

THE EFFECTS OF RICE TARIFFICATION IN THE PHILIPPINES

a data analytics project using SQL

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INTRODUCTION:

RA 11203, or The Rice Tariffication Law

In February of 2019, former President Rodrigo Duterte signed into law RA 11203, or the Rice Tariffication law, which effectively amends and replaces the RA 8178, or Agricultural Tariffication Act of 1996. In the latter, rice importation is limited by QR (quantitative restriction), and the major decisions about importations are left in the hands of the country's political leaders.

Under RA 11203, that restriction is lifted. Instead, tariffs will be imposed upon rice imports toward the Philippines, subject to respective rates, thereby not limiting them but adorning the various sizes of imports with the adequate tariff prices.

There are two major impetuses for RA 11203: on one hand, the World Trade Organization (WTO) has required the Philippines lift the QRs on agricultural products in lieu of tariffs since 2019. Rice imports in the country was maintained between 1996 and 2017, when the waiver for rice's special treatment finally lapsed. One other concern stemming from the Philippine government is the sudden increase of rice prices. In 2018, Duterte declared it an urgent issue to sign RA 11203 to reign in the rice inflation. It was believed that the rice tariffication law would help lower rice prices and help alleviate the conundrum of rice shortages.

The promises and implications of RA 11203

RA 11203's biggest effect is its dismantling of the barriers in the circulation of rice by further inviting countries to import into the Philippines, now that QRs has been waived. In Senator Cynthia Villar's words, the elimination of QR "will help our farmers improve their profitability and competitiveness."

Despite this, farmers in the Philippines continue to advocate and, as an effect of their difficult livelihood, relentlessly pursue an agricultural reform of rice importation. What could be the possible reason, and why does it seem that our rice farmers vehemently detest RA11203?

Has RA11203, in its still relatively short and ongoing runtime, been effective in helping our farmers "improve their profitability," and has the price of rice really decreased as the law promised it would? Among other concerns laid out in the slides ahead, this project is an attempt to tap into the veracity of the Philippines' rice statistics to see the (in)effectiveness of RA11203, and look at what the data can (and cannot) tell about this new law.

METHODOLOGY

The data with rice supply in this report is from Philippine Rice Research Institute's website, www.philrice.gov.ph, while the data with average farmgate, wholesale, and retail price is from www.palaystat.philrice.gov.ph.

The years provided in the data, 2015-2021, have been chosen to see how drastic the rice inflation of 2018 and the shift into RA11203 in 2019 was.

SQL will be the main programming platform to analyze and make educated assumptions and analysis. The data gathered are all observational data based on the behavior of the market, and I will be approaching the data with statistical inference. Tables and graphic visualization will be deployed if possible.

QUESTIONS

1. Did the 2018 rice inflation cause such a significant change for the 2019 RA11203 to be signed?

// Because President Duterte said that signing RA11203 was an “urgent” necessity, the hypothesis is that yes, 2018’s rice inflation is a significant, but not sole, factor.

2. Is there an evident decrease in price during and after RA11203 was signed into law?

// The null hypothesis is that, based on RA11203, there *should* be a decrease in price during and after the law was signed.

3. Will there be a steady increase in imports in the years that RA11203 will be in effect?

// yes, there should be a steady increase because there is more incentive to saturate the rice market.

4. What does the rice production trend look like?

// Because the tariff law was established in 2019, there is a hypothesis that the rice production will decrease because of the increase in imports.

5. Is the self-sufficiency ratio improving?

// The null hypothesis is that the self-sufficiency ratio should be gradually improving for the betterment of the people.

CONSTRAINTS

1. While the main inspiration and impetus for the creation of this project are the farmers who are actively organizing in mass movements and protests, there is, unfortunately, limited data on rice farmers and their income. The farmers' data from Philippine Rice Research Institute has not been updated since 2016. Attempts to relentlessly research possible data pools about rice farmers from government or academic-affiliated websites online often led to missing webpages and 404 errors. Therefore, educated deductions when it relates to farmers will be made using the available data.

