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The Onion Sector in Azerbaijan: A Descriptive Analysis and Links to the Policy Decisions in 2023

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The Onion Sector in Azerbaijan: A Descriptive Analysis and Links to the Policy Decisions in 2023

Working Paper No. 8

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This preliminary manuscript has yet to undergo the conclusive formal review and should be acknowledged as such. The primary objective of this document is to assemble and refine the materials, concepts, and discussions intended for inclusion in the forthcoming academic journal publication, currently in progress. It is imperative to note that the author bears no obligations or responsibilities to produce a final paper solely based on the content presented in this working paper.

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Abstract

Understanding the key trends and dynamics in the agricultural commodities market, especially for onions in developing countries, is critical for informed decision making and strategic planning. Onions are an important crop both domestically and in the global market, with factors such as timing of harvest, distance to market and sales volume influencing pricing. Any government policy decisions regarding onions should take into account not only domestic factors, but also external factors such as trade policy, the market power of middlemen and the global economic situation. Nonetheless, a descriptive but systematic understanding of domestic trends provides a solid understanding of recent developments and future expectations in specific agricultural sectors, particularly from a food security perspective. This working paper provides a descriptive overview of the spatial distribution of Azerbaijan's onion production and productivity between 2000 and 2021 to highlight trends and discuss recent policy decisions. The Azerbaijani case underscores pronounced regional disparities and divergent trends in onion cultivation and productivity. Trade relations have become heavily regulated by the state, accompanied by pertinent policy decisions initiated as of 2023. These developments have occurred concomitantly with the international and geopolitical tensions prevalent in the country. Subsequent investigations should adopt a modeling approach, transcending mere descriptive analyses. This study holds significance for economists and policymakers engaged in the examination of sectoral economics within the realm of agriculture.

Keywords: Agricultural economics, Azerbaijani economy; descriptive analysis, economic trends, onion production, onion productivity

JEL codes: E32, O13, O52, Q18

1. Introduction

The sector contributes around 5% to the country's GDP and provides employment for more than a third of the population, particularly in rural areas (Gulaliyev, et al., 2019). Azerbaijan's agricultural sector is characterized by a mix of smallholder and commercial farming. The main crops grown in the country are cotton, grapes, citrus fruits, vegetables, tobacco, and cereals such as wheat and barley. Livestock, including sheep, cattle, and poultry, is also an important subsector. The government of Azerbaijan has prioritized agricultural development as a means of reducing poverty, improving food security, and increasing rural incomes. To support the sector, the government has implemented a range of policies, including subsidies for inputs such as seeds and fertilizers, technical assistance programs, and investment in infrastructure such as irrigation and storage facilities. However, the recent developments such as Covid-19 pandemic, Russo-Ukrainian war and rising geopolitical tensions with Iran have threatened the sustainability of specific subsectors like onion production.

Onion production can be a significant contributor to a small and open country's economy due to its widespread use in the culinary industry and its versatility in various recipes (Mostafa et al., 2022). Onion production can generate employment opportunities for people at various stages of the production process, such as planting, harvesting, sorting, packaging, and transportation. This can help to reduce unemployment rates in the country and boost the economy if the majority of labor force is concentrated in agriculture (including Azerbaijan). Also, many countries rely on onion exports as a source of foreign exchange. For example, India is one of the largest exporters of onions, earning significant revenues from exports to countries such as Bangladesh, Malaysia, and the United Arab Emirates (Sharma, 2022).

Onions are an essential ingredient in many cuisines, and their consumption is not limited to high-income households. In fact, onions are used in many staple dishes and consumed by people across different socioeconomic groups, making them a critical commodity in domestic markets. A robust onion production system can ensure that the domestic demand is met and reduce the country's reliance on imports. Furthermore, onion cultivation can be an effective way to promote rural development by providing farmers with a source of income and improving their livelihoods. This can help to reduce poverty and improve the standard of living in rural areas.

