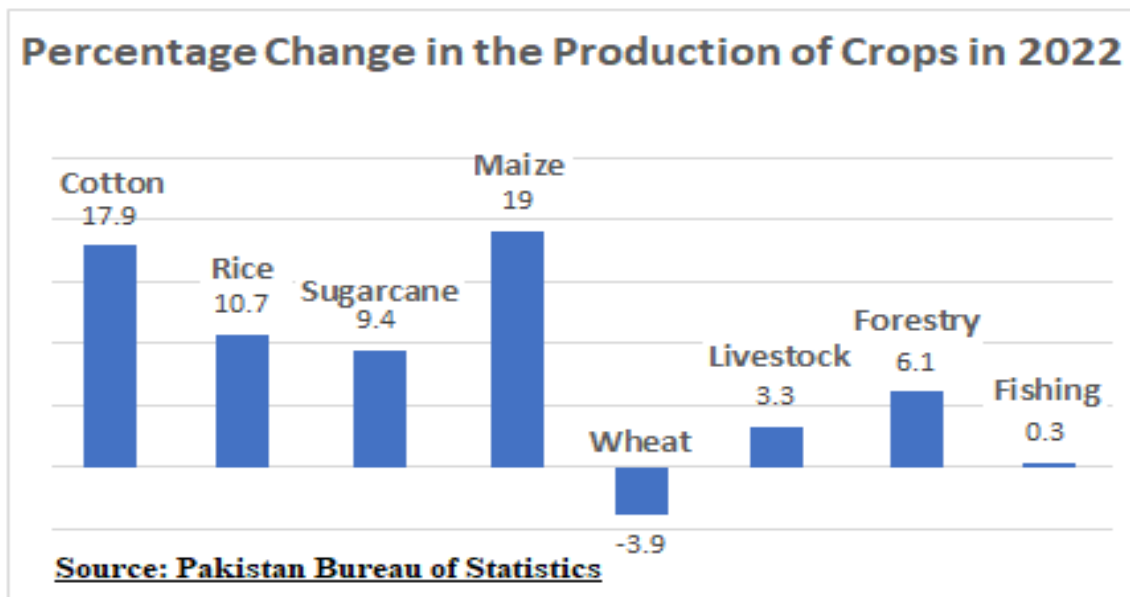
Introduction

Despite the various structural changes that occurred during the establishment of Pakistan's economy, the agriculture sector remains the country's largest industry. It has a huge impact on the socio-economic development of the country. Most of the country's population depends on this sector for their food security and foreign exchange earnings. It is also the largest source of these earnings through the export of raw materials and semi-processed agricultural products.

About 70% of the population is linked to agriculture directly or indirectly in Pakistan. Agriculture is not only a main source of food for the population and raw materials for the industrial sector, particularly the textile sector but also provides livelihood to a large portion of the population (UKEssays, 2022). In the year 2021-22 contribution of the agriculture sector to the gross domestic product (GDP) stood at 22.7 percent while recording a growth rate of 4.4 percent (Economic survey 2021–22). Employment provided by the agriculture sector in the year 2020 in Pakistan was reported at 35.89 % of total employment (Trading Economics, 2022). The agriculture sector is contributing relatively less to the GDP as compared to the size of the population and labor force employed in this sector. A significant and consistent surge in the prices of major and essential crops like wheat, cotton, rice, sugarcane, maize, pulses, and vegetables has increased the income of the farmers' manifolds.

Percentage Change in the Production of Crops in 2022

Source: Pakistan Bureau of Statistics

In Pakistan, the government has been taxing agriculture through an outdated land revenue system. It was forced to introduce various variants of this tax in response to pressure from the International Monetary Fund and the World Bank. (World Bank-1999). In Pakistan, the introduction of a tax on agricultural income is considered controversial. Out of the nine commissions [Pakistan (1959, 1960, 1963, 1964, 1970, 1975, 1986, 1988, 1989, and 1993a)] that studied the issue, only two of them [Pakistan (1960, 1993a)] recommended the imposition of a tax on agricultural income. These commissions were appointed by the government. Despite

the recommendations of these commissions, seven of them still favored the existing land revenue system (Xiang et al., 2023).

In 2022, less than three million people in Pakistan pay income taxes. The country's tax-to-GDP ratio is around 9 percent, making it one of the lowest in the world. It is also ranked 155th on the Heritage Foundation's index of economic freedom. The lowest-performing countries in the world when it comes to implementing few taxes are those that rely on oil revenue for their government's budget. Without sufficient revenue, the country will continue to be unable to fund its operations. One of the key factors contributing to Pakistan's economic instability has been its reliance on tax evasion and loopholes, which is why it is important that the country's elite stops using these practices. The implementation of tax reforms is useless until all sectors, including agricultural income, are brought under the tax net.

The government is dominated by feudal lords and is not seriously considering the suggestions of the public and economists regarding the taxation of various sectors, including real estate and agricultural income. Unfortunately, the government has exempted agriculture income from the implementation of the goods and services tax (GST). This is because the 18th Amendment has made agriculture a provincial subject. However, the implementation of the GST on the other hand has led to a rise in the prices of various food items.

