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FEF Position Paper: Extension of EO 171 to Ensure Food Availability and Affordability of Corn-Dependent Products¹

Corn is one of the major crops grown in the country. It ranks third among all crops in terms of average gross value added (GVA) from 2017 to 2021, the first two major commodities being rice and bananas. Corn is not only utilized for human and industrial consumption, but it is also used as an input in the production of animal feed, particularly yellow corn. More specifically, out of the total supply of corn in the Philippines (both local and imported), it is estimated that approximately 85 percent (%) is utilized as animal feeds from 2010 to 2019 (supply utilization, PSA). **Hence, the animal feed industry is the major user of yellow corn in the country.**

According to Esplana and Soliaban (2005), yellow corn accounted for 50% to 70% of the total production cost of feed millers (feeds for livestock, poultry, and fish). Similarly, feed is the primary cost item for the dairy industry wherein its share is around 65% and 77% of the total cost of carabao and cattle milk production, respectively (PIDS, 2021). Subsequently, the share of animal feeds to the total production cost of swine and broiler in the Philippines is approximately 60% and 65%, respectively (see Figures 1 and 2). **Given this, the availability and affordability of yellow corn in the country can significantly impact not just the operation of the animal feed industry, but also the production cost and ultimately the growth and competitiveness of the livestock, poultry, dairy, and aquaculture subsectors.**

¹ Prepared by Karlo Fermin S. Adriano, PhD.



However, data from the PSA and the DA National Corn Program (NCP) reveal a supply shortage of yellow corn for feeds from 2019 to 2022, and this trend will continue in 2023. As seen in **Figure 3**, from 2019 to 2022, local yellow corn production in the country is, on average, 6 million metric tons (MT) wherein approximately 4.38 million MT² is utilized for the production of animal feeds. In contrast, the average demand for yellow corn for feeds is, on average, 9.14 million MT during the same period (see **Figure 4**). This translates to an average local supply deficit of yellow corn for feeds of approximately 4.75 million MT from 2019 to 2022 (see **Figure 4**).

On the other hand, using PSA data, it is projected that local production of yellow corn will increase to 6.06 million MT while its demand for feeds will rise to 9.63 million MT in 2023. Consequently, the estimated supply deficit of yellow corn for feeds will increase to 5.2 million MT in 2023 (see **Figure 4**). It is important to note that the projected yellow corn supply utilizing PSA data in 2023 is significantly lower than the unrealistic local yellow corn production target of the National Corn Program (NCP) at 7.7 million MT in 2023 (see **Figure 3**).

As a consequence of the insufficient total supply of yellow corn in the country, the wholesale price of corn in the country is significantly higher compared to Thailand and the United States of America (USA)³, respectively. As seen in **Figure 5**, the domestic wholesale price of corn is 45% and 72% more than that of Thailand and the USA in 2021, respectively (see **Figure 5**). The repercussion of the high price of corn has been reflected in the large average contribution of meat to food inflation since 2012 (at 22% from 2012 to 2021, see **Figure 6**).

Moreover, the conflict between Russia and Ukraine, combined with the continuing logistics bottlenecks due to COVID in 2022, triggered immense negative economic and trade implications, particularly for key agricultural commodities, at the start of 2022. More specifically, the two countries account for 30% of global exports of wheat (a substitute for yellow corn for feed), and 20% for corn, fertilizers, and natural gas.

² Assuming an average post-harvest loss of 13%.

³ Thailand is one of the largest sources of imported corn of the country while the USA is the largest producer of corn in the world.



As seen in **Figure 7**, corn and flour-based products (wheat as a major ingredient), two of the major export commodities of Russia and Ukraine, posted a double-digit contribution to food inflation from January to March 2022. As a result, the previous administration signed Executive Order (EO) 171, which is valid until December 2022, that temporarily lowered the Most Favored Nation (MFN) rates of key agricultural commodities. **In particular, this paper will discuss the net benefits of temporarily lowering the MFN rates of corn to 5% in-quota (from 35%) and 15% out-quota (from 50%) from April to December 2022.**

Consumer benefits

Farm gate and wholesale prices of yellow corn from 2019 to 2021. As seen in **Figure 8**, the average farm gate price of yellow corn before the lowering of corn tariffs (from 2019 to 2021) is PhP 13.1 per kilogram (kg). On the other hand, the average wholesale price of yellow corn is PhP 20.8 per kg during the same period. Given these, the average ratio of the wholesale price to the farm gate price of yellow corn is 1.62 from 2019 to 2021 (pre-EO 171). More specifically, **the average wholesale price of yellow corn is, on average, 1.62 times that of the farm gate price of yellow corn before EO 171 (from 2019 to 2021).**

Farm gate and retail prices in 2022. Due to the Ukraine and Russia conflict (rising fertilizer, corn, and wheat prices) and the continuing logistical bottlenecks due to COVID, farm gate prices of yellow corn increased by 21% from 2021 to 2022, or from 14 PhP per kg in 2021 to 17 PhP per kg in 2022 (see **Figure 8**). Similarly, the wholesale price of yellow corn rose but at a much slower rate. As seen in **Figure 8**, the wholesale price of yellow corn only grew by 12% from 2021 to 2022, or from PhP 22 per kg in 2021 to PhP 24.6 per kg in 2022. The moderate rate of increase in the wholesale price of yellow in 2022 can be attributed to the availability of cheaper yellow corn imports due to the lower tariff rates on corn starting April 2022 thru EO 171 (see **Figure 8**).