There are several reasons why onion sector can be beneficial direction of economic value creation for Azerbaijan to reach balanced regional agricultural development. For example, onion production can provide opportunities for value addition and processing, such as onion powder, flakes, and pickles. These processed products can be sold for higher prices, generating additional income for producers and contributing to the country's economy. This can be a key part of national diversification strategy of the country. In fact, in recent years, the government of Azerbaijan has taken steps to promote non-oil exports, including agricultural products. The country has increased its exports of fruits and vegetables, particularly to Russia, and is seeking to expand its exports to other countries, such as China and the European Union. The ongoing downward trend in onion sector can endanger other similar subsectors of crop commodities leading to decrease share of agriculture in overall value added of agriculture.

Onions are a staple crop and key ingredient in many global cuisines, making them an essential component of the agricultural and food industries. The global onion market is influenced by various economic factors, including supply and demand dynamics, prices, trade policies, and competition among producers. Moreover, agricultural security is an important issue for Azerbaijan since onions play a significant role in the country's economy from production and consumption points similar to other developing and post-Soviet countries (Sherzod et al., 2018). These economic factors directly impact onion farmers, traders, processors, and consumers (Igbadun, 2012).

The need to investigate the main trends and dynamics of the spatial distribution of onion production poses a great interest to economists and policymakers. This will help in understanding the economic implications of onion production and its effects on local and global markets. Furthermore, environmental stresses and climate change pose additional challenges to onion production (Safikhani, 2018). However, this paper's main interest is

limited to the economic and policy dimensions of the onion sector rather than the environmental aspects. This is why the following research question will be addressed: "What are the key trends in economic onion production and productivity, and how do these factors impact the overall onion industry in Azerbaijan?" The main methodology of this paper is a visualization of the statistical data and descriptive statistics which can be used to analyze the trends and patterns in onion production, trade, and market dynamics. This approach is explanatory and is being widely used in the study of agricultural economics (Adeoye, 2021).

The contribution of this study will be to provide valuable insights into the onion industry in Azerbaijan, including its economic significance, production trends, trade dynamics, and market factors across the country's regions. There is a visible deficiency in the literature on the specific economics of sectors such as onions that are crucial for both local and global contexts. Therefore, the study on the economics of onion production in Azerbaijan aims to bridge this knowledge gap and provide a comprehensive understanding of the economic factors that drive the onion.

The paper is structured as follows: the next section is the literature review; Section 3 is about the methodology and data; Section 4 comprises the results; Section 5 is the discussion and implications, and lastly Section 6 is the concluding remarks.

2. Literature Review

Onion production, economically speaking, requires careful consideration of various factors such as input costs, market demand, and government policies (Muhaimin & Abdul, 2017). Small and developing countries often rely on onion production as an important source of income and employment (Muhaimin & Abdul, 2017). The share of value added in agriculture and the onion sector in Azerbaijan is low since the country is mainly reliant on oil and gas exports rather than agricultural activities. However, the onion industry in Azerbaijan still plays a significant role in the agricultural sector and contributes to food security and rural development.

In general, Azerbaijan's agriculture sector has been transforming in recent years, with efforts to diversify away from oil and gas dependency and promote non-oil sectors, including agriculture. Azerbaijan's main agricultural activities include crop production, livestock rearing, and horticulture. For example, grapes, cotton, tobacco, citrus fruits, and vegetables are among the major crops cultivated in Azerbaijan (Vasa et al., 2020). Grapes are extensively cultivated for winemaking, cotton for textile production, and tobacco for cigarettes. Citrus fruits provide essential vitamins and minerals, while vegetables form an integral part of the Azerbaijani diet. Cattle, sheep goats, and poultry are the primary livestock raised in Azerbaijan (Neudert et al., 2020). Cattle are reared for meat and milk, sheep and goats for meat, milk, and wool, and poultry as a significant protein source.

The onion industry in Azerbaijan also holds economic significance, as it contributes to the country's agricultural sector and plays a role in promoting food security and rural development. However, there are no extensive studies in this regard which leaves a sizeable research gap.