The powerful agriculture lobbies in Pakistan exert pressure on the government to exempt the sector from taxes. This is because the country's politicians are often landlords who own huge farms. As of 2020, about a third of the members of the National Assembly are also big landlords. It is important to note that almost all farmers in Pakistan have less than 12.5 acres of land. On the other hand, about 12 percent of the country's big farmers have large land holdings (Khan, 2009). The untaxed status of the agriculture sector shows that 22 percent of the country's GDP is out of the tax net. Big farmers, who earn billions of rupees annually, would not contribute to the country's tax revenues. Since the country has been under strong lobbies for decades, no taxes have been levied on the agriculture sector.

Besides being part of the government's expenses, agricultural subsidies have been around for a long time. In the 1950s, the government started to provide subsidies for the use of chemical fertilizers. In the 1960s, the government also started to provide various agricultural inputs such as seeds, fertilizers, and irrigation water. Unfortunately, these subsidies never ended (Harkness et al., 2023). In 1980, the government claimed that it was stopping these subsidies, but this never happened. Over the years government of Pakistan is trying to help the agriculture sector by providing subsidies on fertilizer, fungicides, and weedicides, together with an increase in the Minimum Support Price (MSP) of wheat to Rs 1,800 per 40 Kg (Pakistan Economic Survey 2020-21). The government has been giving huge subsidies to the agriculture sector to boost the income of small farmers. However, it is the big landlords who are the real beneficiaries of this scheme and have not contributed to the national exchequer.

Large fiscal surpluses can be given subsidies to countries with low budget deficits. However, those with large deficits will have to resort to printing money and raising inflation. This is the worst form of taxation for the poor. One solution is to impose a tax on agricultural income to ensure that small farmers are not affected. The tax on agricultural income can be imposed on the output, which means the final crop. It should be calculated based on the income from the crop, and this should make it more competitive with other industries. Secondly, it should be made easier to implement, and the same tax rate should be applied to all industries. Finally, it should be targeted the people who have more than 50 acres of land.

Review of Literature

In different economies around the world, the taxation of agricultural income is a controversial issue. There are many studies on this subject, especially in developing regions, where the debate about the administration and tax structure of agriculture is still ongoing. Using the examples of various countries, Iram et al. (2021), Li & Wang (2022), explored the various aspects of tax regimes and their effects on agricultural producers. He found that although governments have cut down on indirect taxes, the revenue from direct taxes has not increased. In most countries, the measurement of agricultural income is a major issue that governments face when it comes to implementing tax regimes. Various measures have been used to establish a presumed income, which is expected to increase revenue, but they are not effective due to administrative and political factors (Awais, Zulfiqar, Saghir, Sohail, & Rana, 2022).

According to Bradfield et al. (2023), around 45% of the global workforce is engaged in agriculture, and around 75% of the world's poorest households rely on farming for their livelihood. This is a significant figure, especially in developing Asia, where over 60% of the workforce is engaged in agriculture, and over 80% of the poor are farmers (World Bank, 2007). Likewise, Adegbie et al. (2023) discussed the various kinds of agricultural systems that were in place at the time of the Mesolithic Era. Although different conceptual formulations and approaches have been used, these often result in the categorization of multiple systems into different categories. This paper aims to identify the main criteria that distinguish these systems from those that were developed during the previous period. The effects of tax policies on the development of agricultural investment are very important. Zhang et al. (2023) noted that the tax policies had a significant positive impact on the growth of agricultural investment. Almost 20% of the total net investment in agricultural structures and equipment during that period was attributed to tax policies.

According to Karszes and Augello (2022); Lv et al. (2023) the political power of producers can influence the design and implementation of policies. He argues that the more powerful these individuals are, the more likely policymakers are to reimburse the tax revenues and allow producers to control the spending of the revenue. A comparison of the policies in Sweden, Norway, and Denmark shows that the influence of producers on the design and implementation of tax schemes is also significant.

The primary objective of the American agricultural policy is to ensure that the country's food supply is secure and reliable (Nadeem et al., 2022; Omodara et al., 2022). This is done through the establishment of a safe and reliable supply of nutritious food for the American public. The other objective of the agricultural sector is to contribute to the country's balance of payments. In addition to ensuring that the country's food supply is secure and reliable, the agricultural policy also aims to reduce the cost of production and marketing. It also supports the development of new technologies and the growth of the agricultural economy.

Since 1947, Pakistan's agricultural policy has remained largely unchanged. The country's land revenue system is regarded as the primary source of income for the country. The replacement of this system with a more flexible agricultural income tax is expected to meet the country's financial needs. In response to the pressure from the International Monetary Fund and the World Bank, Pakistan introduced various types of agricultural income tax during the 1990s and in 1996. However, these systems were never properly implemented (Chaudhry, 1999). Economists' studies about land revenue reform are often controversial. There seems to be a consensus among researchers such as Iqbal (2021) and Louhichi et al. (2022) on the need to remove the revenue system from the land. On the other hand, many economists have expressed their dissatisfaction with the system.