Moreover, as seen in **Figure 8**, the average farm gate price of yellow corn after the lowering of corn tariff rates is PhP 17 per kg (in 2022). In contrast, the average wholesale price of yellow corn is PhP 24.6 per kg during the same period. Given these, the average ratio of the wholesale price to the farm gate price of yellow corn is 1.45 in 2022. More specifically, **the average wholesale price of yellow corn is, on average, 1.45 times that of its farm gate price in 2022 or after the reduction of corn tariff rates (EO 171). Subsequently, this ratio is 0.17 points lower than the 2019 to 2021 wholesale-to-farm gate price ratio (1.45 vis-à-vis 1.62).**



It is important to note that international prices of yellow corn significantly increased in 2022 due to external economic shocks such as the Ukraine and Russia conflict and the severe logistics bottlenecks because of the COVID-19 pandemic. **Despite these economic impediments, as seen in Figure 8, the ratio of the wholesale price of yellow corn to its farm gate price decreased from 1.62 in 2021 to 1.45 in 2022, or a 12% decline from 2021 to 2022. This decrease in the ratio of the wholesale to farm gate price of yellow corn can be attributed to the entrance of cheaper corn imports in 2022 due to the lower tariff rates imposed by the government beginning in April 2022 (EO 171).** As seen in **Figure 5**, the yellow corn wholesale price in the US and Thailand, the largest exporter of yellow corn and the ASEAN major source of the country's yellow corn import, respectively, rose by 33% and 24% from 2021 to 2022, respectively.

On the other hand, **Figure 8** shows the estimated wholesale price of yellow corn with and without the lowering of tariff rates scenarios. It is assumed that without EO 171 the ratio of the wholesale to farm gate price of yellow corn will remain constant at 1.62. Given this, the estimated 2022 wholesale price of yellow corn under the no-tariff rate reduction scenario is PhP 27.45 per kg. This number is 11% higher than the actual wholesale price of yellow corn in 2022 (with a reduced tariff rate scenario), respectively. **Thus, although the lowering of tariff rates on corn (EO 171) did not lessen the wholesale price of yellow corn from its 2021 value, the EO significantly decreased the rate of increase of the wholesale price of yellow corn in 2022 vis-à-vis the no tariff rate reduction scenario (see Figure 8).**

Given the lower wholesale prices of yellow corn in 2022 vis-à-vis the no tariff reduction scenario, Filipino consumers benefit from reduced prices of pork, chicken, and egg. ⁴ As seen in **Table 1**, a 1 PhP decrease in the wholesale price of yellow corn will translate to PhP 0.4 per kg, PhP 0.7 per kg, and PhP 0.08 per egg lower prices of pork, chicken, and egg, respectively. Moreover, given that EO 171 resulted to a PhP 2.81 per kg reduction of the wholesale price of yellow corn vis-à-vis no tariff reduction scenario in 2022, the estimated per kg savings for pork and chicken are 1.12 PhP and 2 PhP, respectively (see **Table 1**). On the other hand, the estimated savings per egg is PhP 0.023 (see **Table 1**).

⁴ Benefits to aquaculture and dairy sectors were not computed due to data and time limitations.



The total consumer benefits or savings due to the lower retail prices of pork, chicken, and eggs because of reduced prices of yellow corn are estimated to be approximately PhP 4.2 billion from April 2022 to December 2022 (see Tables 2 to 4). As discussed above, EO 171 is estimated to lower pork, chicken, and egg prices by PhP 1.12 per kg, PhP 2 per kg, and PhP 0.023 per egg, respectively. Subsequently, given estimated monthly demands for pork, chicken, and egg of 144.7 million kg, 151.5 million kg, and 46.7 million kg, respectively, and the lower corn tariff rates effective for 9 months in 2022, total consumer benefits are estimated to be PhP 1.5 billion for pork, PhP 2.7 billion for chicken, and PhP 9.7 million for egg from April to December 2022 (see **Tables 2, 3, and 4**).

Government Revenue Losses

On the other hand, given the lower MFN rates on corn, EO 171 may result in a reduction of corn tariff revenues collected by the government. As seen in **Table 5**, the average yellow corn importation is 602,389 MT with a value of USD 185 million from 2017 to 2021. Of the total corn imported by the country, on average, 71% comes from ASEAN countries while 29% is sourced from non-ASEAN countries during the same period. The higher share of ASEAN corn imports is due to the lower tariff rates on ASEAN corn. Given the average volume and value of yellow corn imports from 2017 to 2021, and the pre-EO 171 tariff rates on corn⁵, the estimated average tariff collection from corn is approximately PhP 2 billion from 2017 to 2021 (see **Table 5**).

Unfortunately, 2022 corn importation data is still not available (from Trademap and Comtrade). As such, this paper assumes that EO 171 will increase non-ASEAN imports by 50%. Furthermore, assuming ASEAN imports remain the same given that the largest exporters of corn are the non-ASEAN countries (see **Table 6**), total imports of yellow corn in 2022 is estimated to increase to 688,908 MT with a value of US\$ 213 million (see **Table 5**). Given a lower non-ASEAN out-quota rate of 15% due to EO 171⁶, the total projected tariff revenue from corn is approximately PhP 1.1 billion in 2022 (see **Table 5**). **Thus, it is estimated that the total government corn tariff revenue losses due EO 171 is estimated to be PhP 900 million (see Table 5).**

⁵ To simplify the analysis, only the out-quota (or upper bound) rate was utilized in the analysis.

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Net benefit and extension of EO 171

In summary, the estimated total net benefit of lower corn tariff rates is -1 billion from April to December 2022. As seen in **Tables 2,3, and 4**, consumer savings due to reduced corn tariffs are projected to be equal to PhP 4.2 billion. In contrast, government revenue losses due to EO 171 is around PhP 900 million.

