

The Economics of Tobacco Farming in Indonesia:

3rd Wave Tobacco Farmers Survey

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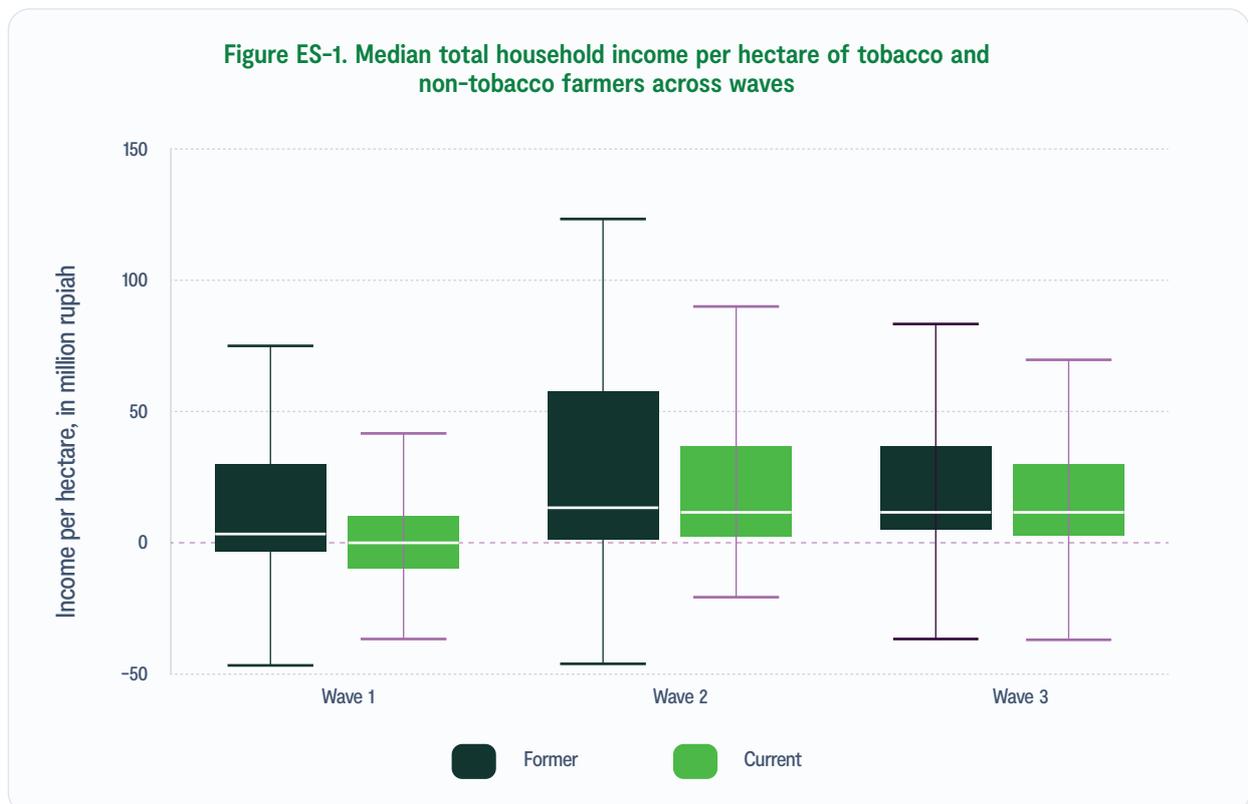
Economic Research Informing
Tobacco Control Policy

Executive Summary

There have been efforts to develop and implement progressive tobacco control policies—such as high tobacco excise tax rates—to reduce the burden of tobacco use on human health. Opponents of such policies, in particular the tobacco industry, consistently put forth the argument that these policies will have adverse effects on the livelihoods of tobacco sector workers, particularly tobacco farmers. Existing studies in different country settings provide robust evidence against this simplistic narrative. These studies show that tobacco farming households typically generate small profits and even losses and struggle with dramatic income fluctuations from year to year. Most of these studies provide a single point in time snapshot of the economic livelihoods of tobacco farming households. To obtain a more comprehensive understanding of their livelihoods, we need to further

investigate the dynamics of tobacco and non-tobacco farming across time.

This study tracks the same representative group of current and former tobacco farming households in Central and East Java, Indonesia, over four years and compares the median household income for both groups over time. The three survey waves coincided with an overall poor farming year (Wave 1) and two overall stronger years for farming (Wave 2 and Wave 3), with weather as one of the main variables affecting farmers' production. This study collects data using a comprehensive household survey with both current and former tobacco farmers. The results of this study provide further evidence against the simplistic tobacco industry narrative and important insights into the economic context of tobacco farming.

