

## IMPACTS OF EXPORT SUBSIDIES ON NON-OIL EXPORTS - EVIDENCE FROM AZERBAIJAN

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### Abstract

Azerbaijan's exports consist primarily of oil and oil products, with non-oil exports accounting for an average of only 11.5 percent of total exports over the last five years (2016-2020). This paper aims to examine the impact of export subsidies on export growth in the non-oil sector, as well as revenues of exporters in the case of Azerbaijan. In particular, two evaluation approaches are combined for the purposes of this study, which makes it unique application among the economic literature. The six criteria of Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD/DAC) have been used for evaluation. A linear regression model was built to assess the impact of subsidies on non-oil export growth and variance analysis was performed to obtain a complete result. The findings of the analysis revealed that: (1) subsidies did not play a significant role in export growth and revenues of exporters; (2) subsidies did not contribute to the diversification of non-oil export and the development of distribution channels in Azerbaijan; (3) stopping the subsidy after 2020 was the right decision; (4) production support measures instead of export subsidies were more effective. The combination of two different approaches showed that increasing competitiveness, rather than subsidies, has contributed significantly to raise the level of export income.

Keywords: Export Growth, Export Promotion, Non-oil Sector, OECD/DAC, Subsidy.

JEL Classification Code: F10, F19, O10, O20.

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### 1. Introduction

Non-oil exports have a relatively low share of Azerbaijan's exports, totaling eight percent in 2011, 13.8 percent in 2016, 13.5 percent in 2020, 12.2 percent in 2021 and 8 percent in 2022. The goal is for Azerbaijan to be less dependent on oil exports, so there needs to be a larger non-oil component of total exports.

Calculations based on the ten products with the highest share of exports in our country in 2015 also showed that the Herfindahl index, which measures the concentration of exports in Azerbaijan, was equal to 0.78, which also confirmed a weak level of diversification by commodity position.

The Government of Azerbaijan (GoA) has adopted a package of legislative acts,

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programs and road maps in recent years to boost economic diversification and develop the non-oil sector. Also, GoA has initiated various policies for the promotion of exports, with additional measures since 2016 to increase the share of non-oil products in total exports. As part of this effort, the payment of export incentives for certain non-oil products produced in Azerbaijan was started, with the precise goal of stimulating the development of the non-oil sector and thus increasing its share of exports.

The decree of the President of Azerbaijan dated March 1, 2016 addressed this issue of promoting exports (Valiyeva, 2019). The Decree specified that, depending on the proportional value of non-oil products produced in the territory of Azerbaijan, as well as on the type of product exported, export incentives had to be paid from the state budget to persons engaged in the export of non-oil products. The basic subsidy amounts to three percent of the value declared in the export declaration for customs (thus, goods actually exported). A certificate of origin was used to determine the share in value of non-oil products produced in Azerbaijan, as well as the non-oil components used in the production process.

This promotional effort applied only to goods of Azerbaijani origin. Azerbaijan is not a member of the World Trade Organisation (WTO); this allowed the Government to take a more targeted approach to resolving international trade issues at a sector level. But Azerbaijan is negotiating WTO membership; the application for accession to WTO was submitted to the WTO Secretariat in 1997 (Imamverdiyeva, 2015).

Oil-rich Azerbaijan's export subsidy mechanism was unique due to its many features. This article assesses the mechanism for paying export incentives and the impact of these incentives on the growth of non-oil exports while using a novel approach. The study employs both qualitative and quantitative methodologies, namely OECD/DAC, and correlation and regression tools, for the analysis as a first time in the economic literature.

The structure of the paper is organized as follows. Current section introduces background of the topic. We discussed our literature review and hypotheses development in the section 2. In section 3 we explained research methodology used in this paper. In section 4 the results of analysis are provided and the findings are discussed. We conclude our research in section 5. Finally, it closes with a limitations and future research in section 6.

## 2. Literature Review

Export subsidies became the main topic of discussion after the establishment of the World Trade Organization and the most recent stage of trade liberalization negotiations. The WTO does not allow most subsidies to be directly linked to the volume of exports. Subsidizing exports directly is forbidden by WTO rules. But most governments apply various policies to promote exports in order to support their economic development (Babar et al., 2019).