3. Data and Methodology

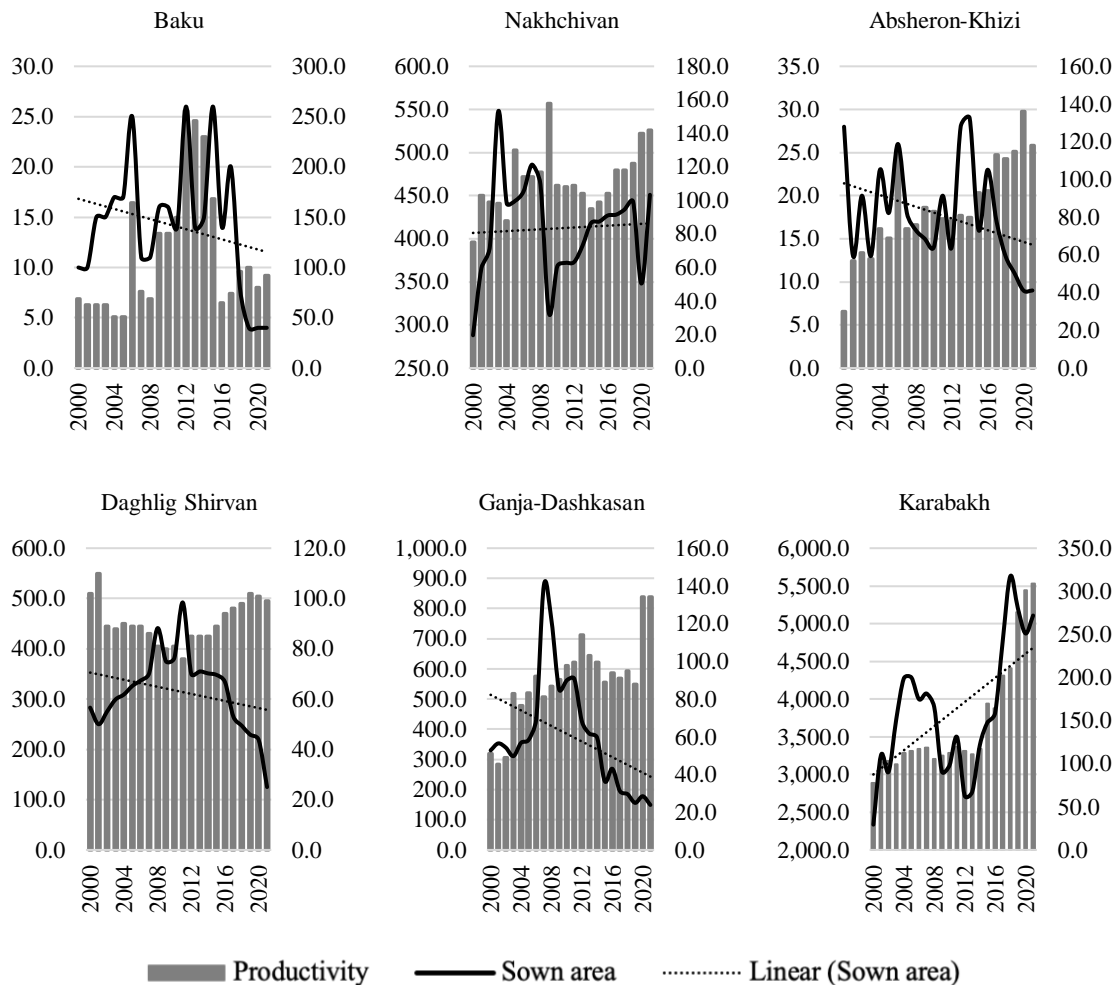
In the field of economics, understanding sectoral economic performance is crucial for analyzing and predicting overall economic growth (Ciarli & Valente, 2016). This also applies to economic trends and the dynamics of subsectors or individual aspects of the economy. One tool that can help in this analysis is the use of linear regression lines. Linear regression lines provide a way to visualize and understand the relationship between different variables within the economy. These variables could include factors such as GDP, employment rates, or investment levels, and they can be used to assess the performance of specific economic sectors. If the actual value is below the predicted value in a linear regression line, it indicates underperformance, while if it is above the predicted value, it suggests overperformance. By plotting the data points of a specific economic sector against a linear regression line, economists can gain insights into the trends and patterns within that sector. Therefore, this paper examines the spatial distribution of the regions in onion cultivation in Azerbaijan in a descriptive way. The main focus is on the sown area (in ha) and productivity (in kg/ha). The trends will be compared to the recent policy decisions of the government and some food security concerns and plans.

