THE ECONOMICS OF TOBACCO TAXATION AND EMPLOYMENT IN INDONESIA

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KEY MESSAGES

• The analysis shows that tobacco manufacturing represents only a small share of the economy-wide employment (0.60 percent) and a relatively low percentage of jobs in the manufacturing sector (5.3 percent) in comparison to the contribution of the food (27.43 percent), garment (11.43 percent), and textile (7.90 percent) sectors; The productivity of tobacco manufacturing workers is also quite low relative to the productivity of workers in the comparable sectors.

• The tobacco manufacturing sector is concentrated in East and Central Java (76 percent) and West Nusa Tenggara (18 percent). Moreover, a few districts are dependent on tobacco sector employment. For example, in Kudus, Temanggung, and Kediri, employment in the tobacco sector accounted for more than 25 percent of overall local employment.

• Both farmers and manufacturing workers are only partially dependent on tobacco income. Income from kretek rolling represents 43 percent of household income among kretek households; among farmers about three quarters of tobacco farming households derived less than 50 percent of their income from tobacco cultivation and over half of clove farmers generates less than 20 percent of household income from clove farming.

• Tobacco cultivation was not profitable for most farmers, and there are high opportunity costs of producing tobacco. This finding was mostly consistent across regions, type of tobacco grown, and whether the farmer was on contract to grow tobacco.

• We estimate that raising cigarette taxes by an average of 47 percent and simplifying the cigarette tax structure to 6 tiers will reduce cigarette demand by 10.4 percent, increase government revenue by 8.4 percent, and reduce gross employment in the tobacco manufacturing sector by 9.13 percent. This represents a reduction of 32,132 tobacco manufacturing jobs, most of them in the handmade kretek industry (24,710 fewer jobs). These estimates do not consider the creation of jobs in other sectors due to a shift in consumers’ spending patterns which will result in new jobs in other sectors (the net effect).

• The estimated total household income loss from the reduction in employment in the handmade kretek industry amounts to 1.4 percent of the revenue gain from increasing cigarette taxes (Rp 12,875 billion).

• This is a win–win policy change because the tax and price increase will not only reduce tobacco use and related health costs, it will generate additional revenue which can more than compensate for the income loss due to a reduction in production and employment in the kretek industry.
Indonesia, home to 73.6 million smokers estimated as of 2015, has one of the highest rates of cigarette consumption in the world. Smoking prevalence among working-age individuals has exceeded 30 percent since 2001. In 2013, smoking prevalence among males was 66 percent, while smoking prevalence among females was 6.7 percent. If the current trend of smoking rate remains unabated, the smoking population will grow to 95 million by 2025. Such a high share of smoking population creates a fiscal burden to the country due to increased health care costs and worker’s productivity losses. Worldwide, the evidence suggests that direct (e.g., health care treatment) and indirect (productivity losses due to tobacco-related premature mortality and morbidity) costs amount to 1.8 percent of the world’s annual gross domestic product (GDP) in 2012 and 40 percent of these costs are borne by LMICs (Goodchild, Nargis, and d’Espaignet, 2017). The share of the smoking population could be reduced from 35.7 percent in 2010 to 25 percent in 2025, if Indonesia adopts the global target endorsed by the United Nations General Assembly in 2011 (30 percent relative reduction in smoking prevalence) for prevention of premature deaths from four major noncommunicable diseases (NCDs), such as, cancer, diabetes, lung disease and cardiovascular disease.

Indonesia has one of the most complex cigarette excise tax systems in the world. The current cigarette excise tax has 12 tiers, which are based on the type of cigarettes, the number of cigarette produced, and per-unit retail price. Such a system incentivizes downward substitution to lower-priced products and has limited impact on smoking reduction. The tiers in the cigarette excise tax structure aim to accommodate small-scale cigarette firms, especially hand-rolled kreteks (SKT) firms. The rationale for such a structure is that these firms account for more than half of total factories in the tobacco industry and are responsible for employing a significant share of the workers in tobacco manufacturing (44 percent).

