

An aerial photograph of a vast agricultural field, likely a rice paddy, during harvest. A yellow combine harvester is visible in the middle ground, and a red tractor pulling a trailer is in the foreground. The field is filled with golden-brown crops, and the horizon is flat under a clear sky.

# How do Agricultural Import Tariffs Affect Men and Women Smallholders? Evidence from Bangladesh

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## Overview and motivation

Using newly available customs data from Bangladesh, along with additional administrative and survey data on prices, employment and production, this study examines how variation in import tariffs on key agricultural inputs affects men's and women's agricultural employment and production — given a high degree of segmentation among men and women in different agricultural activities.

The results underscore how trade and tariff policies have varying implications for women vis-à-vis men, given gender differences in economic roles.

**Motivation:** Substantial interest has built in recent years on the individual-disaggregated employment effects of tariff policy, particularly amid growing protectionism is increasing across countries.

- However, there is little evidence from LMICs within sectors and for different areas of production, due in part to the lack of regularly-published, granular data on tariffs linked with industries and activities of male and female producers and workers.
- **Agriculture, in particular, is also highly relevant in this vein:** varying sub-sectors in which men and women work for pay or for home consumption; many agricultural commodities also face substantial import tariffs as a result of government efforts to protect domestic producers from international competition.

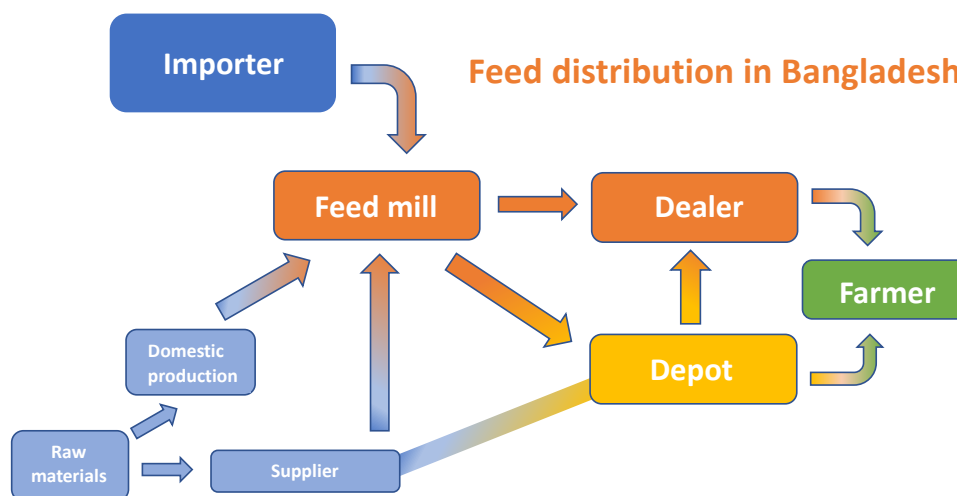
# Bangladesh's agriculture sector, and dependence on imports

## Agriculture in Bangladesh: dependence on imports

In 2022, agriculture accounts for about 12 percent of Bangladesh's gross domestic product (GDP) and 45 percent of its overall employment. The sector is also highly import-dependent, particularly for agricultural inputs.

**Crop agriculture:** More than 90% of seeds used in Bangladesh are imported, and despite production levels, Bangladesh remains a net importer of rice. Bangladesh also imports much of its fertilizer, including 31% of its nitrogen needs, 57% of phosphate needs and nearly all (95%) of potash needs (Mamun, Glauber and Laborde, 2022).

**Livestock:** Overall, the demand for feed is largely met by domestic feed industries that largely import feed ingredients (70 percent), followed by imported feed (5 percent), and homemade mix (25 percent).