2. In the avg_palay_price table, there is no data in the row 2021 yet, and therefore will be left null or zero.

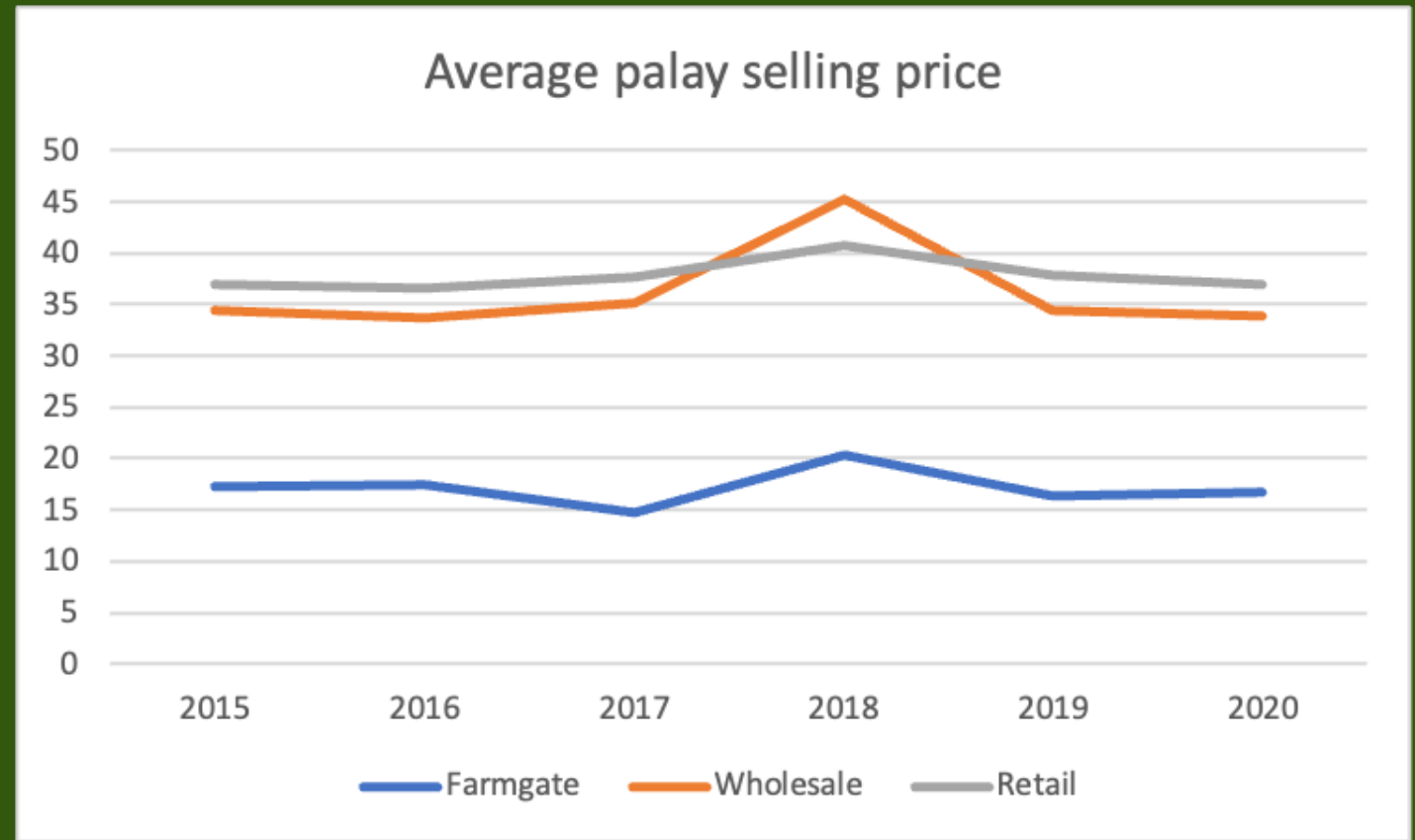
Q1

because inflation is measured by the increase in prices, this table shows that, indeed, in 2019, all modes of selling palay has increased drastically in 2018.

