Potato resources and use in Russia

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Abstract

One of Russia's most important crops, potatoes are a key agricultural product and a source of food. With over 30 million tons produced annually, Russia is one of the world's largest potato producers. Potatoes are filled in pretty much every district of the country, with the biggest creation places situated in the focal and southern locales. Overall, potatoes are an important part of Russia's agricultural and culinary landscape.

1 Introduction

The cultivation of potatoes in Russia is driven by several factors, including the country's vast land area, diverse climate, and historical agricultural practices. Potatoes are grown in numerous regions across the country, with varying soil types and climatic conditions influencing production methods. Historically, the introduction of potatoes in Russia helped alleviate famines and improve dietary diversity. During times of food scarcity, potatoes provided a reliable source of calories and nutrients, leading to increased food security. This review aims to provide a comprehensive understanding of the role of potatoes in Russian agriculture, economy, and culinary traditions.

1.1 Literature Review

Potato is currently grown on an estimated 20 million hectares of farmland globally, and the potato production worldwide stands for 366 million tones. The highest concentrations are found in the temperate zone of the northern hemisphere where the crop is grown in summer during the frost-free period. In these regions, potato is mainly grown as a cash crop and is therefore an important source of income. In tropical regions, the crop is significant in the highlands of the Andes, the African highlands and the Rift valley, and the volcanic mountains of West Africa and Southeast Asia, where production is both for staple food and cash (Haverkort et al. (2016).). In the subtropics, the crop is grown as a winter crop during the heat-free period such as in the Mediterranean region, North India, and southern China.

*20080725, Github Repo

Genotypes, management factors, and performance outputs are depicted as continuums, with extremes showing typical elements that characterize rural (left) or industrial (right) agri-food systems and combinations of both systems in-between 686 Potato Research (2021) 64:681–720 varieties (Animitsa et al. (2014)). Potato is now the world's third most important food crop in terms of human consumption, after wheat and rice (Vasilyev et al. (2021)) despite the large proportion of potato produce used for seed and as animal feed. Consumption of fresh potatoes accounts for approximately two-thirds of the harvest and around 1.3 billion people eat potatoes as a staple food (more than 50 kg per person per year) including regions of India and China.

1.2 Dataset

The Russian agricultural output data include grains, sunflower seed, potatoes, vegetables, milk, meat and eggs. Output is defined as annual production and does not include stocks or imports. Data for these nine commodities are available annually to the authors for the years 1994-96 and 1999-2013. Missing national data (1997-98) were primarily interpolated using Food and Agriculture Organization of the United Nations growth rates (Anstalt (2013)); missing State data were often interpolated using national growth rates. All output data are recorded in metric tons. All prices and values are converted to 2000 constant rubles using the World Bank's gross domestic product (GDP) deflator specific to Russia.The dataset includes information on details, such as:

- **Stocks at the beginning of the year**
- **Production**
- **Imports, including imports**
- **Total Resources**
- **Productive consumption**
- **Losses**
- **Export,including export**
- **Personal consumption**
- **Stocks at the end of the year**

1.2.1 Data summary statistics

The dataset's key statistics are summarized in Table 1 for each variable. The characteristics of each variable are illuminated by these statistics, which shed light on the central tendency, variability, and range of the data. Beginning with trades, the mean product esteem is 145.10, demonstrating the typical measure of labor and products offered to different nations. With a

standard deviation of 337.93, it is clear that export values are highly variable.The misfortunes variable catches how much misfortune brought about during the predefined period. Losses have a mean of 56.55 and a standard deviation of 205.74, indicating that there is a moderate amount of variation. Individuals' consumption of goods or services is referred to as personal consumption. The average level of consumption is indicated by the value of 529.64 for personal consumption.