Iqbal and Akhtar (2015) analyzed the effects of the elimination of food and farm tax preferences on the economy. They found that these changes resulted in a reduction in food costs by about $4.5 billion. They also noted that these changes resulted in higher after-tax returns for both the farm and labor sectors. The estimated cost of the general equilibrium tax expenditures, which include the various taxes that are related to the elimination of these tax preferences, is between $5.5 and $6.6 billion. Despite the various advantages of the elimination of these tax preferences, the controversy surrounding their implementation remains.

The objective of this paper is to analyze the various characteristics of Pakistan's tax policy framework and recommend the appropriate measures to raise the government's revenue. One of the most important factors that the government should consider is the implementation of a comprehensive agricultural income tax. The paper uses the General equilibrium model to analyze the various effects of implementing an agricultural income tax on the country's larger producers and the country's economy. It also aims to contribute to the development of the country's welfare.

For the economy of Pakistan, Moeen-ud-Din G. et al. (2020), investigated the effect of free trade on poverty, welfare, and inequality by using the Computable General Equilibrium Model and noted a favorable effect on economic indicators except for a few. The article recommends that the abolition of tariffs should be applied steadily for intensifying the households` welfare and lessening poverty and inequality. Applying the same technique, Moeen ud Din G. et al, in the same year, examined income tax impact on macroeconomic indicators of Pakistan's economy. The research presented the positive effect of the income tax increase on GDP, Consumption level, households` utility, investment level, foreign trade, and the level of

welfare. The same authors investigated the effect of trade liberalization policy on the same macro-variables by employing the mentioned methodology for a small open economy and ended favorable impacts. In another attempt, the same team of researchers analyzed the effect of decreasing the sales tax on poverty, inequality, and welfare for the year 2020. The analysis summed up the favorable findings. Moeen ud Din G. et al. analyzed (2022) the effect of Taxation on Prosperity and Disparity in Pakistan and concluded that the policy has positively affected the households` welfare as well as diminished poverty and inequality.

Agriculture is extremely important for the Pakistani economy as it is one of the main sources of employment, food, a significant contributor to exports, a source of raw material to the local industries, a major contributor to the GDP, helps decrease poverty, the backbone to the dairy farming, sugar, and textile industry (UKEssays, 2022) and (Baloch et al., 2022). The agricultural sector in Punjab is central to Pakistan's economy and food security as it accounts for 73 percent of the country's total food production (TheWorldBank, 2022). Being so important and huge in terms of contribution to GDP agriculture sector has not achieved the desired level of efficiency and productivity. Different NGOs like USAID is helping to achieve higher productivity in this sector by providing higher quality seeds and farming tool with better technology. Through its partnership with the Government of Pakistan, USAID is stimulating private sector investment to increase sales, incomes, and jobs, promoting a vibrant and profitable agricultural sector (USAID, 2022).

Model Structure and Data Base

A CGE model is a type of economic model that shows the reaction of an economy to changes in policy, technology, or external factors. It can be used to analyze the effects of a policy on an economy's relative price system. The concept of a CGE model is like that of an applied general equilibrium model. The goal of the CGE model is to analyze the effects of a policy on an economy's relative price system. Usually, the equations are based on the neo-classical spirit and assume that the prices of goods and services are influenced by optimal behavior. CGE models are generally based on the general equilibrium paradigm. However, they can also allow for non-market clearing, which is useful for certain types of transactions such as labor and commodities. They can also provide a framework for imperfect competition and uninfluenced prices. A CGE model database is composed of tables and elasticities. The concept of a social accounting matrix is usually used to describe a country's economy.

We selected 2015-16 as the benchmark year since the most recent, consistent, and comprehensive data set (Social Accounting Matrix) is available developed by Dorosh, Niazi, and Nazili, (2019). It is not only microconstituent but satisfies all properties and conditions of the CGE model. A standard calibration procedure which is developed by Mansur and Whalley (1984) is followed to calibrate the model.

The Computable General Equilibrium Model of Pakistan is based on the framework used by Lofgren et al. (2001) which aims to study the interactions between various sectors of Pakistan's

economy. The equations of the model guarantee that the various constraints of the country's macroeconomic and microeconomy are satisfied. This means that the country's various factors and investments, as well as the government's current account balance and savings and investment requirements, are satisfied.

One of the features of the model is its detailed handling of the prices. In this model, each activity produces one commodity. The final export price is computed by considering the various taxes that might be imposed on a commodity's export. The final supply price of a product is then determined by the interaction of the producer and export prices. The model then shifts the focus from production to consumption, which results in the domestic supply price being transformed into the demand price. Import prices are calculated by adding tariffs on foreign commodities that are entering the domestic market. The prices of various composite commodities are then determined by their interaction with the domestic and import prices.

The production block is a part of the model that aims to maximize the profits of a representative firm. It involves the combination of the firm's inputs and outputs. In the model, activities that are carried out in CGEM-Pak are designed to generate revenue. These activities can sell the products that they manufacture. The production block distributes its revenue to the various factors that it purchases, such as the purchase of intermediate inputs and the payments of wages and rent to primary factors. The model assumes that the activities that are carried out in the production block can maximize the profits of a representative firm by considering the various production functions and their neoclassical substitutability.