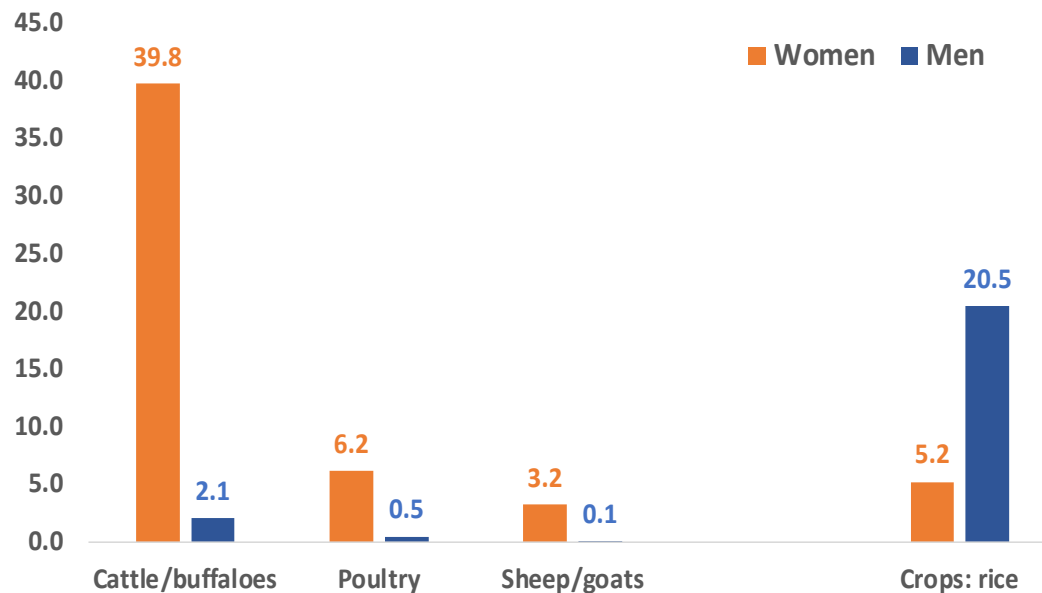


Adapted from Haque et al. (2016).  
"Profitability and forward linkage  
analysis of poultry feed mill in  
Bangladesh."  
*Journal of the Bangladesh  
Agricultural University* 14(2): 201–  
208.

## Agriculture in Bangladesh: men's and women's employment

Men and women in agriculture tend to work in distinct areas - **men in crop agriculture, women in livestock/poultry rearing**; mainly small scale and a large share for household consumption

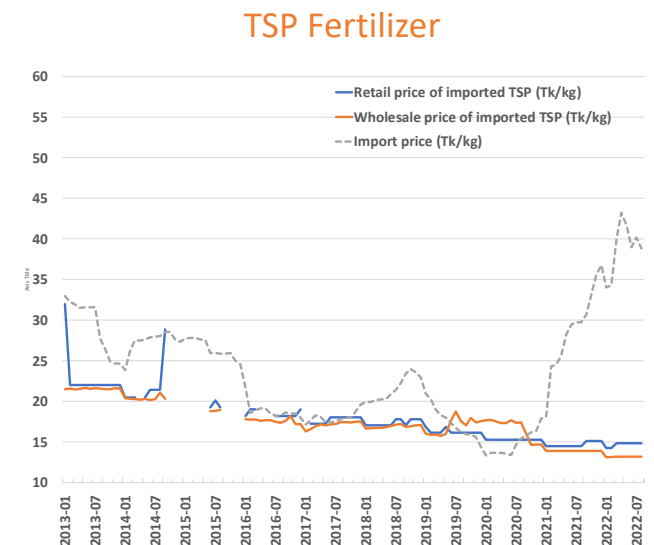
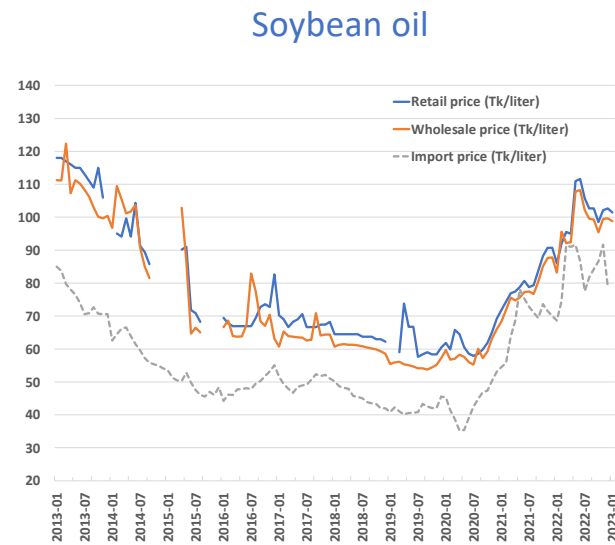
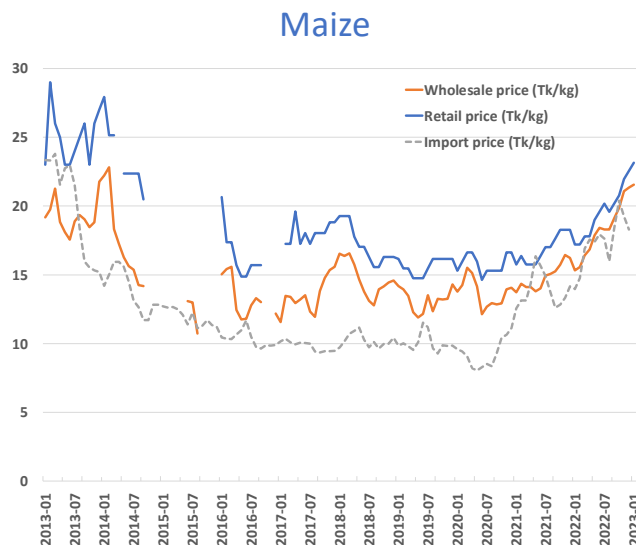
Share of rural men and women aged 15-64 who are employed in rearing animals, as well as rice production: 2016/17 Bangladesh Labor Force Survey