Say the significance level of increase in selling prices is 5%. There is a 38.60% increase from 2017 to 2018 in farmgate, a 28.84% increase in wholesale, and an 8.61% increase in retail. *All changes are more than 5%.*

Depending on PhilRice's significance level, the change is drastically big from 2017 to 2018 in all prices, which might have resulted in the urgent signing of RA11203.

Note that this is only one factor, as the WTO has requested the Philippines should switch to tariffs on agricultural produce since 1995.



Q2

Referencing the chart in the last slide, there is a noticeable decrease in selling prices after 2019. Here is a table of reference for the decrease in average prices chronologically.

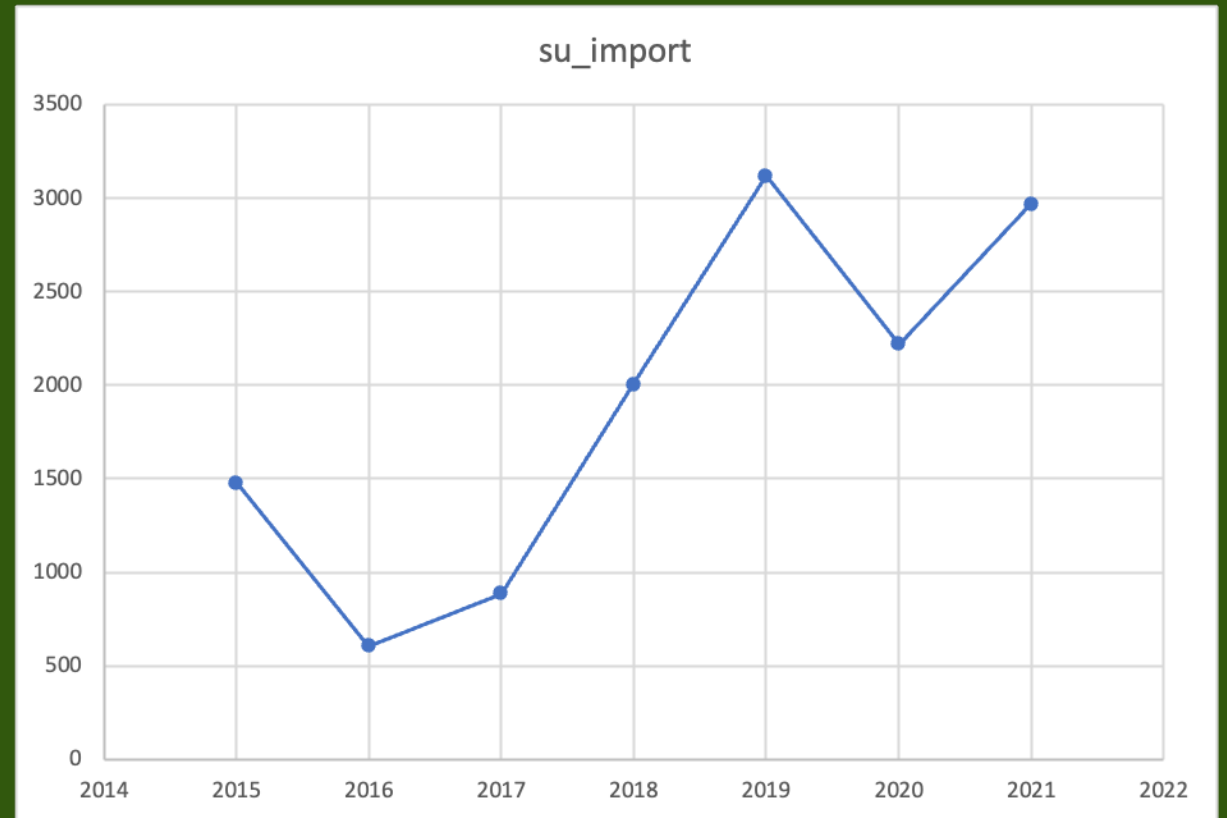
There is an 19.38% decrease in farmgate, a 23.93% decrease in wholesale, and another 7.27% decrease in retail.