Given the continuing conflict between Russia and Ukraine that has pushed prices of key agricultural commodities to multi-year highs and the rising headline inflation (at 7.7% as of October 2022) where the food commodity group already contributes 45% of headline inflation as of October 2022 (see Figure 9), there is a need to extend EO 171 until December 2023. As seen in **Figure 10**, the high headline inflation, particularly food inflation, has already resulted in greater self-rated food poverty among Filipinos as of October 2022 at 34%, as revealed by the recent SWS survey results. This number is 3% larger than the 2021 average of 31%. Furthermore, corn-dependent products, such as meat, fish (aquaculture feeds use corn as input), and corn contribute, on average, approximately 60% of food inflation from January to October 2022 (see **Figure 11**). **Thus, extending EO 171, particularly lower corn tariffs, is imperative if the government wants to slow down the rate of increase of prices of corn-dependent products to ensure food availability and affordability of these key agricultural commodities.** As shown above, the reduced corn tariffs resulted in significant consumer savings.

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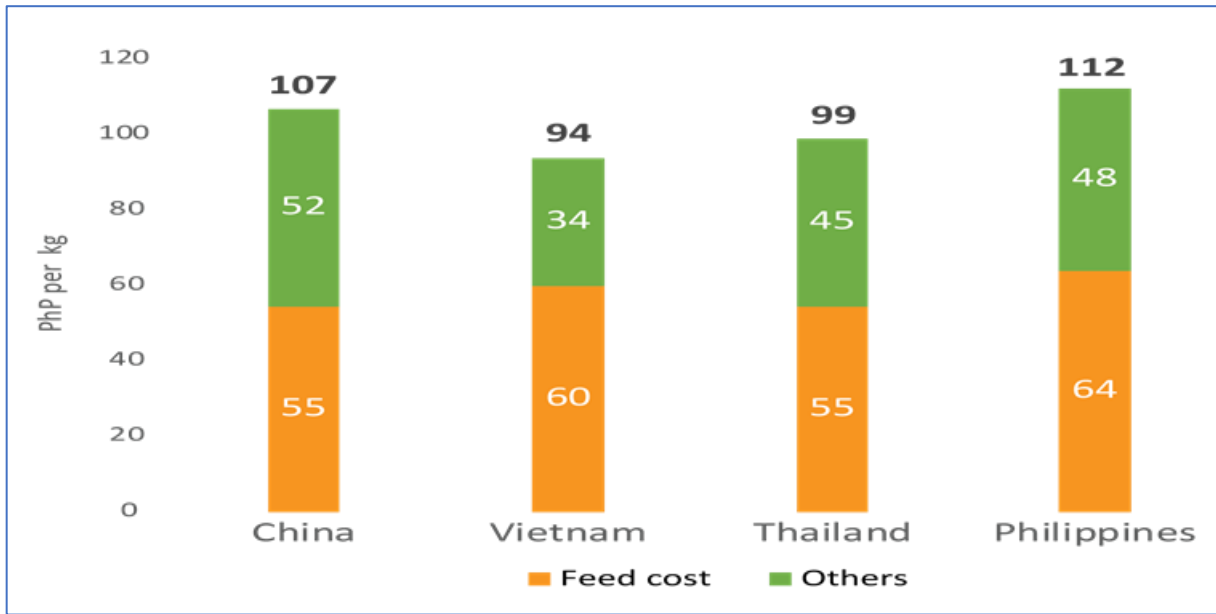
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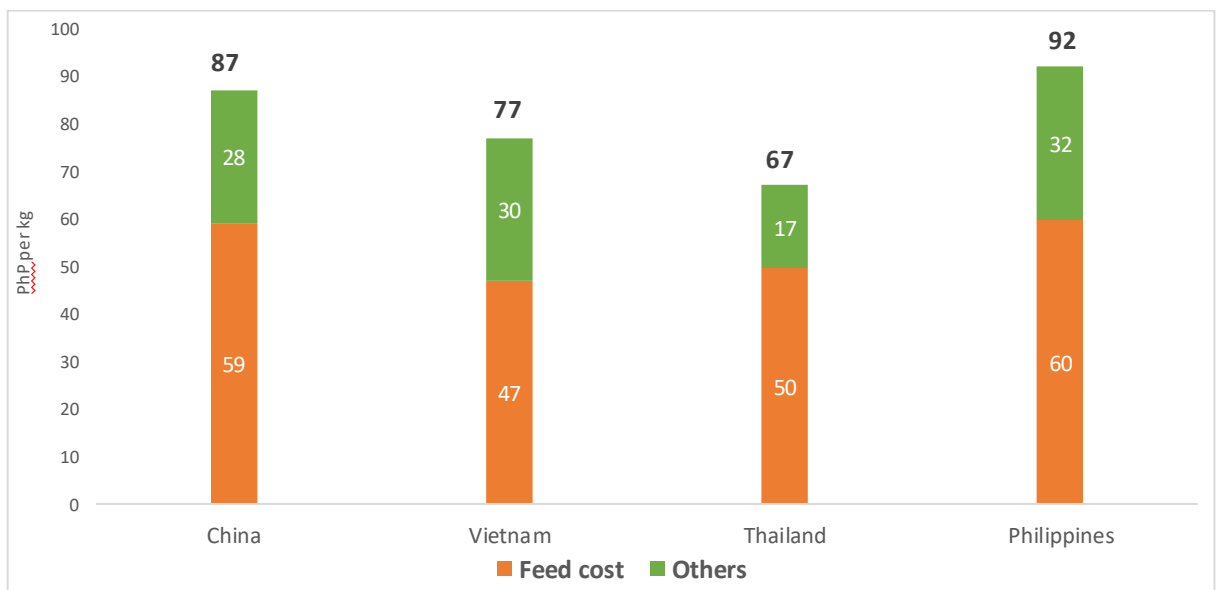
List of Figures and Tables

Figure 1. Cost of large-scale swine farms of selected countries, carcass weight (in PhP per kg)



Source: Briones (2021)