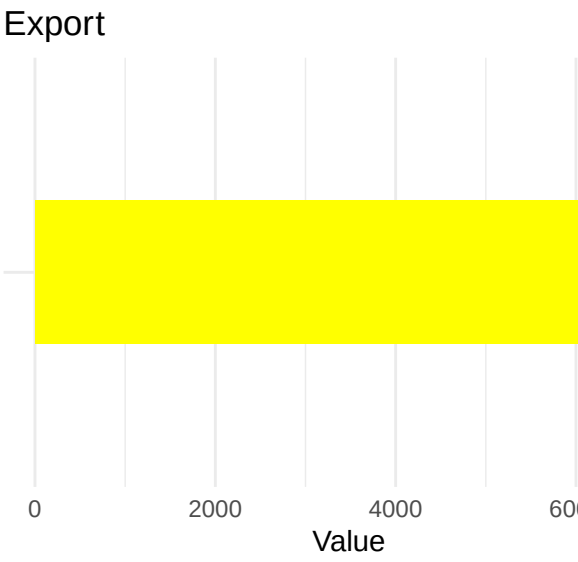
Table 1: Summary Statistics

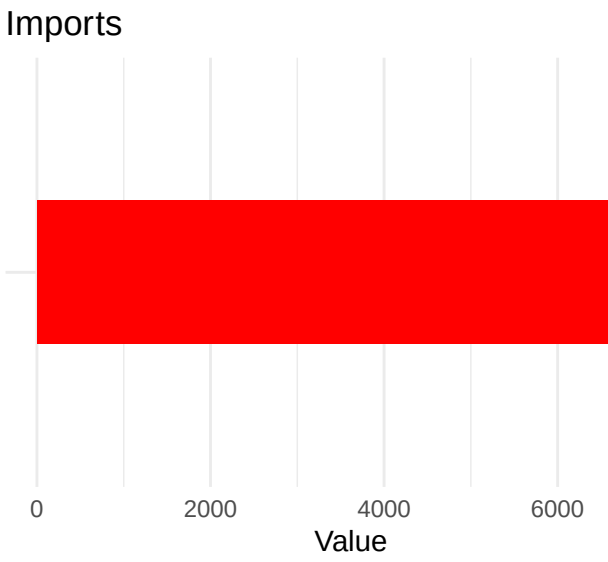
	Mean	Std.Dev	Min	Median	Max
Export	145.10	337.93	0.00	37.65	2177.30
Imports	150.77	284.37	1.70	26.35	1402.70
Losses	56.55	215.74	0.00	8.45	1419.80
Personal consumption	529.64	1857.58	11.30	116.00	12651.70
Productive production	308.89	1172.60	0.00	61.40	7909.50
Stocks at the beginning of the year	653.17	2385.06	2.00	137.45	15897.80
Stocks at the end of year	553.59	2047.19	1.70	105.55	13716.40
Total Resources	1593.77	5439.68	24.80	393.70	36253.80

2 Methods and Data Analysis

2.1 Potato Exports and Imports in Russia

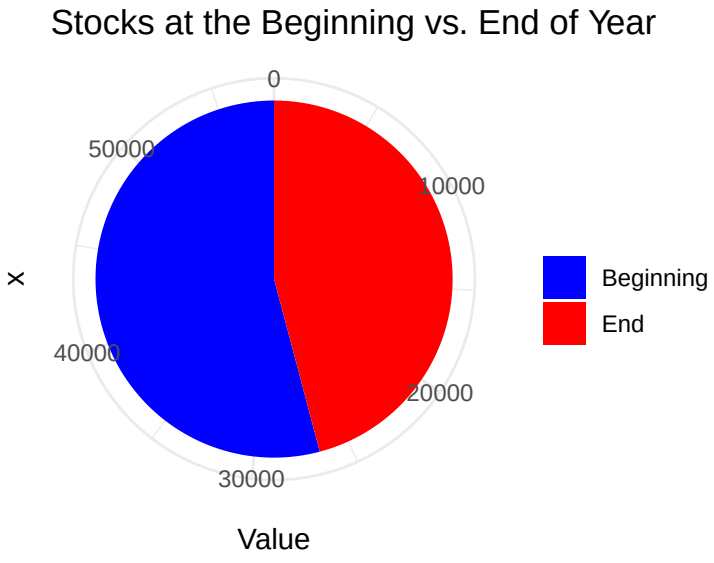
In the context of international trade (Figure 1), the movement of goods and services between nations is frequently referred to as "export" or "import." The perspective of the countries involved and the direction of the trade flow are the primary distinctions between the two. A country's economy benefits from exports because they bring in money, create jobs, and encourage economic expansion. In the given dataset, the variable "Product" addresses the worth of labor and products sent out by various districts or substances inside Russia. Access to a wider range of goods, facilitation of international trade, and contribution to meeting domestic consumer needs are all provided by imports. The value of goods or services imported within Russia by various regions or entities is represented by the variable "Import" in the supplied dataset.