year	farmgate	wholesale	retail
2015	17.33	34.46	37.06
2016	17.43	33.69	36.67
2017	14.74	35.13	37.62
2018	20.43	45.26	40.86
2019	16.47	34.43	37.89
2020	16.72	33.94	36.93
2021	0	0	0

Q3

While imports increased greatly in the same year RA11203 was signed and put into effect, there was also a large dip in imports the following year.

All values in supplies are measured in metric tons (mt).

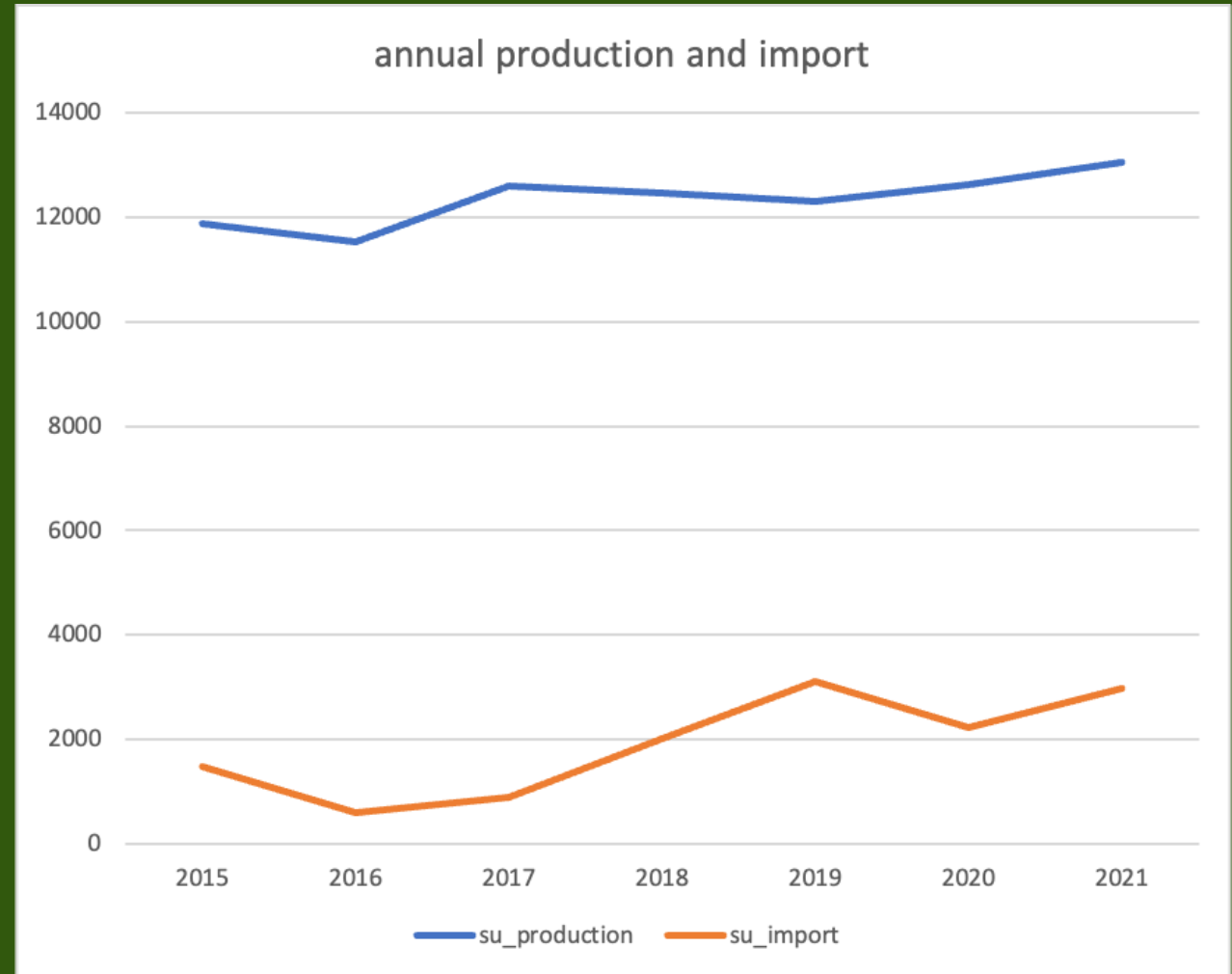


Q4

As expected, rice production dipped the same year imports increased in 2019, when the law was put into effect.

However, we can see it steadily increasing afterwards. Interestingly, the production of rice in 2020 is greater than that of 2017 and below, topped only by the production of rice in the following year, 2021. This implies that the farmers are actively trying to be competitive in the newly reformed rice market in lieu of the RA11203 changes.