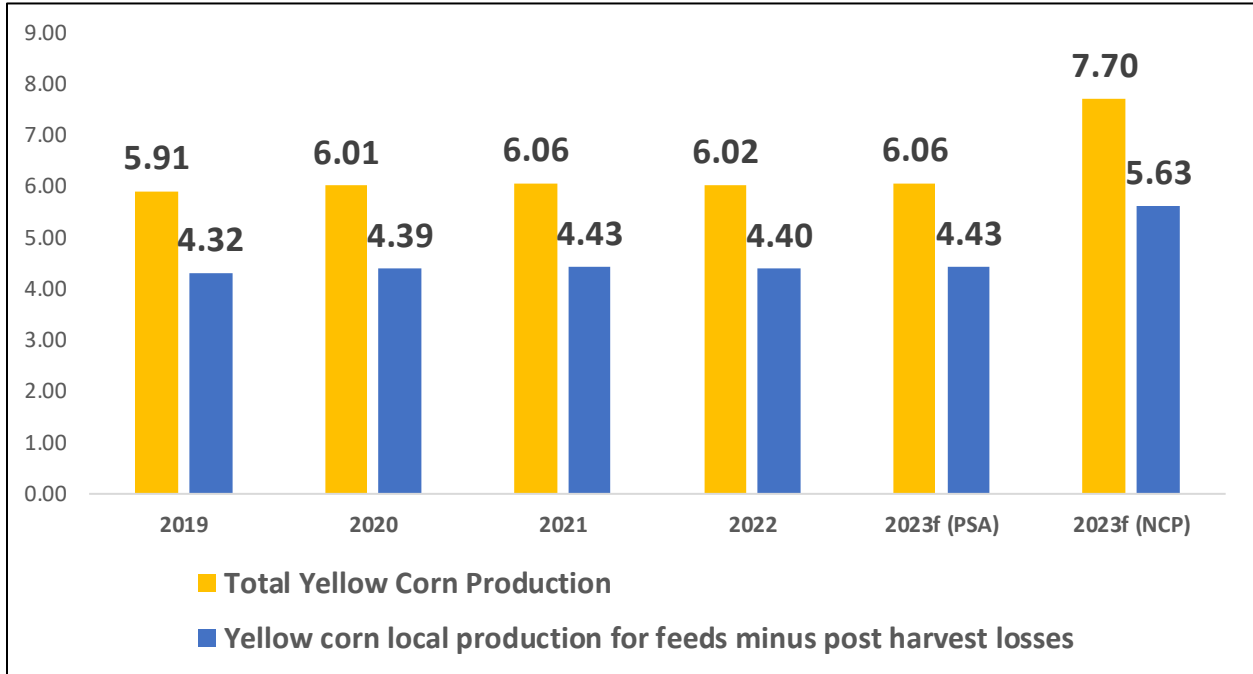
Figure 2. Cost of large-scale broiler farms of selected countries, carcass weight (in PhP per kg)



Source: Briones (2021)



Figure 3. Yellow corn production and corn for feeds from 2019 to 2023f (in million MT)

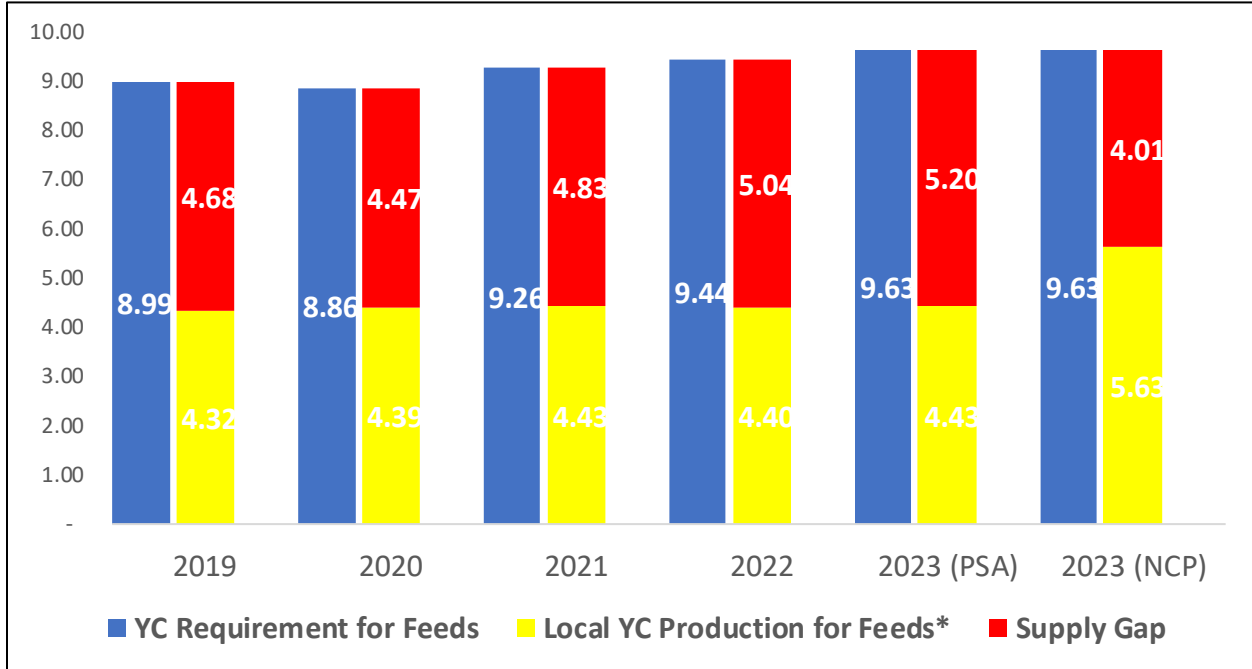


*2022 and 2023 are projections

Source: PSA, NCP, and author's calculations



Figure 4. Philippine yellow corn for feeds deficit from 2019 to 2023f (in million MT)