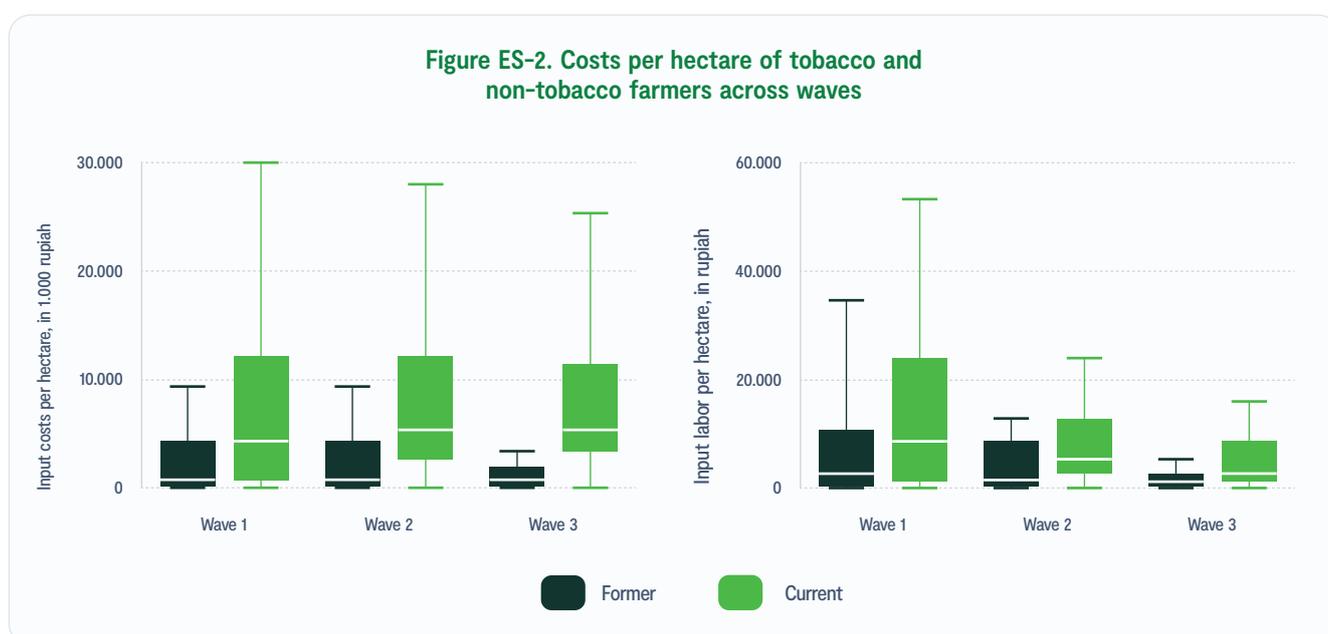


Notes: The sample includes tobacco and former tobacco farmers in Central and East Java. Non-tobacco crops profit is defined as crop sales minus inputs and costs of hired labor. Non-tobacco crops income is defined as crop sales minus inputs, costs of hired labor, and household labor costs. Tobacco income is defined as tobacco sales minus inputs, costs of hired labor, and household labor costs. For each wave and for each group of farmers, we drop observations with total household income lower than the 5th and higher than the 95th percentiles. Total household income is defined as agricultural sales plus wage income, non-farming income, and other income minus input costs, rent, costs of hired labor, and household labor costs. The second and third wave incomes are adjusted for inflation.

We show median household income per hectare for both tobacco and non-tobacco farming households in Figure ES-1. We learn that tobacco and non-tobacco crops performed quite well and generated positive income in a favorable growing season. Positive income from tobacco farming in a good year is one of the reasons why many tobacco farmers in our study stated that tobacco farming is a lucrative activity. However, we can also observe that non-tobacco farming performed much more consistently over time—there was a far smaller difference between a “good” and “bad” year. One of the underlying reasons is that non-tobacco farming

households do not rely heavily on agricultural income. They also rely on farming and non-farming enterprises, wage income, as well as other income sources.

Tobacco farming households incur higher costs for both agricultural inputs and labor compared to non-tobacco crops. Tobacco farming households consistently incurred significantly larger agricultural costs per hectare across all waves (Panel A of Figure ES-2). The costs of hired labor per hectare again were consistently higher for tobacco farmers than non-tobacco farmers and were greater for tobacco farmers in a bad year (Wave 1) than in better farming years (Panel B of Figure ES-2).



The evidence from this exhaustive survey research demonstrates that tobacco farmers would be economically better off by shifting to non-tobacco crops. The main findings of this report include:

1. Both tobacco and non-tobacco farmers have income portfolio from agriculture, enterprise, wage, and other income. Tobacco farming households typically rely more heavily on agricultural income. In contrast, a higher share of former tobacco farmers relies on enterprise income, wage income, and other sources of income.
2. Tobacco farming typically provides only a small contribution to a typical farmer’s household

revenue. More than 85 percent of tobacco farmers were deriving less than half of their revenue from tobacco growing in the weak agricultural production year in Wave 1. Even in the better years of Wave 2 and Wave 3, there were still 70 and 79 percent of tobacco farmers respectively who derived less than half of their revenue from tobacco growing.