As the Indonesian government considers reform of its cigarette excise tax reform by simplifying the tax structure and raising the tax rates, concerns have been raised about the possible effects of tax reforms on the livelihood of tobacco farmers and manufacturing workers. The Indonesia Tobacco Employment Studies aim to contribute to the policy debate over the tobacco excise tax reform and the potential effects it might have on employment and workers’ and farmers’ livelihoods in Indonesia. The reports use microdata from the Indonesian Central Bureau of Statistics and a series of household sur-
veys among tobacco and clove farmers and kretek rollers in the largest tobacco-growing regions (Central Java, East Java, and West Nusa Tenggara) and the main kretek producing districts (Kudus in Central Java and Malang in East Java) of the country.

**Main findings**

**Farmers**

*Only a minority of tobacco-farming households relied on tobacco farming as their major income-earning activity.* Additionally, former tobacco farmers’ household incomes were higher than current farmers’. Former tobacco-farming households on average generated $3,797.68 in total income, while current farming households generated $2,921.19. During focus group discussions, farmers described a dynamic in which they planted tobacco most years, understanding that most of the time it would not generate very much income, but occasionally, when prices were high, and the weather was favorable, they could make extra income growing tobacco.

![Tobacco Farming Income as a Proportion of Total Household Income](image)

**Tobacco cultivation was not profitable for most farmers.** Though there is some variation, the overall result of a lack of profitability is consistent across regions, type of tobacco grown, and whether the farmer is on contract to grow tobacco. Even when we consider only nonlabor costs—or what most agricultural economists would term “gross margins”—most tobacco-farming households were spending more on their tobacco cultivation than they were making from it. Moreover, when only a minimum value for household labor is incorporated into the profits equation, the overall profitability plummets further. What is more problematic is that tobacco farmers are spending disproportionately large amounts of time cultivating tobacco leaf compared to nontobacco farmers in the survey, meaning that their economically productive time is almost completely subsumed by tobacco growing. In contrast, their neighbors who are no longer growing tobacco are generally developing more robust and varied economic lives.

**Indonesia typically imports significant amounts of tobacco leaf to satisfy demand from domestic kretek and cigarette manufacturers.** Though Indonesia by global standards is a large producer of tobacco leaf, it is still a net importer as it can only satisfy domestic demand by importing tens of thousands of tons of tobacco leaf each year. Therefore, any decline in consumption from a tobacco excise tax reform is unlikely to affect tobacco farmers in Indonesia.

**Like tobacco farming households, most clove-farming households are cultivating cloves as a secondary economic pursuit.** Results from the clove farmers’ survey demonstrate that more than half of these clove-farming households generated less than 20 percent of their total household resources from clove farming. At the same time, less than a quarter of the clove-farming households in the survey generated more than half of their overall resources from clove farming. The nature of cloves as a relatively low-maintenance perennial plant reasonably lends itself to this dynamic, though there are bursts of more labor-intensive activity during the year, particularly at harvest and postharvest times.

**Comparable for tobacco farmers, clove farming is also not profitable for most clove-farming households.** The results of the survey suggest that on average clove farmers are losing an average of two dollars per kilogram of cloves.
**Proportion of Total Household Resources from Clove Farming Income**

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Percent

Proportion of Clove Income in Total Household Resources
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**Tobacco Manufacturing workers**

The contribution of the tobacco manufacturing sector to total manufacturing employment is relatively small relative to the comparable manufacturing sectors. Tobacco manufacturing employment represented 5.13 percent of total manufacturing employment in Indonesia, while industries such as food employed 27.43 percent, garment employed 11.43 percent, and textile employed 7.90 percent. Furthermore, the contribution of tobacco manufacturing employment to economy-wide employment was also quite low at 0.60 percent in 2014. Although small, tobacco manufacturing jobs were heavily concentrated in a few regions of Indonesia, most of the tobacco manufacturing workers were concentrated in Central and East Java.
The survey among kretek workers shows that these workers are typically female, older adults with a low level of schooling. The average age of the kretek worker is 40 years, and about 94 percent of the kretek workers are female. More than half of the kretek workers obtained an elementary education. About 27 percent of the kretek workers obtained a junior high school education, while only 15 percent of them obtained a senior high school education. The majority (65 percent) have an unwritten contract with their firms. While there is no significant difference between wages of contract and casual workers, a significantly larger fraction of contract workers reported receiving nonwage benefits from their employers, such as, paid sick leave, paid holiday/vacation, and paid maternity leave. Given that kretek workers are predominantly female who are less likely to be household heads and more likely to have nonmarket responsibilities (e.g., child care, household chores), it is typically the motivation to provide supplementary income for the family that drives the less than full employment nature of kretek rolling. On average, wage income from kretek rolling contributes 42 percent of total household income.