Meanwhile, imports were only at its highest in 2019, and while they were high in both 2020 and 2021, they did not match the same volume the year RA11203 was implemented.



Q5: what is a self-sufficiency ratio?

According to the Philippine Statistic Authority, the Self-Sufficiency Ratio “shows the magnitude of production in relation to domestic utilization”. Meaning, it becomes a method of measuring how a country can sustain enough products for the population.

The formula is $\text{population} / (\text{population} + \text{imports} - \text{exports})$. If result hits 1 or greater, then we have enough produce for the population. If it is less than that, then we do not.

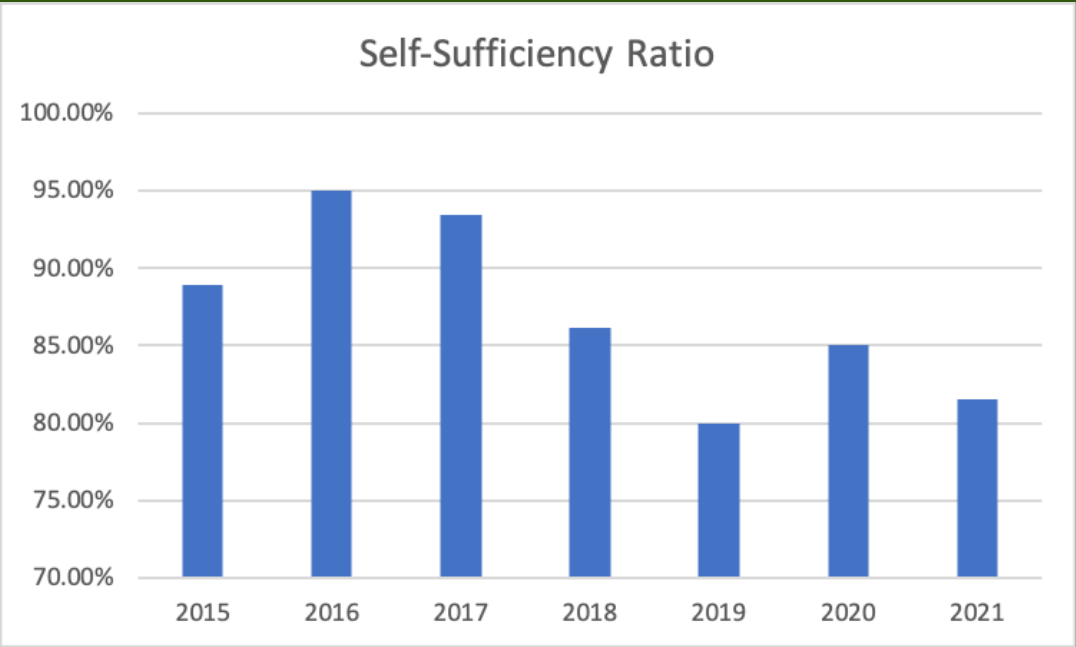
Because there are no tangible amounts for exported rice, we do not have to reduce it in the formula.

