

Extended Abstract

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Paper/Poster Title	Beyond the ban - shedding light on smallholders' price vulnerability 2 in Indonesia's palm oil industry
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	200 words max
<p>The Indonesian government imposed an export ban on palm oil in response to soaring cooking oil prices in spring of 2022. This study aims to explore the vulnerability of smallholder farmers to this particular policy intervention within the palm oil industry. We utilize primary data to investigate smallholders' perception of the export ban and its consequences on their economic well-being using descriptive statistics and the machine learning technique Lasso. Our findings reveal that the export ban had a substantial adverse impact on smallholders, leading to increased financial strain and instability in their agricultural practices. Small-scale producers struggled to cope with the changing market dynamics, while limited access to resources further exacerbated their vulnerability. However, the households' dependence on palm oil, the farms' certification status, and various socioeconomic variables affect the extent to which smallholder 16 farmers are impacted. This study underscores the importance of considering smallholders' vulnerability when implementing trade policy measures within the palm oil industry. Our findings are relevant to industry stakeholders as well as policymakers.</p>	
Keywords	Export Ban, Indonesia, Palm Oil, Smallholder Farmers
JEL Code	Q17, Q18, Q13 see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	100 – 250 words
<p>On April 28, 2022, the Indonesian government implemented an unprecedented measure by imposing an export ban on palm oil. This step followed weeks of soaring cooking oil prices, which caused protests in the nation's capital (Llewellyn, 2022). As demonstrated by previous research, escalating food prices have been associated with social unrest</p>	

(Bellemare, 2015), thereby emphasizing the potential impact on political stability in Indonesia. Before the ban, cooking oil prices per liter surged from approximately 14,000 Indonesian Rupiah (IDR) to over 22,000 IDR¹ (Medina, 2022), disproportionately impacting the most vulnerable segments of the population. While the Indonesian government had previously implemented various measures, including a domestic market obligation to maintain affordable cooking oil prices these efforts did not achieve their intended outcomes, as the rising palm oil stock market price indicates. Consequently, the government resorted to a complete ban on exports to gain control over cooking oil prices. Even though the ban was intended to stabilize cooking oil prices, benefiting the entire Indonesian population as consumers, adverse effects for palm oil producers could be expected. Of particular interest within the industry are smallholder producers, who contribute approximately 40% to the Indonesian palm oil supply. Smallholders are uniquely affected in a two-folded way: As consumers, they struggle with rising cooking oil prices, while as producers, they experience volatile farm gate prices.

Methodology

100 – 250 words

We estimate an OLS regression with clustered standard errors on the district level. We use the variables selected by the different Lasso algorithms (cv, minBIC, and adaptive) as regressands. Agricultural prices are linked to a large set of determinants. However, not all determinants carry the same importance. In cases with high-dimensionality, the ML technique Lasso is an efficient and suitable method for feature selection. Lasso is a regularized regression method, penalizing the absolute size of coefficient estimates. Lasso is an approximate sparse method, implying that among a number of regressors of a specific model, only some regressors are relevant to capture the features of a specific regression, meaning that only certain covariates have a stimulating effect on the outcome.

Endogeneity arises when one or more of the independent variables are correlated with the error term ϵ_i . Potential sources of endogeneity include omitted variables bias. In our case, this would mean that the dependent variable and the regressors may be biased because other unobserved factors influencing prices are not included in the model. Reverse causality and simultaneity concerns might be additional sources of endogeneity. However, as our dependent variable is the price difference due to an exogenous shock, the unannounced export ban which was implemented by the Indonesian Government,

and our regression only considers farmers' characteristics, it is unlikely that we face reverse causality and simultaneity concerns.

Results

100 – 250 words

Some selected results are: For respondents whose primary income source is off-farm labor, making oil palm cultivation their secondary income, the impact of the export ban is more pronounced, resulting in larger price differences compared to those whose primary income source is oil palm cultivation. We argue that individuals with oil palm cultivation as their primary income source may benefit from higher levels of experience, specialization, economies of scale, and stronger connections within farmer networks. These factors potentially contribute to better price cushioning mechanisms, such as information sharing, which could explain the observed smaller price differences following the export ban. Furthermore, being a female farmer is positively associated with the price difference, meaning female farmers are more likely to face larger price difference following the ban compared to their male counterparts. This finding aligns with the male-dominated nature of the palm oil industry. This gender disparity may influence female farmers' negotiating position and access to support networks, thereby increasing their vulnerability to market risks. The farmer's household size, having oil palm cultivation as a primary income source, farmer's monthly average income from oil palm, and a dummy indicating whether the farmer has parts of the plantation certified decrease the price difference before and after the ban statistically insignificantly.

Discussion and Conclusion

100 – 250 words

Our study identifies several factors that impact how smallholders are affected by the export ban on palm oil to answer our second research question. Farmers with a primary income source from off-farm labor and female farmers were more likely to experience larger price fluctuations following the ban. Our study offers fresh insights into the trade-offs between oil palm smallholders and palm oil consumers in the context of export bans. Our results highlight the crucial need to incorporate considerations for the overall well-being of smallholders in the development of policies within the palm oil industry. These findings are relevant to both industry stakeholders and policymakers, highlighting the necessity of thoughtful policy implementation. Trade policy measures, including export

bans, demand meticulous consideration to avoid unintentionally disrupting domestic market dynamics, which can lead to unintended consequences.