The model identifies nine productive sectors that combine the primary factors with intermediate commodities to produce a level of output. These include agriculture, mining, food manufacturing, leather, textile, energy, and services. The model identifies 11 factors that can contribute to the production level of a sector. These include the types of labor that are involved in the production of a given commodity, the land type that is used for farming, the production of non-agricultural goods and services, and the capital that is needed to support the sector. There are also four types of land that are used for farming: large farmland, medium farmland, irrigation small farmland, and non-irrigated small farmland.

Among the various welfare measures, we used Equivalent Variations (EV). The equivalent variation is a measure of how much additional money a consumer would have to pay before a price increase occurs. It shows how much additional money a consumer would have to pay before the event happened. If a positive economic change occurs, this measure of income would give the consumer the same amount of utility as if the price had remained the same. On the other hand, if a negative economic change occurs, this measure of income would show how much income the consumer would have to take away to make up for the difference (Gravelle, & Rees, 1987). Various methods can be used to determine inequality in the economy. In this paper, we used Theil-L, Theil-T, Theil-S, and Hoover indices to measure the impact of the implementation of income tax on household inequality (Naqvi, 2017). The followings are the

equations used to measure welfare (equation 1) and household inequality (equations 2, 3, 4, and 5) respectively.

$$EV_h = \left(\frac{CPIH_h^0}{CPIH_h^1} \right) EH_h^1 - EH_h^0 \tag{1}$$

$$TT = \ln \left(\frac{\sum_h N_h}{\sum_h YH_h} \right) - \frac{\sum_h YH_h \ln \left(\frac{N_h}{YH_h} \right)}{\sum_h YH_h} \tag{2}$$

$$TL = \ln \left(\frac{\sum_h YH_h}{\sum_h N_h} \right) - \frac{\sum_h N_h \ln \left(\frac{YH_h}{N_h} \right)}{\sum_h N_h} \tag{3}$$

$$TS = \frac{1}{2} \sum_h \ln \left(\frac{YH_h}{N_h} \right) \left(\frac{YH_h}{\sum_h YH_h} - \frac{N_h}{\sum_h N_h} \right) \tag{4}$$

$$HI = \frac{1}{2} \sum_h \left| \frac{YH_h}{\sum_h YH_h} - \frac{N_h}{\sum_h N_h} \right| \tag{5}$$

Where, $CPIH_h$ is the Consumer price index of household h, EH_h is consumption expenditure of household h, YH_h is the income of household h, N_h number of household h.

Experiment: (Implementation of agricultural income tax and reduction in Sales Tax)

In Pakistan, there is no agricultural income tax. However, the purpose of this simulation is to examine how household welfare would be affected by the adoption of the agricultural income tax and the reduction of the sales tax. Understanding the entire effect of agricultural income tax implementation on Pakistan's economy is made easier thanks to this simulation. If farmers who own more than 50 acres of land must pay agricultural income tax, this is presumed. Therefore, only two categories of families—large farm households (H-LF) and medium farm households—would be subject to the agricultural income tax (H-MF) All other household types, including small farm households (H-SF), landless farmer households (H-0F), rural agriculture landless households (H-AGW), rural non-farm non-poor households (H-NFNP), rural non-farm poor households (H-NFP), and urban non-poor households (H-URNP) and urban poor households (H-URPR), would not be required to pay this tax. The tax rate on agricultural income is 0.084 percent, which is also the tax rate for urban non-poor households (H-URNP) (Figure 01).

Figure 01; Tax Rate for Agricultural Income Tax
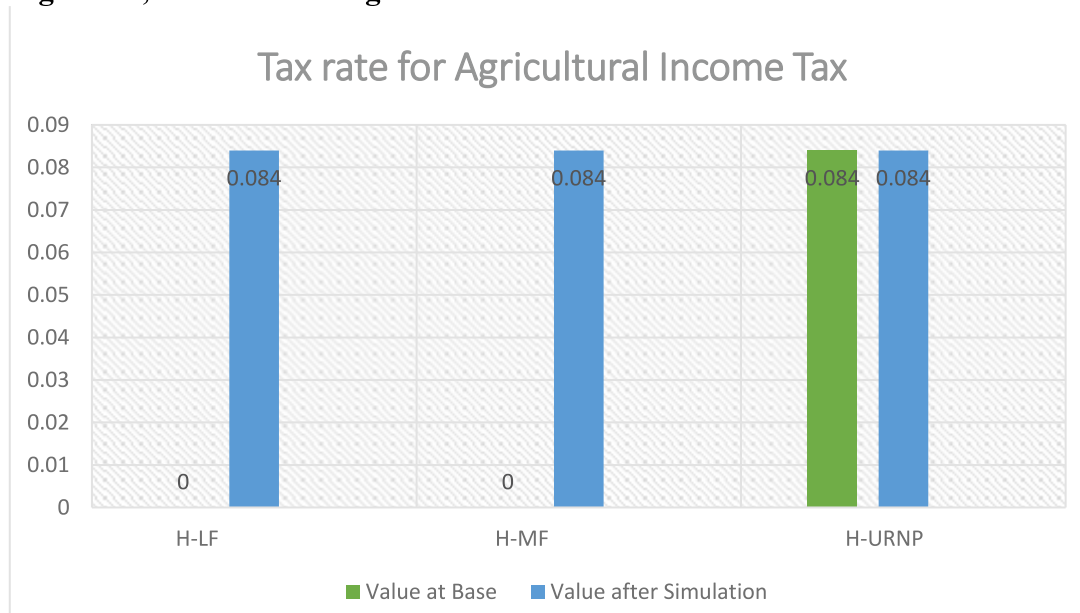
Additionally, it is projected that production-related sales tax would be decreased from its current levels. For instance, it is decreased to 5.68 percent for A-AGRI, 0.117 percent for A-MINE, 0.065 percent for A-FMAN, 0.097 percent for A-YARN, 0.072 percent for A-MANF, and 0.040 percent for A-ENGR, respectively. A-TEXT and A-LEAT get subsidies rather than paying taxes since their businesses are export-oriented.