here is the calculated self-sufficiency ratio and its visual graph

year	Self-Sufficiency Ratio	in percentage	status
2015	0.8893	88.93%	Not sufficient
2016	0.9501	95.01%	Not sufficient
2017	0.9344	93.44%	Not sufficient
2018	0.8617	86.17%	Not sufficient
2019	0.7978	79.78%	Not sufficient
2020	0.8505	85.05%	Not sufficient
2021	0.8148	81.48%	Not sufficient

No year in the selected pool have shown any movement towards self-sufficiency. The highest we've had is a 95.01% in 2016.

The Self-Sufficiency Ratio had a large dip in percentage in 2019, as expected of the sudden change and epoch for adjustment from both farmers and importers, but when it recovered in 2020, it wasn't as high as it once was before RA11203 was signed.



RETURNING TO QUESTIONS

1. Did the 2018 rice inflation cause such a significant change for the 2019 RA11203 to be signed?

The data suggests that we can believe that the government's decision to approve and put into effect RA11203 at the time of 2019 was heavily influenced by the concerning rise of prices in inflation.

2. Is there an evident decrease in price during and after RA11203 was signed into law?

The price *did* decrease, and it decreased drastically. However, because the data for 2021 has not been put in the databases from which these data were gathered from, it's still too early to make any educated assumptions about RA11203 as a cause for the decreased prices. In 2020, the prices went up slightly for farmers and decreased for both retail and wholesale.

3. Will there be a steady increase in imports in the years that RA11203 will be in effect?

The imports increased by more than 1000 mt from 2018 and 2019, perhaps as a result of RA11203 advocating for unrestricted importations of rice into the Philippines. However, it is not a consistent increase as it dips the following year in 2020. Covid-19 could be a factor for the decrease of imports after 2019.

4. . What does the rice production trend look like?

Rice production has an interesting fluctuating nature from 2015 until 2019, where it slightly dropped by 1.32%. But the production increases for the next two following years, even in 2020, where, theoretically, Covid-19 should have been a large factor in delays of production of imports.

Perhaps what this data tells is that, because RA11203 is forcing farmers to become competitive in a now circulating rice market, they have produced more rice than they used to.

- *5. Is the Self-Sufficiency Ratio improving?*

The Self-Sufficiency Ratio, like rice production, seems to be always fluctuating. However, It hit its lowest in 2019, during the maiden year of RA11203, the same year our imports increased by 55.49%. While it increased in the following year, 2020, it also decreased again.

The Department of Agriculture has planned a roadmap that theorizes it can reach a 100% Self-Sufficiency Ratio by 2027 through the Masagana Rice Program 2023-2027, but in contrast to the preliminary data provided here, they will have to alleviate its increase in imports.

CONCLUSIONS AND FURTHER ANALYSIS

Earlier, I had mentioned that the driving inspiration for this project is the mass-organization and national democratic movement of farmers in the Philippines, revolting in hopes of bettering their state of living. The RA11203 seemed to do opposite of that as it forces the farmers to be competitive in a now liberalized rice market, as if the very system of the market is not the very thing that debilitated not only their livelihood but also the livelihood of other Filipinos. The increase in production starting in 2020 onwards as a response to the sudden adjustment of the Rice Tariffication Law and the avalanche of rice imports from different Southeast Asian countries is a clear materialization of that struggle.

There is also the average price of rice that farmers make, that falls lower than that of retail and wholesale. As much as they try to produce and compete in a market they have no means of winning, they are shackled into place by the struggle of agricultural system and lack of clear government support (despite RA11203 promising that any billions above their quota will be allocated to the farmers). Aside from our farmers, our Self-Sufficiency Ratio further dwindles because of our massive imports. If rice self-sufficiency were truly important, perhaps better allocation of support and resources should be rightfully offered to our local farmers.

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