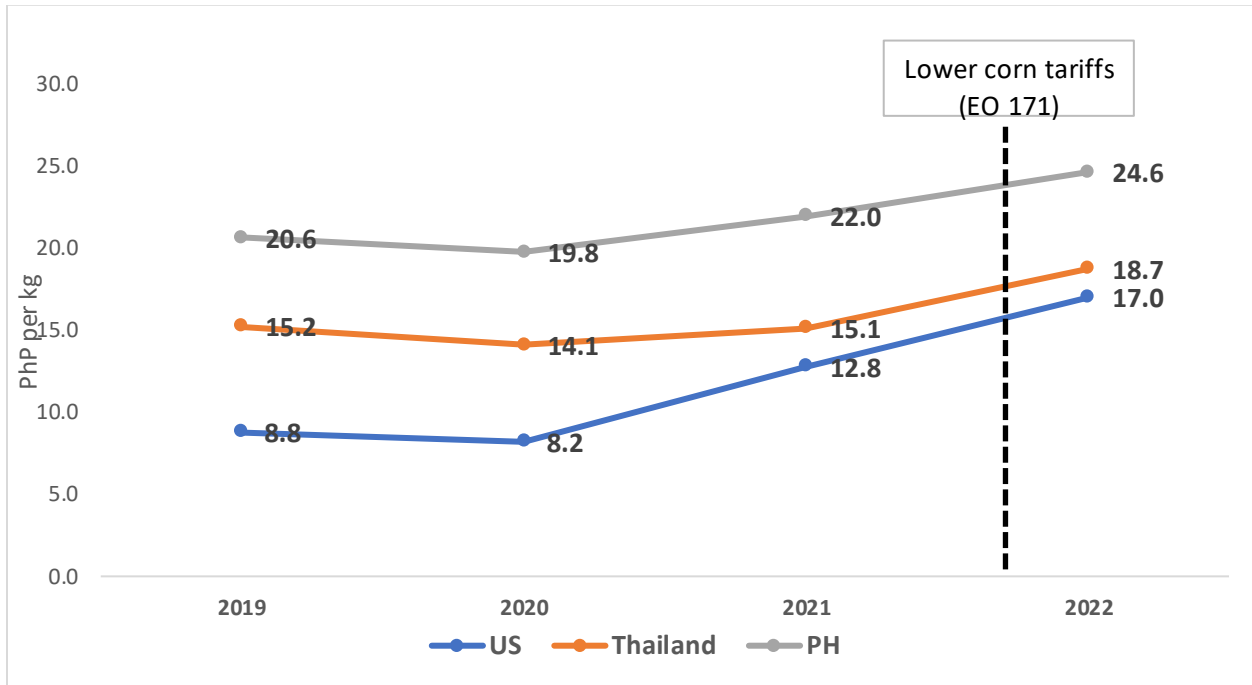


*Assumes 13% post-harvest losses (Dela Cruz and Calica, 2016)

Source: PSA, NCP, USDA, and author's calculations

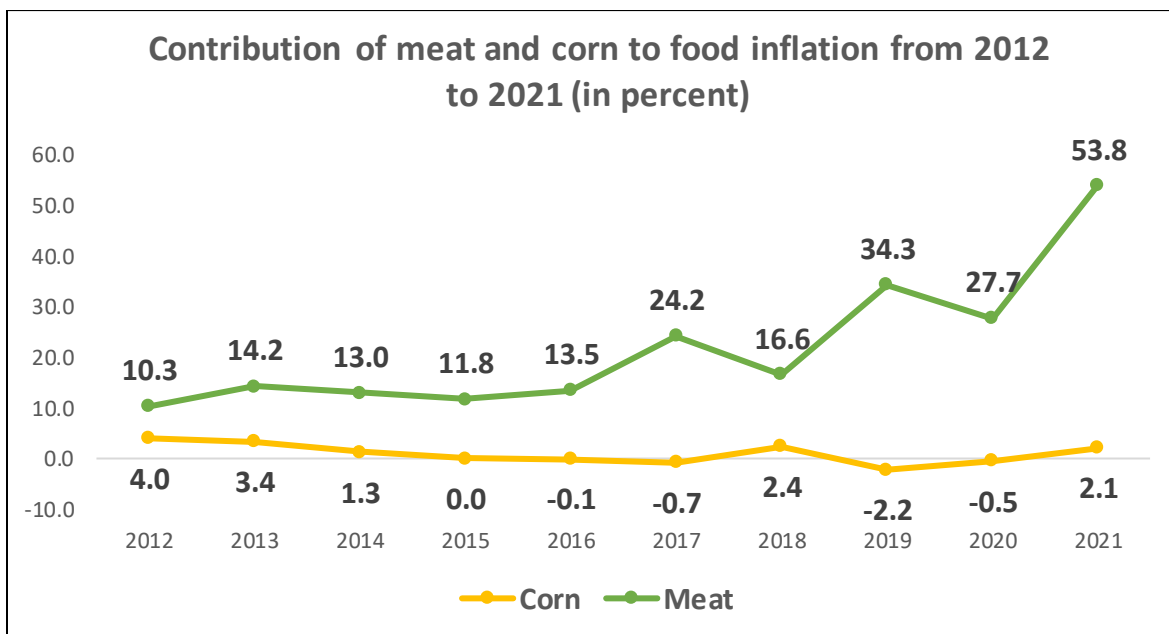


Figure 5. Wholesale yellow corn prices of selected countries from 2019 to 2022 (in PhP per kg)