The simulation experiment assumes that H-LF and H-MF are subject to an agricultural income tax at a rate of 0.084 percent since H-URNP is already subject to the same rate of taxation. Along with the introduction of the agricultural income tax, the "Sale Tax" on all production operations has been decreased. The experiment's simulation findings are as follows:
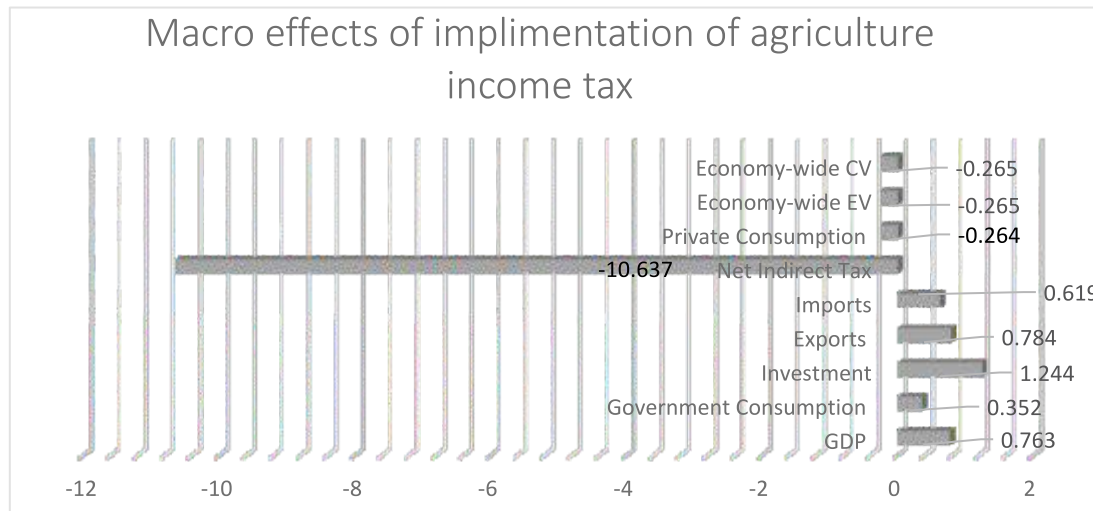
Macro Level

The information in Table 8 makes it possible to see the outcomes of the simulation experiment at macro levels. The results show that the agricultural income tax has had a favorable influence on Pakistan's economy. It demonstrates that a 0.76 percent gain in GDP is apparent after the application of agricultural tax, demonstrating the importance of the agriculture sector to the economy. The analysis of the data also reveals a significant rise in government use. It goes up by 0.35 percent. This comes because of an increase in tax income for the government. Every fiscal year, this government consumption is included in the development expenditures; but, this year, compared to prior years, there is more money available for these expenditures.

After the establishment of the agricultural income tax, investment increased. Following the imposition of the agricultural tax, they indicate an overall rise of 1.24 percent. Imports and exports rose by 0.62 and 0.78 percent, respectively. Net tax revenue has decreased significantly by 10.63 percent. This is a result of lower sales tax rates across the board for all manufacturing

activity. Following the implementation of a new tax on agricultural revenue, private consumption also decreased by 0.26 percent. The introduction of the farm income tax caused a 0.26 percent and 0.26 percent, respectively, decline in the economy's EV and CV. This demonstrates how these policy changes hurt the EV and CV throughout the whole economy. (Figure 02)

Figure 02: Macro effects of the implementation of agriculture income tax

Macro effects of implimentation of agriculture income tax

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Economy-wide CV	-0.265
Economy-wide EV	-0.265
Private Consumption	-0.264
Net Indirect Tax	-10.637
Imports	0.619
Exports	0.784
Investment	1.244
Government Consumption	0.352
GDP	0.763

Household Welfare

Government payments to the impoverished are one definition of welfare, but economists use the word to define a person's or a society's overall well-being. An economist would typically recommend tax cuts to increase the nation's general well-being, but most governments will not bring up the subject, and handouts will be seen as welfare measures, like in the USA and even Pakistan.