4. Results

If we start with the city of Baku, we can see that there is a downward trend in the sown area of onions, especially from 2017; however, in general, the sown area fluctuated significantly between 2003 and 2015–16. Moreover, between 2009 and 2015, onion productivity was highest in Baku, ranging between 150 and 250 kg/ha. The example of Nakhichevan shows a gradual increase in productivity from 80 kg/ha to 140 kg/ha in 2021. However, the sown area decreased significantly in 2009 and 2020, and the trend line for the sown area shows a steady and very low positive slope. Next, in the Absheron-Khizi economic region, the productivity level has gradually and continuously improved between 2000 and 2021, even though the sown area shows a significant decline. Among these three economic regions, Baku is unlikely to grow onions systematically and gradually since it is a city, not agricultural center, but Nakhichevan and Absheron-Khizi have a comparatively high proportion of rural population that can engage in both commercial and subsistence agriculture.

In the Daghlig-Shirvan economic region, after an upward trend between 2000 and 2011, the sown area has fallen below the level of the 2000s in 2021, but productivity has increased since 2009 and is around 100 kg/ha in 2021. A similar picture emerges in the Ganja-Dashkasan economic region, where the area under cultivation has fallen from 900 in 2008–09 to almost 100, but productivity has risen sharply in 2020 and 2021 following a downward trend between 2012 and 2019. Interestingly, in Karabakh, both the sown area and productivity have increased significantly since 2013 and 2014, while the sown area decreased slightly in 2017 and 2018.

Figure 1. Sown area (in ha) and productivity of onion (in 100kg/ha, right axis), 2000–2021.



Source: State Statistical Committee of the Republic of Azerbaijan, 2023.

The subsequent grouping of economic regions comprises Gazakh-Tovuz, Guba-Khachmaz, Lankaran-Asatara, Central Aran, Mil-Mughan, Shaki-Zagatala, Eastern Zanghezur, and Shirvan-Salyan. In the case of Gazakh-Tovuz, productivity has witnessed a gradual and consistent increase since the year 2000, notwithstanding a decline in the sown area from 2,674 hectares in 2002 to 1,311 hectares in 2005. Although this trend has shown signs of reversal since 2003, the pace of recovery is gradual, resulting in a negative slope of the trendline.