Source: PSA, FAO, and World Bank

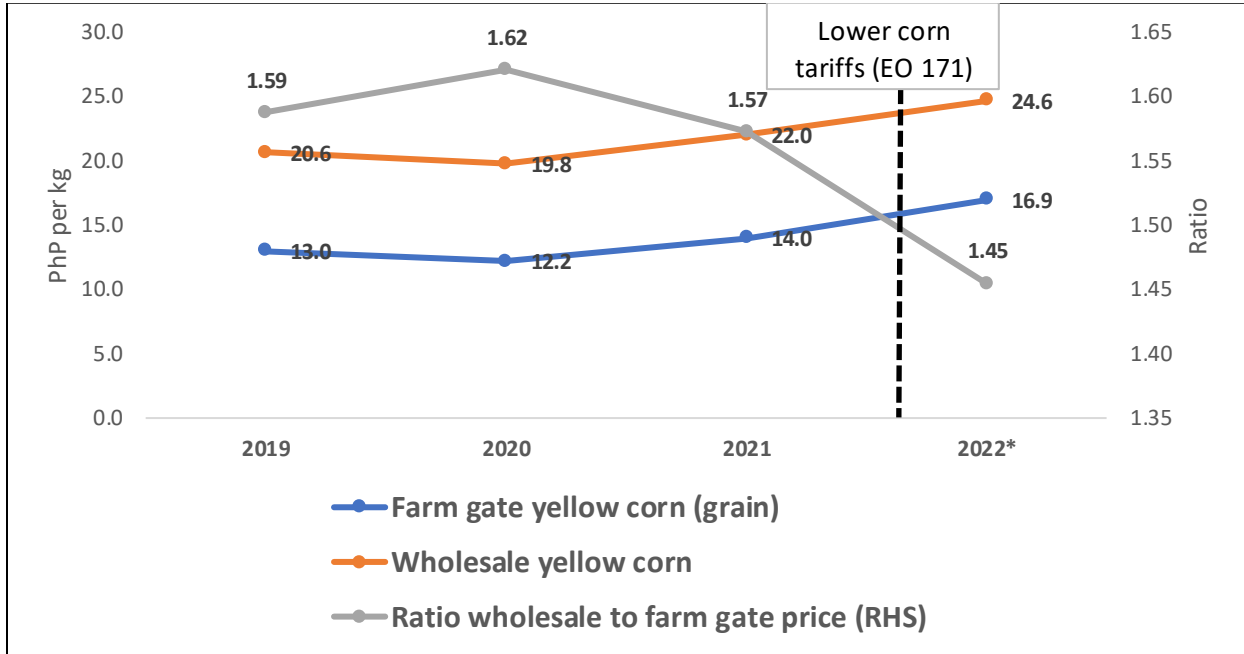
Figure 6. Contribution of meat and corn to food inflation from 2012 to 2021 (in %)



Source: PSA and author's calculations



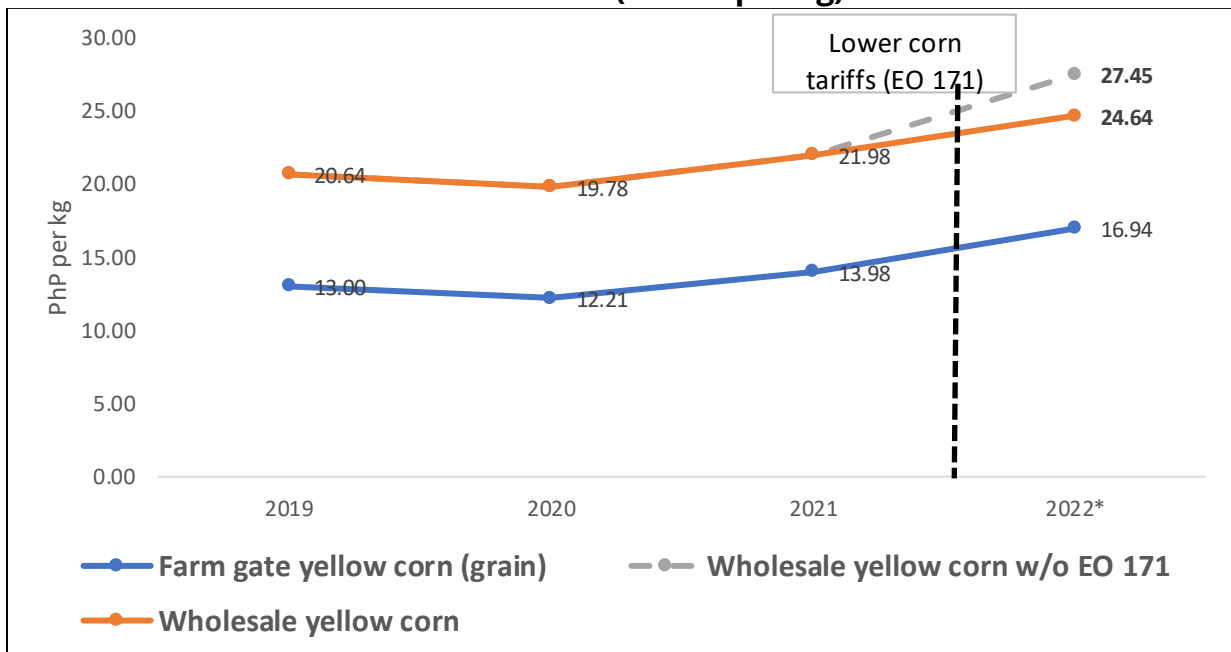
Figure 7. Farm gate and wholesale prices of yellow corn, and the ratio of wholesale to farm gate price from 2019 to 2022 (in PhP per kg)