Any consideration of policies must begin with the notion of efficiency or well-being. Applied policy analysis uses welfare measurements as opposed to a pure theoretical method, which solely considers an ordinal measure of potential states. This makes it possible to compare welfare changes brought on by various policy changes. Table 9 displays the utility changes for households.

The usefulness of the home types H-LF and H-MF decreases negatively because of simulation. This came about because both households paid a direct agricultural income tax. The tax contributions made by H-LF and H-MF have improved their purchasing power, but the other household types, including H-SF, H-0F, H-AGW, HNFNP, H-NFP, H-URNP, and H-URPR, have seen a rise in their utility. The utility of H-LF and H-MF are correspondingly lowered by 7.95 and 7.94 percent. The other households' utility increased as these households' utility decreased. Utility increased in H-SF by 0.55 percent and in H-0F by 0.50 percent, respectively. As can be seen from Figure 03 above, household utility increased by 0.49 percent for H-AGW, 0.81 percent for HNFNP, 0.79 percent for H-NFP, 0.49 percent for H-URNP, and 0.74 percent

for H-URPR. The value of the decision to impose the agricultural income tax on H-LF and H-MF is increased by an increase in the utility of these Households.

Figure 03: Impact of agriculture income tax on household utility
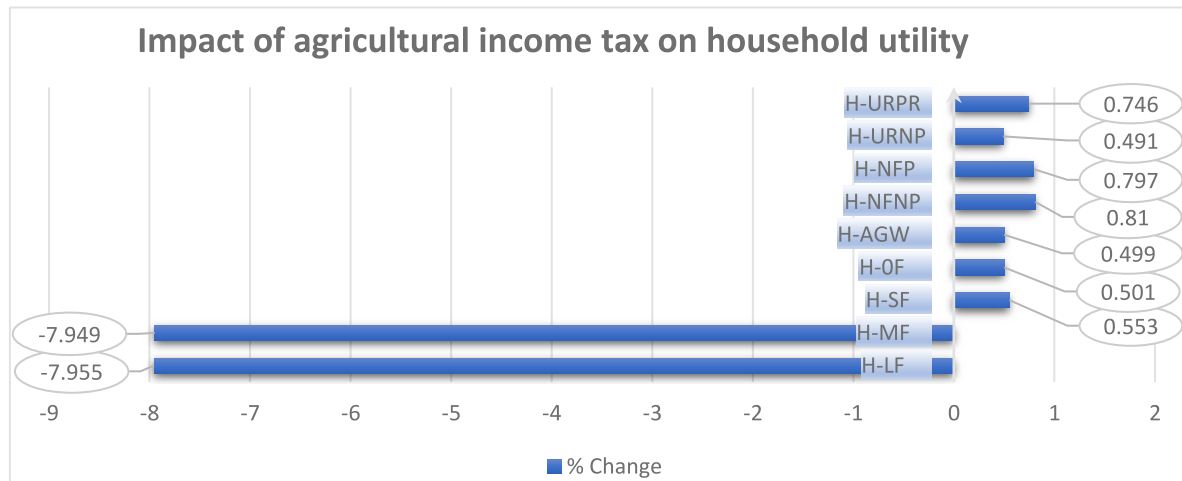
Inequality

Does growth lead to greater or less equality and is it correlated with it? Do unequal societies advance more slowly than ones with equality? In the realm of economics, this has long been a contentious issue. However, it is debatable whether the point—the equality of result (i.e., income) or the availability of opportunities—is more pertinent and significant. In this context, the Hoover index, and the Theil Indices (Theil-L, Theil-T, & Theil-S) are primarily utilized as indicators of inequality. It becomes feasible to consider how much the within-group and between-group inequality contribute to the overall inequality due to their decomposition features. In this simulation, just the inequality between groups was assessed. The limits of the data are directly responsible for this restriction. (Figure 04)