Of course, the effects of export subsidies on the exporting country's consumers and producers are different. Various aspects of this topic have been the subject of specific research over the last ten years.

Paulo (2012) has researched international trade subsidy rules and the use of tax and financial export incentives by developing countries. The author states that developing countries should be allowed to adopt certain incentives without violating the WTO rules concerning subsidies.

In most developed and developing countries export promotion measures, including

export subsidies are seen as one of the tools for boosting the export growth. Accordingly, export promotion systems are different based on the priorities of the countries. For example, in Canada the system is government-based, while in Austria it operates in the private sector (Seringhaus & Botschen, 1991).

Theoretically, export promotion measures can include direct export subsidies, tax rebates, low customs duties, low-interest loans, low prices on electricity, gas, water, etc.; in all cases, measures for promoting exports can have multiple effects on society and the economy. The impact can be direct or indirect, depending on the subjects and categories. Even in the same country, different market players, for example, producers and consumers, can be affected in different ways. For example, if the producers in the exporting country have more opportunities to benefit from export subsidies, the consumers of the same country can suffer the negative impact of the resulting increased prices in the domestic market. An export subsidy stimulates producers to increase the volume of products for export. The decrease in supply for the domestic market causes domestic prices to rise (Bacchetta et al., 2006).

According to Mishra (2011), proponents of export diversification argue that export promotion through policies such as export subsidies will increase economic growth. Author tries to find the answer to the question of whether export promotion leads to higher economic growth in India.

As Zesheng and Shuyun (2013) show in their research, export subsidies increase the producers' marginal revenues but worsen the exporting country's overall welfare.

According to Yin and Yin (2005), measures to promote exports like subsidies and devaluation are definitely beneficial to developing countries through updates to technology, improvement in productivity and stimulating employment. But with regard to the output of the non-export sector and the domestic price level, the outcomes are ambiguous and depend on household preference, production functions and other economic parameters.

Nadeem et al. (2007) estimated the impact of two export promotion schemes (export financing and rebate/refunds) on export performance in Pakistan. Results showed that both subsidy mechanisms had an insignificant impact on exports in the long run. In the short run, the rebate/refunds scheme seemed to have had a small positive impact.

Imtiaz (2015) examined the value of export incentives in Pakistan and highlighted the major export incentives used to boost export growth. His research shows Pakistan's export incentives scheme is far less liberal compared to India and Bangladesh. Export incentives of Bangladesh are more competitive than its regional neighbors.

Ali and Madueme (2019) examined the effects of Export Expansion Grant (EEG) on the growth of oil-rich Nigeria's non-oil export. Their results are short and clear: "Export expansion grants significantly do not contribute to growth in non-oil exports".

Peters (2006) also notes different impacts of agricultural export subsidies. He shows the benefits to consumers of importing countries along with the negative impact on producers in the same importing countries. He shows that most developing countries cannot afford to pay export subsidies, and thus they lose some of their export competitiveness relative to developed countries. According to the results of his research, producers in developing countries would be the major winners from the elimination of export subsidies. But elimination of export subsidies will cause an increase in international food prices.

Ramana and Retnosari (2018) believed that Indonesia should boost export to priority countries with the priority products. It will be an important determinant factor for

Indonesian export diversification. At the same time the government should increase the number of commercial diplomacy instruments to generates greater exports performance in these priority countries.

Volpe et al. (2008) researched export promotion activities in developing countries. In case of Peru, they found that export promotion actions were associated with increased exports, primarily along the extensive margin, both in terms of markets and products.

Researches show that export subsidies are not the only measure to increase non-oil exports. Therefore Sourafel et al. (2009) examined the link between production-related subsidies and exports in West and East Germany. Mah (2007) stresses that there was a strong evidence of the positive effect of export subsidy in terms of duty drawback on export supply.

The export subsidy given to shelled hazelnuts in Azerbaijan was evaluated using the methodology of Development Assistance Committee of the Organisation for Economic Co-operation and Development (Huseyn, 2022). Line of the researches were conducted by local authorities on the importance of export promotion (Valiyeva, 2019), but they did not evaluate the results and impact of export subsidies. The example of Azerbaijan can be useful for many oil producing countries when determining their policies related to non-oil exports. As we can see, the promotion of exports can have different impacts. Depending on the country, product and other factors, results can differ.