* until September 2022

Source: PSA and author's calculations

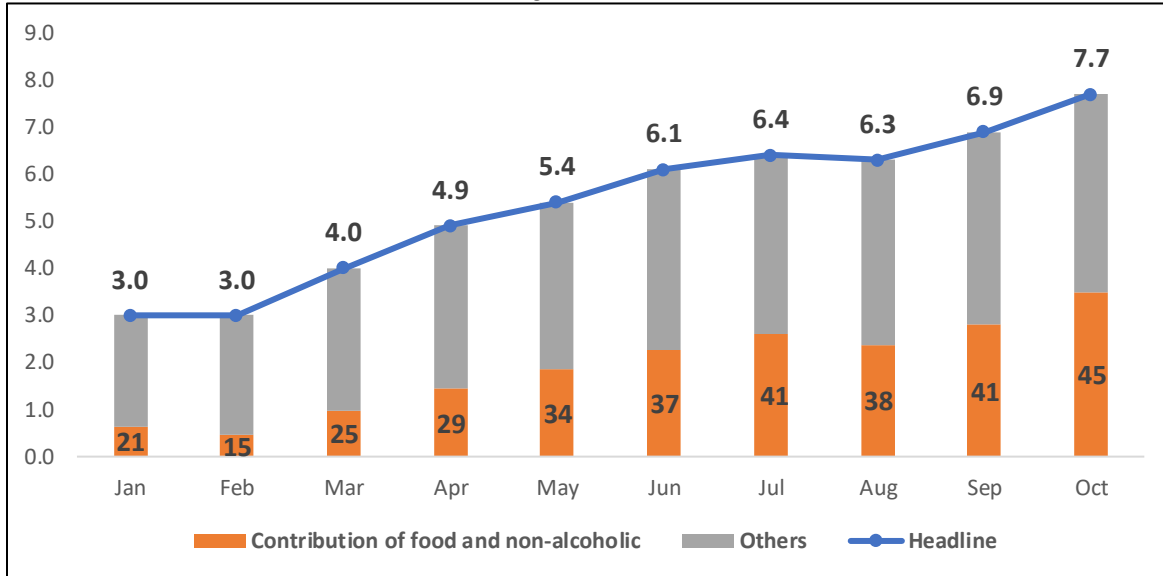
Figure 8. Farm gate and estimated wholesale price of yellow corn under no reduction in corn tariff rates scenario (in PhP per kg)



Source: PSA and author's calculations

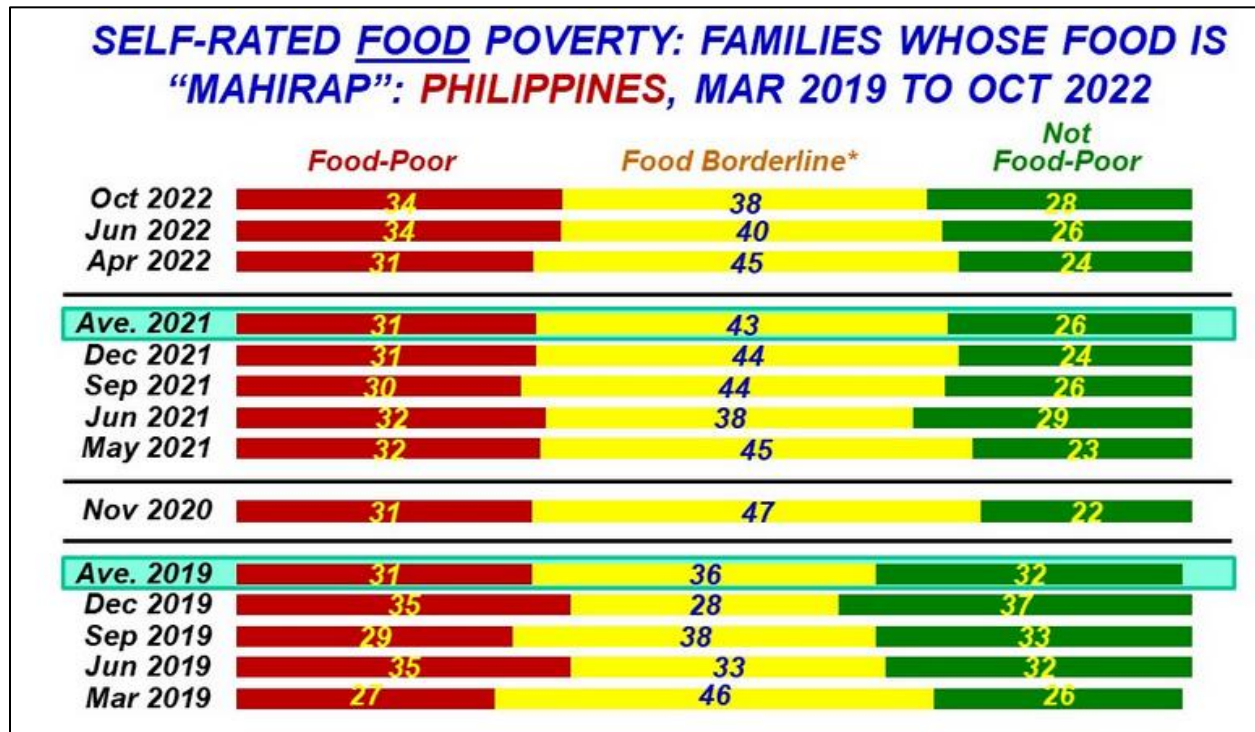


Figure 9. Headline inflation and contribution of food and non-alcoholic group to headline inflation from January to October 2022 (in %)