Simulations on the Effects of Raising Cigarette Taxes on Employment

The World Bank has been providing inputs for the tobacco tax excise reform since 2015, in which the reform proposal was to streamline the excise tax structure and increase disproportionately the average excise tax rate across tiers. Specifically, tiers with lower cigarette taxes would experience a higher tax increase in order to compress the price structure. Under the proposed policy, the number of tiers was reduced by half.
to just six tiers. For example, there are five tiers for SKT, and the policy proposes to reduce five tiers to just two (World Bank, 2015). We predict that raising cigarette taxes by an average of 47 percent and simplifying the cigarette tax structure to six tiers will reduce cigarette demand by 10.4 percent, increase government revenue by 8.4 percent and reduce gross employment in the tobacco manufacturing sector by 4.79 percent (reduction of 32,132 tobacco manufacturing jobs, 24,710 in the SKT industry).

**These estimates represent the gross employment effect of lower cigarette consumption.** When prices of cigarettes increase, consumers may shift their consumption to other goods and services which will create jobs in these sectors. Evidence has shown that the job losses in the tobacco sector (gross effect) are usually compensated with job creation in the other sectors (the net effect). For Indonesia, Ahsan and Wiyono (2007) estimated positive effects varying from 84,340 to 281,135 jobs with tax increases of 25 percent and 100 percent, respectively (Ahsan and Wiyono, 2007).

**The total income loss from the reduction in employment in the handmade kretek industry amounts to 1.4 percent of the revenue gain from increasing cigarette taxes.** The World Bank estimates the annual revenue gain would be Rp 12,875 billion and the employment loss in the handmade kretek industry would be 24,710. Given the mean annualized kretek income at Rp 15,500,000 and the projected decrease in wage income by 48.93 percent, the loss of 24,710 jobs in the kretek industry would imply total income loss amounting to Rp 182 billion, which is 1.4 percent of the revenue gain. This is a win-win policy change because the tax and price increase will not only reduce tobacco use and related health costs, it will generate additional revenue which can more than compensate for the income loss due to a reduction in production and employment in the kretek industry.

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**Contribution of different income sources to total household income of kretek rollers**

![Contribution of different income sources to total household income of kretek rollers](image)

POLICY RECOMMENDATIONS

For kretek hand-rollers

- The groups affected by the reform who would need immediate income support in the event of job loss include the workers who are less educated, older, heads of their households, and who contribute a significant proportion of total household income from kretek rolling. The government can provide income support to these workers with less than 2 percent of the revenue gained from a tax increase.

- The additional revenue or part thereof can be allocated for re-training and redeployment of laid-off kretek workers to smooth their transition to an alternative source of employment in the short to medium term.

- The government should identify alternative employment or income-generating opportunities in the affected regions. The re-training of laid-off kretek workers must be designed to accommodate transitions into the alternative employment opportunities.

For (tobacco and clove) farmers:

- The government should help to improve supply chains and value chains for other goods in tobacco- and clove-growing areas. Many former tobacco farmers are making a better living growing other common, locally grown crops (e.g., corn, sweet potato, and green vegetables), an outcome that could be further enhanced with even small investments by governments in improved supply chains for these products. It is largely an issue of shifting their factors of production to maximize economic opportunity:

  - Because most cloves are purchased by the kretek manufacturers, a decrease in consumption from tobacco excise tax reform will have a negative effect on some clove farmers, but clove farmers typically have a broad economic profile and can be incentivized to shift resources to other economic activities in which they are already involved.
• **The government should help to facilitate access to credit for tobacco farmers.**
  Greater access to capital through improved credit schemes could help to improve the possibilities for tobacco farmers to cultivate other crops and/or develop other nonagricultural economic enterprises. Access could be in the form of grants or low-interest loans to farmers willing to move away from tobacco or clove cultivation.

• **The government should help to improve educational opportunities for these farmers,** including extension services for nontobacco/non-clove crops and agricultural management courses. These efforts would significantly help farmers make transitions to alternative crops.
REFERENCES