In this paper we established an analytical model to examine the scope by which export subsidies increased and stimulated export volume of non-oil products, especially agricultural products, and how efficient the subsidies were in terms of increasing the export volume of Azerbaijan's non-oil products. The article is focused on the relationship between export subsidy and export growth, to identify their causal relationship. Therefore, the purpose of this research was to assess the contribution of export subsidies to the non-oil export development of Azerbaijan.

### 3. Research Methods and Materials

OECD/DAC methodology was used for evaluating the export promotion measures implemented in connection with non-oil exports, and a linear regression model was established by calculating the correlation coefficients. A comparative analysis of non-oil exports before and during the subsidy period—variance analysis—was also conducted.

#### 3.1. Assessment using OECD/DAC Methodology

OECD/DAC (2019), first used the criteria of relevance, effectiveness, efficiency, sustainability and impact in the assessment. Later, the number of these criteria was increased to six, and two principles were defined for their use. Strategies, programs, projects or measures are evaluated using these criteria. It is also possible to assess the promotions for non-oil exports using these criteria. We have used the six assessment criteria of OECD/DAC in the study and presented them in the following order: relevance, effectiveness, efficiency, sustainability, impact and coherence.

### 3.2. Correlation and Regression Analysis

Further, several methods ranging from simple to complex were used to determine the effect of the subsidy on the increase of non-oil exports. The correlation coefficients were calculated, a linear regression model was built, and then a variance analysis was performed to obtain a complete result.

In 2016-2020, four product groups ((a.) shelled hazelnuts; b.) fresh persimmons and pomegranates; c.) grape wines and other alcoholic beverages; d.) canned products, juices, jams, sauces) received 90% of the export promotion in the non-oil sector. We have conducted correlation and regression analysis on these four product groups. The correlation coefficient between the given subsidy and the value of products exported was calculated using the format of the following formula.

$$correlation = \frac{\sum(x_i - \bar{x}) * (y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 * \sum(y_i - \bar{y})^2}} (1)$$

**3.3. A Comparative Analysis of Non-oil Exports Before and During the Subsidy Period** — variance analysis—was also conducted. In order to analyze the change in export volumes for each product group, we compare the export volumes in the five years before the subsidy period (more precisely: 2011, 2012, 2013, 2014 and 2015) with the five-year volumes of the subsidy period (more precisely: 2016, 2017, 2018, 2019 and 2020). Thus, a comparison of export volumes was made based on established data. Since we have data based on one determinant, single factor ANOVA analysis was possible. When performing the ANOVA comparison, we used two hypotheses:

- H0 - There is no statistically significant difference between the averages of export volumes before and after the subsidy;
- HA - There is a statistically significant difference between the averages of export volumes before and after the subsidy.

### 3.4. Data Source

The main source of data for analysis was the data of the State Statistical Committee of Azerbaijan and the State Customs Committee of Azerbaijan. The data of the "One Stop Shop" [Export Support Centre \(2022\)](#) were used in the assessment of the criteria of OECD/DAC. Also, 2 focus groups discussion (consisting of 6 non-oil product exporters each) were held to conduct qualitative analysis for the criteria of OECD/DAC.

## 4. Results and Discussion

### 4.1. Results

Increasing the export of non-oil products is a priority for the Republic of Azerbaijan, and, as a result of the measures taken in recent years, positive outcomes have been achieved in this area. No export subsidies were implemented in the Republic of Azerbaijan until 2016 ([Huseyn, 2022](#)). In the process of negotiations with the WTO in early 2000, Azerbaijan had also agreed not to apply such subsidies in the future. However, the prolongation of the WTO membership process and the sharp drop in oil prices in 2015 occasioned an acceleration in the measures for the development of the non-oil sector in

Azerbaijan. Against the background of these measures, the issue of subsidizing the export of certain products in the non-oil sector also came up.