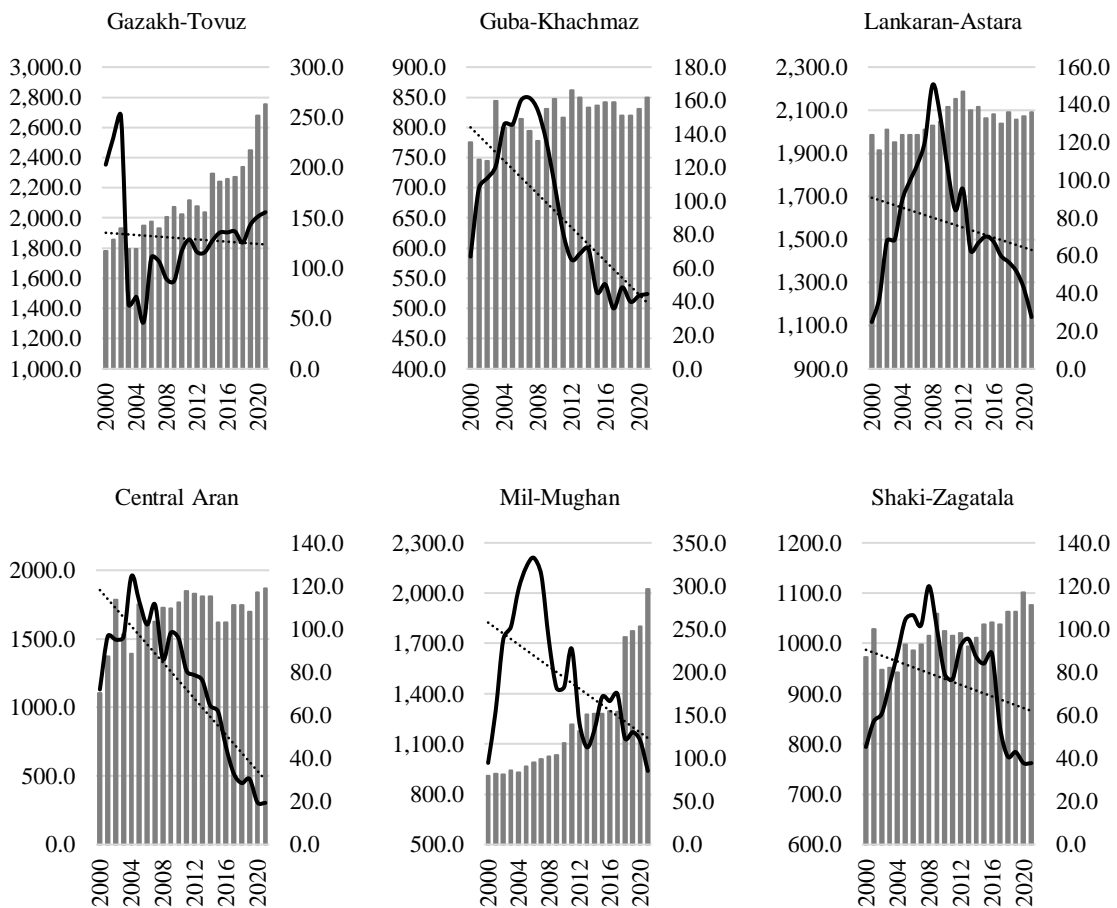
The average productivity of the onion sector in the Guba-Khachmaz region remained relatively stable at 150 kg/ha between 2000 and 2021, displaying no significant deviations from the mean value. However, the overall sown area exhibited a notable reduction, declining from 849 hectares in 2007 to 500 hectares in 2017, with no substantial rebound to pre-2007 levels. A comparable situation is observed in the Lankaran-Astara economic region, where the average productivity was 131 kg/ha between 2000 and 2021. Following 2008, the sown area in this region experienced a substantial contraction. The slope of the trendline in the Lankaran-Astara economic zone is flatter than that of Guba-Khachmaz, suggesting more pronounced fluctuations in the overall sown area. Notably, these

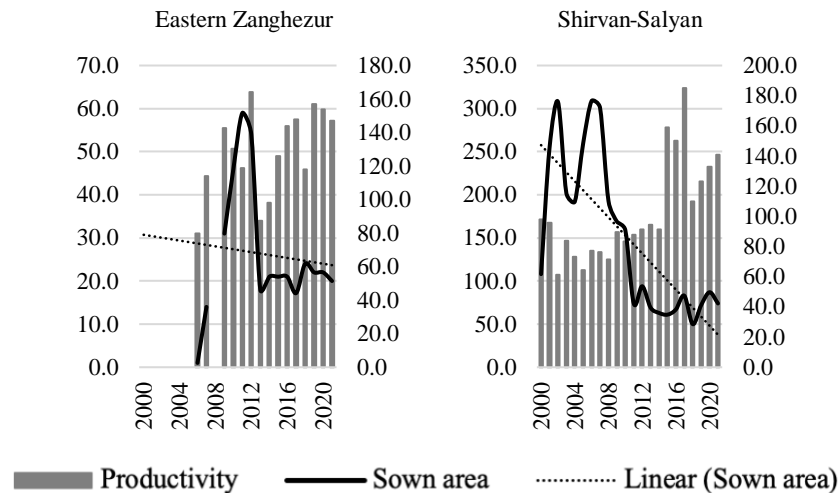
fluctuations occurred in a more gradual manner in the Guba-Khachmaz economic region, relatively speaking.

The regions of Central Aran, Mil-Mughan, and Shaki-Zagatala exhibit analogous downward trends in their onion sown areas since 2004 and 2005. Despite these declining trends, the productivity of the onion sector in Central Aran remained relatively stable at approximately 110 kg/ha. In the Mil-Mughan region, productivity experienced an increase, reaching 300 kg/ha since 2017. Similarly, Shaki-Zagatala witnessed a slight increment in productivity during the same period.