Source: PSA and author's calculations

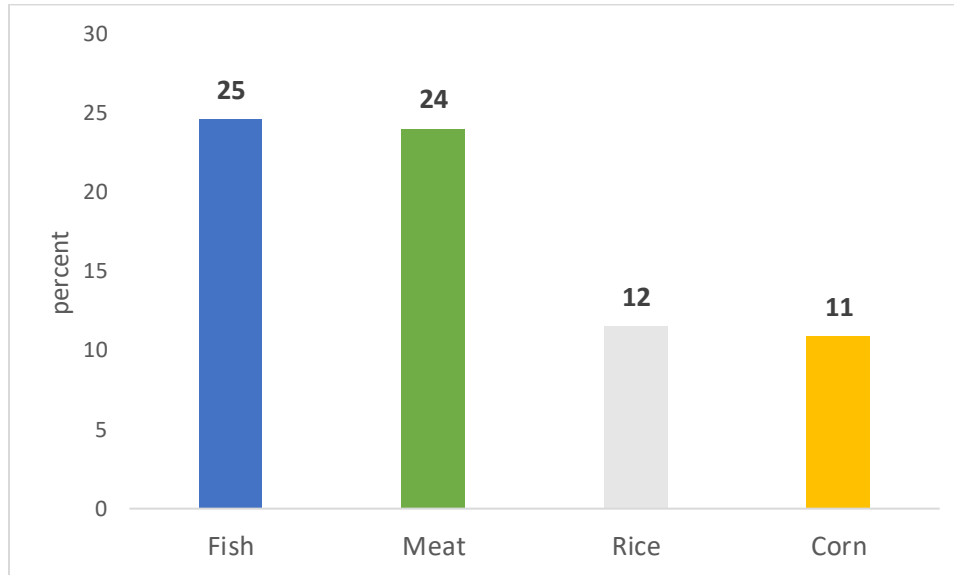
Figure 10. Self-rated food poverty (in %)



Source: Social Weather Station (SWS) survey



Figure 11. The average contribution of fish, meat, and corn to food inflation from January to October 2022 (in %)



Source: PSA and author's calculations

Table 1. Relationship of corn, pork, chicken, and egg prices (in PhP)

For every decrease in wholesale price of yellow corn	Decrease pork price per kg	Decrease chicken price per kg	Decrease in egg
1 PHP	0.4 PHP	0.7	0.08 PHP
2.81 PHP	1.12 PHP	2 PHP	0.023 PHP

Source: Stakeholder consultation



Table 2. Consumer benefits or savings due to lower pork prices

Item	2022
Per capita demand for pork (in kg)	15.5
Population	112,000,000
Total demand for pork in a year (in kg)	1,736,000,000
Total demand for pork per month (in kg)	144,666,667
Pork consumer savings due to lower corn tariff rates (in PhP per kg, see Table 1)	1.12
Number of months effective	9
Estimated total consumer benefits or savings due to lower corn tariff rates (in PhP)	1,458,240,003

Source: PSA, GIRA (2020), World Bank, NLP, Figure 7, Table 1, and author's calculations

Table 3. Consumer benefits or savings due to lower chicken prices

Item	2022
Per capita demand for chicken (in kg)	16
Population	112,000,000
Total demand for chicken in a year (in kg)	1,818,133,333
Total demand for chicken per month (in kg)	151,511,111
Chicken consumer savings due to lower corn tariff rates (in PhP per kg, see Table 1)	2.0
Number of months EO 171 is effective	9
Estimated total consumer benefits or savings due to lower corn tariff rates (in PhP)	2,727,200,000

Source: PSA, GIRA (2020), World Bank, NLP, Figure 7, Table 1, and author's calculations



Table 4. Consumer benefits or savings due to lower egg prices

Item	2022
Per capita demand for egg (in kg)	5
Population	112,000,000
Total demand for egg in a year (in kg)	560,000,000
Total demand for egg per month (in kg)	46,666,667
Egg consumer savings due to lower corn tariff rates (in PhP per kg, see Table 1)	0.02
Number of months EO 171 is effective	9
Estimated total consumer benefits or savings due to lower corn tariff rates (in PhP)	9,660,000

Source: PSA, GIRA (2020), World Bank, NLP, Figure 7, Table 1, and author's calculations

Table 5. Philippine volume and value of yellow corn imports from 2017 to 2022*

	Volume 2017-2021 (MT)	Value 2017-2021 (USD)	Tariff rates (out-quota, in %)	Gov't revenue 2017-2021 (USD)	Gov't revenue 2017-2021 (PHP)
ASEAN	429,350	129,196,400	5	6,459,820	374,669,560
NON-ASEAN	173,038	56,086,200	50	28,043,100	1,626,499,800
TOTAL	602,389	185,282,600		34,502,920	2,001,169,360
Projections for 2022*					
	Volume 2022 (MT)	Value 2022 (USD)	Tariff rates (out-quota, in %)	Gov't revenue 2022 (USD)	Gov't revenue 2022 (PHP)
ASEAN	429,350	129,196,400	5	6,459,820	374,669,560
NON-ASEAN	259,558	83,512,786	15	12,526,918	726,561,242
TOTAL	688,908	212,709,186		18,986,738	1,101,230,802
Estimated government tariff loss (in PHP)					-899,938,558

*2022 is projections

Source: TradeMap and author's calculations



Table 6. Largest exporters of corn from 2017 to 2021 (in MT)

Exporters	2017	2018	2019	2020	2021
	Exported quantity	Exported quantity	Exported quantity	Exported quantity	Exported quantity
USA	53,081,633	70,037,913	41,799,370	51,878,456	70,042,258
Argentina	23,713,960	23,175,101	36,075,711	36,881,996	39,947,476
Ukraine	19,395,144	21,440,629	32,345,876	27,945,605	24,539,481
Brazil	29,265,912	23,566,195	43,282,009	34,431,937	20,429,565
Romania	3,773,190	No Quantity	6,762,433	5,712,610	7,036,842
France	4,270,546	4,968,508	3,669,758	4,547,552	4,285,081
India	573,306	1,015,057	379,469	1,766,876	3,615,752
Hungary	No Quantity	No Quantity	No Quantity	No Quantity	No Quantity

Source: TradeMap