Figure 04: Impact of Agriculture Income Tax on Households inequality
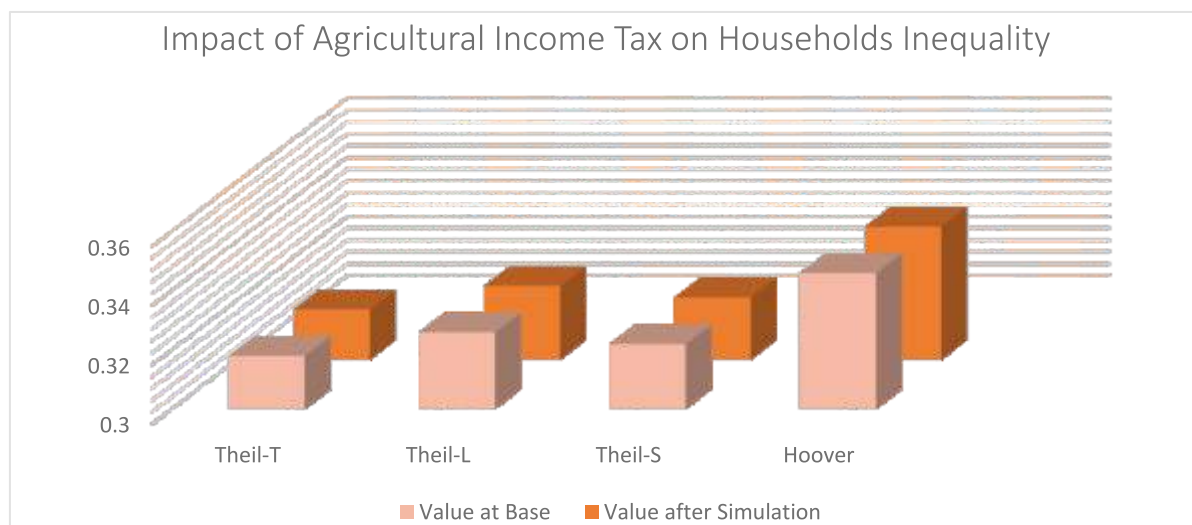
Figure 04 displays the outcome of the inequality indices in the simulated example (applicability of the agricultural income tax). For instance, Theil-value T's dropped from 0.318 to 0.317 following simulation. Hoover dropped from 0.346 to 0.345, Theil-T from 0.326 to 0.325, and Theil S from 0.322 to 0.321, respectively. The downward trends of the indices show that there is less disparity between households after the simulation.

Conclusion

In this article, the effect of an agricultural income tax was examined using Pakistan as a case study. This experiment's goal was to evaluate Pakistan's economy's viability and soundness. The experiment assumes that agricultural income tax will be levied at the same rate (0.084 percent) as the tax presently levied on the inhabitants of cities. Additionally, it is anticipated that an increase in government revenue from the collection of farm income tax of roughly Rs. 9557 billion would result in a surplus in the government's operating budget. In contrast, the government will be able to provide numerous incentives to the manufacturers, such as a 4.7 percent reduction in the tax.

The findings imply that the introduction of an agricultural income tax has the potential to be a significant instrument in the development strategy of the future. The reduction of inequality and improvement of family welfare do, however, need the proper coordination of other tools, such as monetary policy and fiscal policy, providing a promising area for further study. However, it should be noted that the model's structure dictates how the findings are conditional.

Despite economic benefits, farmers oppose the agriculture income tax. The biggest political issue opposing the taxation of agriculture is the fact that most of the country's population lives in rural areas. This is because agriculture is a vital part of the country's economy and is often affected by the various factors that affect it. Any increase in the rates is strongly opposed by the public. Also, the Land Revenue system was an exploitative system during the time of the British. The small contribution of developing countries' agricultural producers has been mainly due to the high level of political resistance and the low level of public investment. Therefore, the government should not only create consensus between pollical parties but educate the farmers.

Policy Implications

Imposing an agricultural income tax is essential and advantageous for the government, households, and the macroeconomic process of raising economic well-being indicators.
For the future, here are a few recommendations for the long run to improve the agriculture income tax mechanism, which in turn improves household welfare considerably.
1. Tax reforms by ensuring tax collection from relatively large farmlands and ensuring the price controls of the necessities of life.
2. Land reforms to cut the size of the owner to improve productivity.
3. Reforms in tax collection mechanism.

4. Introduction of new varieties of crops with improved productivity and increasing efforts on projects like the cultivation of olive trees and billion tree Tsunami.

5. Improvement of basic infrastructure for storage and transportation to improve storage and increase the access of agricultural products to the markets.

References

Adegbie, F. F., Ajayi, A., Aguguom, T. A., & Otitolaiye, E. D. (2023). Diversification of the economy, tax revenue and sustainable growth in Nigeria. *International Journal of Innovative Research and Scientific Studies*, *6*(1), 115-127.

Awais, M., Zulfiqar, B., Saghir, R., Sohail, A., & Rana, A. U. R. (2022). Psychological Indicator (s) in Stock Activities considering SDGs: The Wealth Maximization Criteria of Investors and Growth of Economy. *NICE Research Journal,* 47-60.

Baloch, Q. B., Maher, S., Iqbal, N., Shah, S. N., Sheeraz, M., Raheem, F., Khan, K. I. (2022) Role of organizational environment in sustained organizational economic performance. *Business Process Management Journal*, *Vol. 1* No. 1, pp. 131-149. https://doi.org/10.1108/BPMJ-02-2021-0084

Bradfield, T., Butler, R., Dillon, E. J., Hennessy, T., & Loughrey, J. (2023). Attachment to land and its downfalls: Can policy encourage land mobility? *Journal of Rural Studies*, *97*, 192-201.

Division, F. (2021). Pakistan Economic Survey 2020-21.: Government of Pakistan.

Dorosh, Niazi, & Nazili (2019), A Social Accounting Matrix for Pakistan, 2015-16: Methodology and Results, Pakistan Institute of Development Economics.

Gravelle, H. & Rees, R. (1987), A Standard CGE Model in GAMS, Microeconomics, Longman Inc. New York, USA.

Harkness, C., Areal, F. J., Semenov, M. A., Senapati, N., Shield, I. F., & Bishop, J. (2023). Towards stability of food production and farm income in a variable climate. *Ecological Economics*, *204*, 107676.