Finally, in the Eastern Zanghezur region, onion productivity exhibits volatility, ranging between 80 and 160 kg/ha. Conversely, the Shirvan-Salyan region demonstrates an upward trend in productivity, with notable spikes observed in the years 2014, 2015, and 2016.

Figure 2. Sown area (in ha) and productivity of onion (in 100kg/ha, right axis), 2000–2021.





Source: State Statistical Committee of the Republic of Azerbaijan, 2023.

4. Concluding Remarks and Discussion

The examination of specific sectors in the context of Azerbaijan is a rarity. This working paper serves as an initial attempt to stimulate interest in understanding the trends and dynamics underlying certain changes and policy decisions, utilizing the onion sector as an illustrative example. The rationale for selecting the onion sector for analysis within a descriptive trend analysis framework in the Azerbaijani context is elucidated by the Prime Minister's policy decision dated February 3, 2023, titled "On amending Decision No. 103 dated March 18, 2022, of the Cabinet of Ministers of the Republic of Azerbaijan 'On measures to regulate the transportation of a number of basic food products included in the minimum consumption basket and the goods used in their production from the territory of the country.'" This decision played a pivotal role in incorporating onions into the list of regulated food products within the minimum basket of essential food items. Notably, at the close of 2022 and the commencement of 2023, escalating tensions between Iran and Azerbaijan, coupled with deepening geopolitical challenges such as the Russo-Ukrainian war, underscored the timeliness and relevance of this decisions due to the reasons speculated below.

Iran and Russia traditionally stand as the two principal import partners for Azerbaijan in the domain of onions. However, these nations are presently subject to stringent economic sanctions and have displayed adversarial behavior toward Azerbaijan, particularly in the aftermath of the Second Karabakh War. The resultant heightened uncertainty compelled the Azerbaijani government to regulate onion markets, recognizing their significance as a pivotal component of the minimum consumption basket.

The descriptive analysis conducted in the present study underscores noteworthy reductions in the sown and cultivated areas dedicated to onion cultivation across various regions of Azerbaijan, despite observable increases in productivity levels. While escalating productivities may be indicative of efficiency gains, it is noteworthy that the primary countries from which fertilizers and technical equipment are imported, notably Russia,

could become vulnerable during turbulent periods. Additionally, previous years witnessed conspicuous shortages of onions in local markets due to extensive exports, particularly to Russia, Georgia, and Turkey (Hasanov, 2019). Such matters were previously addressed at the Ministry of Agriculture level. The interventions of the prime ministers in the current scenario clearly indicate the gravity of the situation. As of the composition of this working paper, the decision remains under consideration.

In essence, the ongoing trends in the onion sector underscore the critical importance of food security for small and developing nations, particularly in the midst of geopolitical tensions and the concurrent decline in cultivation and sown areas. The agricultural sector of Azerbaijan's economy is positioned as a key alternative to oil-led economic growth and development which creates challenges to diversify the economy (Ahmadov, 2022). Consequently, agricultural growth and development should be directed toward ensuring, at the very least, food security.

The events of 2023 illuminate that Azerbaijan was not entirely prepared to confront the challenges and expectations presented by international realities. To fortify the agricultural sector, liberalization of agricultural markets is imperative, accompanied by the introduction of appropriate institutional regulations and a substantial enhancement of the role of the private sector. Such measures are crucial for realizing gradual improvements and achieving tangible results in agricultural output, thereby positively impacting food security. Administrative and command decisions may play a role in mitigating the lingering inflationary pressures persisting in Azerbaijan during the post-Covid period (Bağırzade, 2023). However, the anticipation is for the implementation of more robust and substantive policies to address the ongoing economic challenges.

This working paper has provided a compelling synthesis of three interconnected elements: the implications of international challenges, trends in domestic subsectoral agricultural output, and concerns regarding food security. Many government organizations and institutions in Azerbaijan endeavor to furnish market research on diverse agricultural subsectors, often devoid of a comprehensive understanding of the underlying macro and micro developments. Future research initiatives should prioritize an econometric approach and systematic evaluation to delve deeper into the topics and issues discussed in this working paper.

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