A decree of the President of Azerbaijan, dated March 1, 2016, dealt with the issue of export promotion. We can group the subsidized non-oil product exports into three groups according to the ratios. These are products with export coefficients of up to 3%, 4.5% and 6% of the customs value specified in the export customs declaration, with ratios of 1, 1.5 and 2 ([Appendix 1](#)). Three products in the first group—peeled hazelnuts, persimmons and pomegranates—received export incentives up to 3% of the customs value in the customs export declaration. It should be noted that these products make up an important share of Azerbaijan's non-oil exports.

According to the methodology of [OECD/DAC \(2019\)](#), relevant evaluation questions for each of the six criteria were prepared and answered. In consideration of the length and readability of this article, just a brief presentation of the answers to the questions are in [Table 7](#) in the conclusion section.

We have conducted correlation and regression analysis on these four product groups mentioned above. [Table 1](#) shows subsidies and export volumes for the four groups in 2016-2020.

**Table 1: Information on subsidy and export volumes**

| Years | Shelled hazelnuts |                   | Fresh persimmons and pomegranates |                   | Grape wines and other alcoholic beverages |                   | Canned products, juices, jams, sauces |                   |
|-------|-------------------|-------------------|-----------------------------------|-------------------|-------------------------------------------|-------------------|---------------------------------------|-------------------|
|       | Subsidies (USD)   | Export (thsd USD) | Subsidies (USD)                   | Export (thsd USD) | Subsidies (USD)                           | Export (thsd USD) | Subsidies (USD)                       | Export (thsd USD) |
| 2016  | 0.00              | 104852            | 0.00                              | 80476             | 57943                                     | 17969             | 29072                                 | 11376             |
| 2017  | 0.00              | 114532            | 49916                             | 104734            | 1007535                                   | 20508             | 374335                                | 15384             |
| 2018  | 790585            | 93507             | 657559                            | 132380            | 486213                                    | 14281             | 513649                                | 17225             |
| 2019  | 2489035           | 124208            | 1186138                           | 131500            | 794580                                    | 21776             | 438756                                | 20362             |
| 2020  | 3280247           | 113588            | 957480                            | 128327            | 567930                                    | 9962              | 507145                                | 6979              |

Source: Azpromo, 2018; State Statistical Committee, 2022b.

The correlation coefficient between the subsidy granted and the export of the subject products was 0.480 for shelled hazelnuts, 0.869 for fresh persimmons and pomegranate products, 0.342 for grape wines and other alcoholic beverages, and 0.1999 for canned products, juices, jams, sauces. This suggests that there is a weak positive correlation between subsidy and export of shelled hazelnuts, grape wines and other spirits, canned goods, juices, jams, sauces. It is possible to build a regression model based on a weak correlation. Since the data we have consist of one dependent variable, the determinant variable, a simple linear regression model can be constructed (as an example, in [Appendix 2](#) and [Appendix 3](#), a calculation for shelled hazelnuts is given). But as the figures in the [appendix 2](#) show, the model constructed is not statistically significant. A model based on a weak correlation does not indicate a linear relationship between two variables.

There was a high correlation between subsidies and the exports for fresh persimmons and pomegranates. Based on what we determined, a regression model was built ([Appendix 4](#)). Since the data we have is one dependent variable, the determinant variable, a simple linear regression model can be constructed. We can see that the

significance of the coefficient (equivalent to p value) of the F parameter found in the ANOVA part in the model we built is equal to 0.055. This means that the model constructed is not statistically significant (within the 95% confidence interval), but does not deviate much from the p-value (0.05). Thus, it is possible to consider the model significant with a smaller confidence interval. Therefore, we conducted a comparative analysis of non-oil exports before the subsidy and during the subsidy period—variance analysis—to obtain more complete results.