Given the gender differences across agricultural activities, a key question, then, is how import costs vary across these activities — with implications for policy on how to improve women's outcomes in agriculture.

# Differences in import costs and subsidies for inputs across different areas of agriculture

## Trends in selected agricultural commodity prices relevant to feed (maize, soybean) and crops (TSP fertilizer), 2013-2023

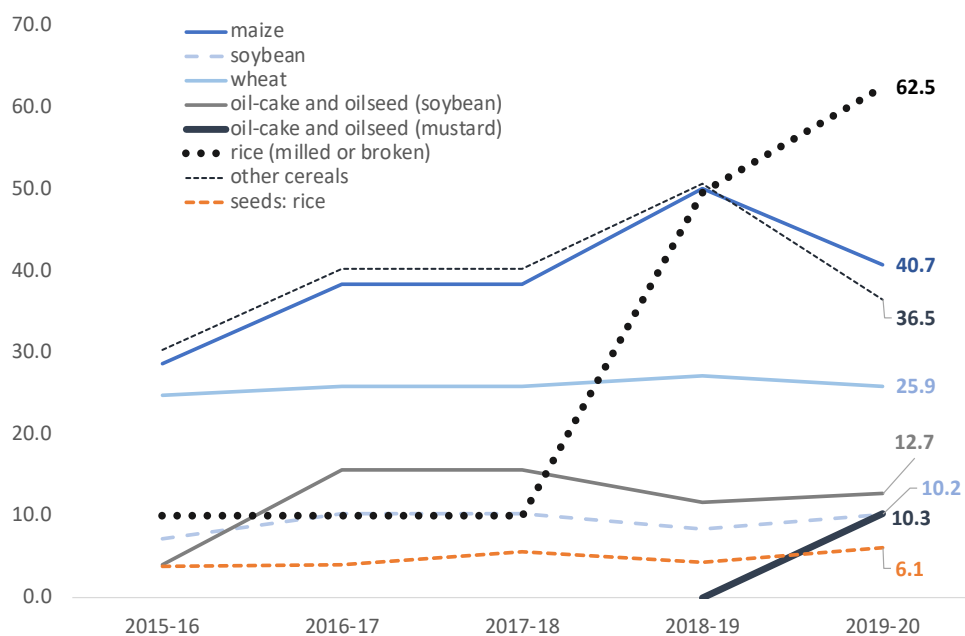


**Source:** Department of Agricultural Marketing, Bangladesh (for wholesale and retail prices); World Bank Pink Sheet (for related global import prices).