3. A typical non-tobacco farmer generated higher income than a typical current tobacco farmer. The more stable and higher household income of former tobacco farmers can be explained, among others, by the diverse income portfolio, particularly non-agricultural wages and other income.

4. A typical tobacco farmer in the poor farming year (Wave 1) did not experience positive total household income per hectare. Only in good years of Wave 2 and 3, a typical tobacco farmer generated positive total household income per hectare. On the other hand, despite the changing agricultural conditions across waves, a typical former tobacco farmer consistently generated positive income.
5. Higher tobacco farming income in Wave 2 and Wave 3 compared to Wave 1 is largely explained by volatility in prices and volume of tobacco leaf sold. Median prices in Wave 3 were lower by about 24 percent than median prices in Wave 2, but they were only lower by 8.8 percent than median prices in Wave 1. Median prices in Wave 3 were lower mainly for Virginia and Burley leaf types.
6. Poverty rates among tobacco farmers are significantly higher than the nationwide poverty rate. The estimated poverty rates among tobacco farmers were lower in the good farming years (Wave 2 and 3) than in the poorer farming year in Wave 1. A significant share of tobacco and former tobacco farmers obtained social assistance in various forms, which places an added burden on the government.
7. Differences in input costs per hectare borne by current and former tobacco farmers were quite large. In Wave 3, tobacco farmers spent about Rp6 million per hectare for tobacco crops, while former tobacco farmers spent less than one million rupiah for non-tobacco crops. This pattern is remarkably consistent across years. About a quarter of tobacco farmers reported needing loans for tobacco farming inputs partly due to these high input costs.
8. Tobacco farming is a much more labor-intensive endeavor than non-tobacco farming. In Wave 3, a typical (i.e., median) tobacco farming household spent 1,363 hours per hectare for tobacco farming but spent only 197 hours per hectare for non-tobacco farming. This suggests that tobacco farming households bear significantly larger household labor costs. Note that tobacco farmers in general do not include household labor costs in the calculation of income and therefore tend to overestimate their income from tobacco farming.
9. A typical tobacco farming household also spent more resources for hiring labor for their tobacco farming than a typical former tobacco farming household spent for non-tobacco farming due to the many hours of labor needed for tobacco.
10. One of the consequences of large labor demands and the poor returns is child labor as evident in our data. Child labor—both and male and female—was particularly harvest and post-harvest.
11. In the survey, tobacco farmers shared their reasons for their willingness to shift from tobacco farming. Consistently across waves, low leaf price is the main cited reason for their willingness to shift from tobacco. In Wave 3, about 15 percent of tobacco farmers mentioned an inability to sell their crop as one of the main reasons. Importantly, a third of tobacco farmers—higher than the share in Wave 1 and Wave 2—mentioned that having more attractive alternatives is a reason for shifting, suggesting an important potential for intervention.

Recommendations

1. The government must **establish agricultural extension services to educate farmers on different cash crops suitable for local conditions.** The extension services should also introduce farmers to more advanced farming technology that would allow farmers to produce quality cash crops.
2. The agricultural extension service should also provide market insights for farmers. The extension services can provide **information on crops that are in demand in local and adjacent markets.** The extension service can also provide information on **prices** of different crops. This information will help farmers to better decide **crop portfolio** in each season.
3. The government must identify and develop a **reliable and adequate source of water and concomitant irrigation systems** for non-tobacco farming in the dry season. Since the start of Joko Widodo's presidency, the government has been building water reservoirs. The government should continue to build strategic reservoirs or deep groundwater wells in tobacco regions and ensure a reliable supply of water during the dry season to support and encourage non-tobacco farming.
4. **The government must incentivize the establishment of farmer groups.** The government can also provide start-up funds through available program such as the Village Fund program. Farmer groups facilitate knowledge sharing among member farmers. Member farmers can also pool resources to sell crops directly to market, eliminating middlemen in the process. Member farmers can also pool resources to obtain essential agricultural inputs at better prices, particularly fertilizers.
5. The government can allocate resources, e.g., from regional funds or village funds, to help farmer groups to **develop value chains for common crops.** For example, the government can train farmer groups to create micro business to package and label their crops before distributing them to local markets; to process common crops to higher-value goods.
6. **The government can establish financial and non-financial incentives that are tied to non-tobacco crops growing.** An alternative is for the government to initiate a credit program specifically to fund non-tobacco crops. Another alternative is to provide subsidized inputs conditional on the farmer's crop portfolio.