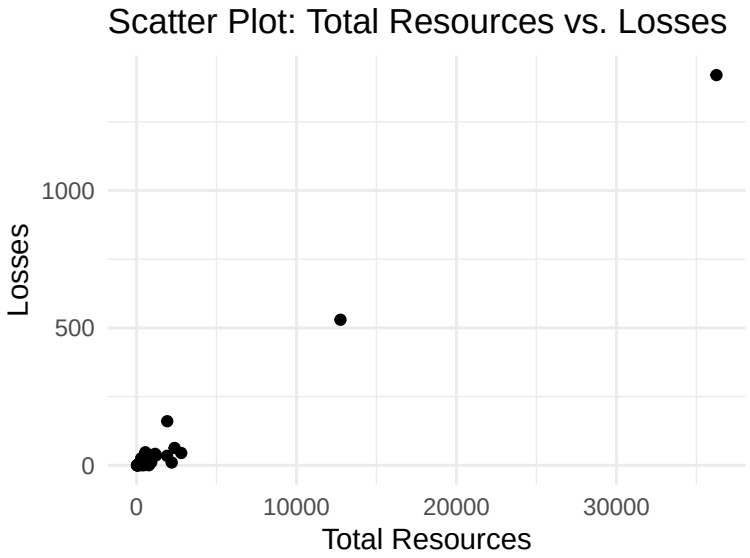
2.2 Stocks at the beginning and at the end of the year: Identifying Key Measures In Analyzing Potato in Russia

"Stocks at the beginning of the year" and "Stocks at the end of the year" are two important measures (Figure 2) that are used to look at the levels of inventory or stockpiles of a particular resource or product over a given time frame, usually a year. The variation between stocks at the beginning and at the end of the year sheds light on the shifts in inventory levels. It demonstrates the net impact of different factors like creation, imports, trades, individual utilization, and other significant factors. The balance between production and consumption, supply and demand trends, and resource management efficiency can all be evaluated by analyzing stock changes.



2.3 Total Potato Resources And Losses

(Figure 3)'s terms "Losses" and "Total Resources" refer to various aspects of the production and consumption of goods in various regions of Russia in the context of the dataset. The quantity of resources or goods that are destroyed during the production and distribution processes is referred to as losses. Total resources refers to the total quantity or value of resources that are available for use in both production and consumption in a given region. It includes all of the resources used in the production process, including capital, labor, energy, raw materials, intermediate inputs, and other resources.



2.4 Prediction

Stocks at the end of the year dependent variable or the variable we are trying to predict. It represents the stock levels at the end of the year.

$$\text{Stocks at the end of the year} = \beta_0 + \beta_N \cdot \text{Production} + \beta_P \cdot \text{Imports} + \beta_I \cdot \text{Total Resources} + \varepsilon_t$$

β_0: This is the intercept term or the constant. It represents the expected value of the dependent variable when all the independent variables are zero. β_N: This is the coefficient associated with the variable "Production". It measures the effect of the "Production" variable. Production: This is an independent variable that represents the production levels. β_P: This is the coefficient associated with the variable "Imports". It measures the effect of the "Imports" variable on the dependent variable. Imports: This is an independent variable that represents the import levels. β_I: This is the coefficient associated with the variable "Total Resources". It measures the effect of the "Total Resources" variable on the dependent variable. Total Resources: This is an independent variable that represents the total resource levels. ε_t: This term represents the error or the residuals in the regression model.

3 Conclusion

In conclusion, this academic paper looked into stock levels at the end of the year in various regions of Russia. Based on production, imports, and total resources, the regression equation provided in the initial prompt can be used to predict stock levels.

Taking a gander at the information, it tends to be seen that the Focal Government Region has the most elevated complete assets and useful creation, which could make sense of why it has the most noteworthy stocks toward the year's end. On the other hand, the Belgorod region has the fewest productive production and total resources, which may be why it has the fewest stocks at year's end.

Overall, the data highlight the significance of production, imports, and total resources in determining stocks at the end of the year and provide insights into the stocks of various regions in Russia.

4 References

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