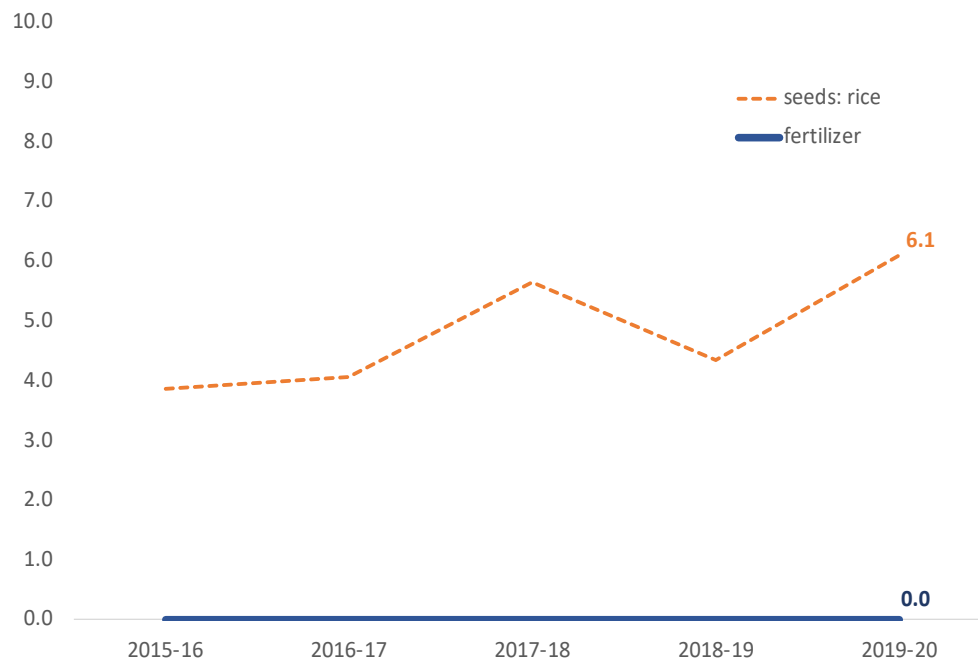
→ Large fertilizer subsidies:  
\$3.2 billion in 2021-22, ~ 70-85% of market prices for different fertilizers

# Total tax rate (TTR) for imported agricultural inputs, 2015-16 to 2019-20

## Imported inputs for livestock feed



## Imported inputs for crop agriculture

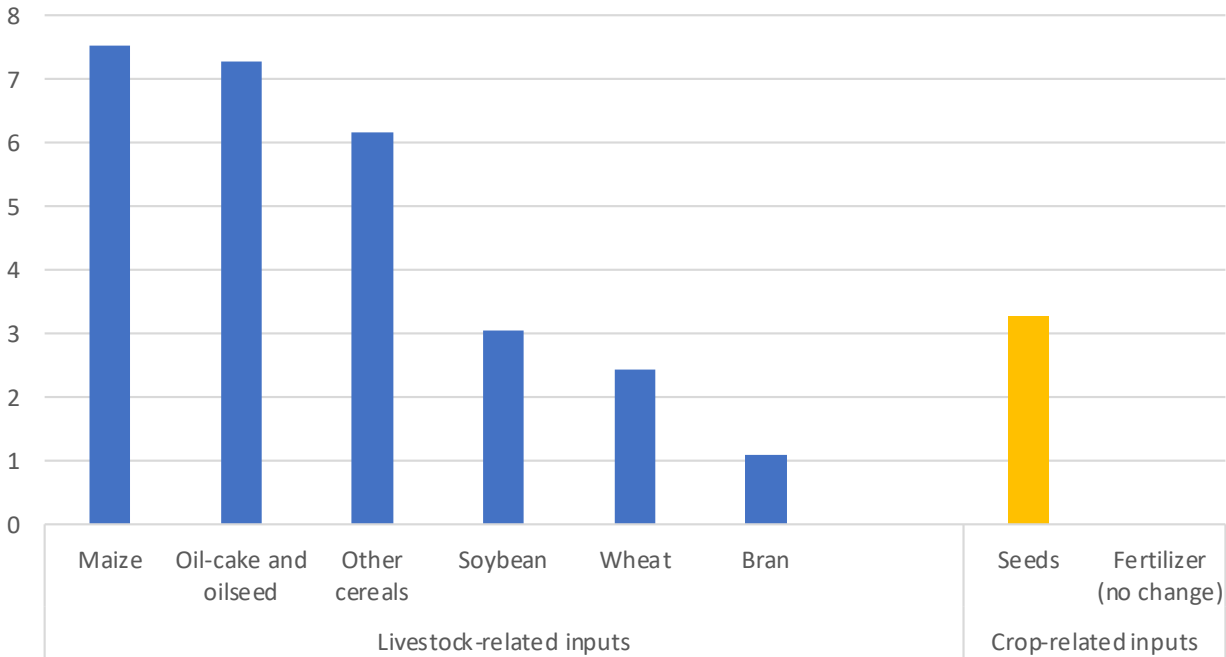


(1) Tariff data: National Board of Revenue, Bangladesh (8-digit HS, or Harmonized System codes)

(2) Total tax rate = Customs Duty + Regulatory Duty + Supplementary Duty Incidence + VAT Incidence + AIT + ATVI



# Percentage point change in TTR on imports of livestock/poultry and crop-related inputs, 2015-16 to 2020-21



# Implications of rising import costs for men and women in agriculture

## Farmers' smallholder status, and ability to respond to input price rises

Given the reliance of agriculture on imports, alongside substantial gender differences in agricultural activities, an important question is how import policy — and tariff structure — might have implications for men and women in agriculture. Farmers have few avenues to counter increases in input costs for animal feed and care:

**Reliance on market purchases for inputs** - even among smallholder farmers, agricultural producers rely heavily on market purchases for animal feed ingredients (mainly from dealers, as discussed in Figure earlier), as well as seeds — as opposed to solely own-production.