Iqbal, N., & Akhtar, M. R. (2015). Statistical evaluation, measuring and managing poverty in rural Pakistan. *Pakistan J Statatistics, 31*(6), 709-716

Iqbal, N. (2021). Measuring Credit Risk in a Quantitative way for Countryside Microfinance Institutions: Case study of China. *City University Research Journal*, *11*(2).

Iram, T., Iqbal, N., Qazi, Rashida, & Saleem, S. (2021). Nexus between Financial Literacy, Investment Decisions and Heuristic Biases of Women Entrepreneurs – A Way forward for Women Empowerment. *Pakistan Journal of Social Sciences (PJSS), V. 41,* Issue 1. 221-234.

Karszes, J., & Augello, L. (2022). 2021 Preliminary Progress Report: Selected Financial and Production Factors Average of All Farms.

Khan, M. H. (2004). Methods of assessment of rural poverty, projects, and program impact. *A Handbook for Practitioners in Rural Support Programmes*, *1*, 69-83.

Li, Y., & Wang, Z. (2022). Analysis on the effect of farmer income of policy-based agricultural insurance. *Acta Agriculturae Scandinavica, Section B—Soil & Plant Science*, *72*(1), 386-400.

Lofgren, H., R.Harris, S. Robinson, M. Thomas & M. El-Said (2001). TMD, Discussion Paper No. 75, International Food Policy Research Institute (IFPRI), Washington, D.C.

Louhichi, K., Ricome, A., & Gomez y Paloma, S. (2022). Impacts of agricultural taxation in Sub-Saharan Africa: Insights from agricultural produce cess in Tanzania. *Agricultural Economics*.

Lu, S., Dai, J., Ali, A., Al-Faryan, M. A. S., & Iqbal, N. (2022). Sustainable financial dimensions of managing poverty in the era of the COVID-19 pandemic: A developing country perspective. *Frontiers in Environmental Science*, *10*.

Lv, N., Liu, F., Zhu, H., & Wang, G. (2023). Effect of Government Intervention and Market Incentives on Farmer Organic Fertilizer Application Behavior and Agricultural Emission Reduction. *Natural Hazards Review*, *24*(1), 04022035.

Moeen-ud-Din, G., Bhatti, A. A., & Naqvi, H. A. (2020). Does Free Trade Affect Macroeconomic Variables in a Small Open Economy? A CGE Analysis for Pakistan. *Pakistan Journal of Social Sciences (PJSS)*, *40*(3), 1469-1483.

Moeen-ud-Din, G., Naqvi, H. A., & Khan, M. A. (2021). Impact of Sales Tax Reduction on Pakistan`s Economy. *Studies of Applied Economics*, *39*(4).

Moeen-ud-Din, G., Naqvi, H. A., & Khan, M. A., Nadeem Iqbal (2022). Effects of Taxation on Prosperity and Disparity: Pakistan – A case in Point. *Pakistan Journal of Social Sciences (PJSS)*, *42*(2).

Nadeem, W., Iqbal, N., & Hanif, H. (2022). Assessing the Determinants of Efficiency: An Empirical Evidence from Developing Economy. *Journal of Economic Impact*, *4*(1), 71-80.

Naqvi, H.A. (2017). Implications of Fiscal Reforms on Household Welfare and Income inequality – A CGE Analysis of Pakistan Economy. *Sci. Int. (Lahore) 29* (5), 1091-1107

Omodara, O. D., Adetunji, O. E., & Oluwasola, O. (2022). The nexus between agricultural loan access and farm income of small-scale cassava processors in Oyo State, Nigeria: An endogenous switching regression approach. *Journal of Agricultural Sciences (Belgrade)*, *67*(1), 83-104.

Pakistan Bureau of Statistics, 2022, Government of Pakistan, Islamabad, http://www.pbs.gov.pk

Pakistan Economic Survey 2020-21, Government of Pakistan, Finance Division, Economic Adviser`s Wing, Islamabad, www.finance.gov.pk, www.finance.org.pk

The World Bank. (2022). World Bank Supports Pakistan to Increase Agricultural Resilience and Protect Small Farmers from Climate Change Impacts in Punjab. Retrieved from *https://www.worldbank.org/en/news/press-release/2022/07/15/world-bank-supports-pakistan-to-increase-agricultural-resilience-and-protect-small-farmers-from-climate-change-impacts-i*

Trading Economics, T. (2022). Pakistan - Employment in Agriculture (% Of Total Employment). Retrieved from Trading Economics: https://tradingeconomics.com

USAID. (2022, 09 03). Economic Growth and Agriculture. Retrieved from https://www.usaid.gov/pakistan/economic-growth-agriculture

Xiang, J., Zhu, L., & Kong, D. (2023). Labor cost and corporate tax avoidance. *Journal of Economic Behavior & Organization*, *205*, 338-358.

Zhang, H., Xiong, P., Yang, S., & Yu, J. (2023). Renewable energy utilization, green finance, and agricultural land expansion in China. *Resources Policy*, *80*, 103163.

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