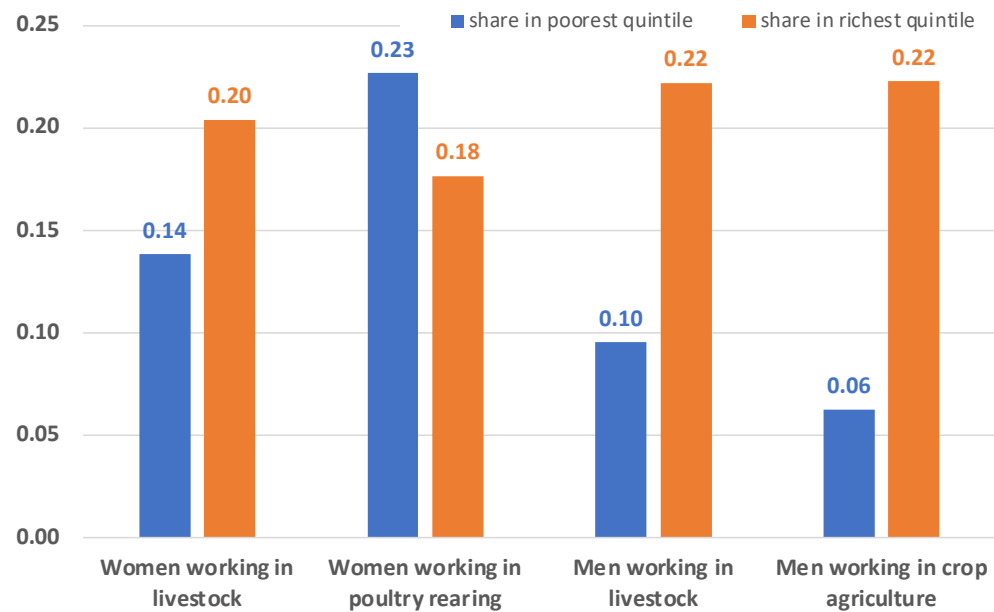
**Mainly production for own consumption:** animal products such as milk and eggs, 82 percent of poultry owners/managers (mainly women) are engaged entirely in own-consumption activities, and about 50 percent of dairy owners/managers.

**Earnings are low:** among livestock producers, 85% women and 50% men do not sell any products for pay or profit. For poultry, a much greater share of women sell their output (about 70 percent), but their earnings are much less, ~ 50 to 500 taka per month, compared to average annual feed expenditure of 2500 taka

## Farmers' smallholder status, and ability to respond to input price rises

Men and women within the same HH could engage in a mix of activities — but in livestock and poultry rearing tend to be in relatively worse-off households along income and profits

Share of women and men in key agricultural production activities, in the poorest and richest quintiles of household per capita income



## Regression analysis: Effects of commodity price variation on men's and women's employment, earnings, borrowing and expenditure

Based on the descriptive findings above, multiple potential channels through which increased agricultural input prices could affect men and women farmers – through profits (and, as a result, the viability of employment), food consumption, and debt.

Although our study is not able to exploit a randomized intervention or exogenous event that would best allow for an understanding of causal channels, the 2018/19 BIHS has a module in its community (enumeration area) questionnaire on selected commodity prices in the community that correspond to key inputs for feed and crop agriculture (soybean, mustard and fertilizer).

Using variation in these prices, we estimate the association (OLS regressions) between higher prices of these inputs – which, as discussed earlier, are mainly imported, with higher import costs on feed-related inputs – with individual-level outcomes collected in the 2018/19 BIHS across employment, borrowing and consumption.

## OLS Regressions: effects of commodity price variation on employment

	Employment outcomes (Y=1 N=0):				
	(1) Poultry rearing	(2) Livestock rearing (dairy cow/buffalo)	(3) Crop agriculture	(4) Non- agriculture	(5) Not employed
<b>Women (obs = 8,630)</b>					
<i>Regression (A):</i> Log price of soybeans (Tk/kg)	-0.045**	-0.083***	0.006	0.009	0.043**
<i>Regression (B):</i> Log price of mustard (Tk/kg)	-0.032**	-0.056***	0.001	-0.004	0.043***
<i>Regression (C):</i> Log price of urea fertilizer (Tk/50 kg)	0.024	0.147***	-0.006	-0.025	-0.093*
<i>Regression (D):</i> Log price of TSP fertilizer (Tk/50 kg)	0.023	0.028*	0.006	0.023***	-0.019
<b>Men (obs = 7,120)</b>					
<i>Regression (A):</i> Log price of soybeans (Tk/kg)	-	-0.090***	-0.052**	0.032	0.005
<i>Regression (B):</i> Log price of mustard (Tk/kg)	-	-0.036**	-0.026*	0.005	-0.000
<i>Regression (C):</i> Log price of urea fertilizer (Tk/50 kg)	-	0.145***	0.079	-0.031	-0.007
<i>Regression (D):</i> Log price of TSP fertilizer (Tk/50 kg)	-	0.058***	0.011	0.009	-0.026**

Source: BIHS 2018/19, SEs clustered at HH level

Regressions control for division FE, and individual, HH and EA characteristics

## OLS Regressions: effects of commodity price variation on other outcomes

### Earnings, borrowing and consumption

	(1)	(2)	(3)	(3)	(4)	(5)
	Log individual earnings from poultry	Log individual earnings from livestock	Log individual earnings from crop agr.	Log individual borrowing in agriculture	Log individual borrowing for consumption	Log HH per capita food consumption (kg; HH-level)
<b>Women (obs = 8,630)</b>						
<i>Regression (A):</i> Log price of soybeans (Tk/kg)	-0.571***	0.099	0.023	0.320	0.243	-0.035
<i>Regression (B):</i> Log price of mustard (Tk/kg)	-0.314**	-0.055	-0.014	-0.310*	0.009	-0.047***
<i>Regression (C):</i> Log price of urea fertilizer (Tk/50kg)	0.735	0.056	-0.330	2.493***	-0.278	0.735
<i>Regression (D):</i> Log price of TSP fertilizer (Tk/50kg)	0.370**	2.23	-0.154	-1.17	-0.033	-0.51
<b>Men (obs = 7,120)</b>						
<i>Regression (A):</i> Log price of soybeans (Tk/kg)	-	-0.947***	-0.395	0.102	-0.042	-0.039
<i>Regression (B):</i> Log price of mustard (Tk/kg)	-	-0.315*	-0.185	-0.272	-0.209	-0.038**
<i>Regression (C):</i> Log price of urea fertilizer (Tk/50kg)	-	1.749***	0.975	1.080	-0.391	0.128**
<i>Regression (D):</i> Log price of TSP fertilizer (Tk/50kg)	-	0.566***	0.048	0.102	0.333**	0.015

Source: BIHS 2018/19, SEs clustered at HH level

Regressions control for division FE, and individual, HH and EA characteristics

## Conclusions, and looking ahead

Overall the findings suggest that import tariffs that raise the costs of necessary inputs in agriculture likely have negative implications for women vis-à-vis men in the sector, given

- (a) women's disproportionate representation in small-scale livestock/poultry rearing, with a substantial share of production for household consumption;
- (b) reliance among livestock and poultry farmers on feed producers who import most of their ingredients; and
- (c) higher tariffs on these commodities compared to inputs in crop agriculture.

We also show that higher resulting prices for inputs used in feed are significantly negatively associated with employment and earnings in poultry and livestock activity, where women are heavily concentrated.

Among those marketing output, earnings also tend to be substantially higher in crop agriculture than in livestock/poultry activity, underscoring the need to closely examine how import tariffs can affect more vulnerable groups.

Individual producers are also heavily reliant on livestock for both sale as well as own-consumption activity — the latter of which reduces their ability to pass on increased input costs.



## Conclusions, and looking ahead

The findings also have implications for other countries. While women in lower-income contexts are disproportionately concentrated in informal occupations globally, depending on the country context, the industries they tend to work in are often heavily dependent on imported natural resources and commodities, including within agriculture.

In parallel with countries' relative reliance on imported agricultural commodities—as well as the extent to which they are motivated to protect domestic agriculture, through tariffs — import prices of inputs and, in turn, tariffs can have significant effects on their employment.

→ **Within WB:** ability to harness multiple, highly disaggregated sources of data allows for a more granular discussion of gender implications of import tariffs on employment and consumption, **particularly where men and women in different economic activities**

Thank you!

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