**Table 2: Exports before the subsidy and during the subsidy period**

| Export of shelled hazelnuts (thsd USD) |                | Export of fresh persimmons and pomegranates (thsd USD) |                | Export of grape wines and other alcoholic beverages (thsd USD) |                | Export of canned products, juices, jams, sauces (thsd USD) |                |
|----------------------------------------|----------------|--------------------------------------------------------|----------------|----------------------------------------------------------------|----------------|------------------------------------------------------------|----------------|
| Before the subsidy (2011-2015)         | Subsidy period | Before the subsidy (2011-2015)                         | Subsidy period | Before the subsidy (2011-2015)                                 | Subsidy period | Before the subsidy (2011-2015)                             | Subsidy period |
| 57179                                  | 104852         | 63068                                                  | 80476          | 14155                                                          | 17969          | 21365                                                      | 11378          |
| 45782                                  | 114532         | 103441                                                 | 104734         | 18803                                                          | 20508          | 18694                                                      | 15384          |
| 45152                                  | 93507          | 87771                                                  | 132380         | 26898                                                          | 14281          | 21961                                                      | 17225          |
| 67762                                  | 124208         | 72103                                                  | 131500         | 26963                                                          | 21776          | 17143                                                      | 20362          |
| 90267                                  | 113588         | 88136                                                  | 128327         | 23623                                                          | 9962           | 10854                                                      | 6979           |

Source: State Statistical Committee, 2022b.

In order to analyze the change in export volumes for each product group, we compare the export volumes in the five years before the subsidy period (more precisely: 2011, 2012, 2013, 2014 and 2015) with the volumes in the five years of the subsidy period (more precisely: 2016, 2017, 2018, 2019 and 2020).

#### 4.1.1. Shelled Hazelnuts

Below are the export volumes of shelled hazelnuts before the subsidy (2011-2015) and during the subsidy period (2016-2020).

**Table 3. ANOVA analysis for export of shelled hazelnuts**

|                            |              |            |                |                 |                |               |
|----------------------------|--------------|------------|----------------|-----------------|----------------|---------------|
| Anova: Single Factor       |              |            |                |                 |                |               |
| SUMMARY                    |              |            |                |                 |                |               |
| <i>Groups</i>              | <i>Count</i> | <i>Sum</i> | <i>Average</i> | <i>Variance</i> |                |               |
| Before subsidy             | 5            | 306141,89  | 61228,378      | 349856060,8     |                |               |
| Subsidy period             | 5            | 550687,37  | 110137,474     | 133421848,3     |                |               |
| ANOVA                      |              |            |                |                 |                |               |
| <i>Source of Variation</i> | <i>SS</i>    | <i>df</i>  | <i>MS</i>      | <i>F</i>        | <i>P-value</i> | <i>F crit</i> |
| Between Groups             | 5980249179   | 1          | 5980249179     | 24,74869662     | 0,001086537    | 5,317655072   |
| Within Groups              | 1933111636   | 8          | 241638954,6    |                 |                |               |
| Total                      | 7913360815   | 9          |                |                 |                |               |

The final statistics of the ANOVA analysis (Table 3) (p=0.05): comparing the values

of  $F$  and  $F_{crit}$  in the table, since  $F > F_{crit}$ , the hypothesis  $H_0$  is rejected and the alternative hypothesis is accepted. Thus, we conclude that the export volumes changed from before the subsidy and during the subsidy period. Below is the comparison of export volumes for the two periods, depicted in the form of a [figure 1](#).

**Figure 1:** Export of shelled hazelnuts



As the [figure 1](#) shows, the export of shelled hazelnuts increased during the subsidy period compared to the previous period.

#### 4.1.2. Fresh Persimmons and Pomegranates

Below is a comparison of the export volumes of fresh persimmons and pomegranates before the subsidy (2011-2015) and during the subsidy period (2016-2020).

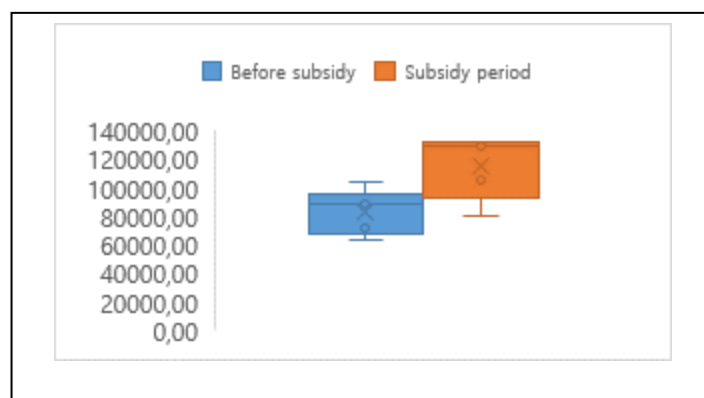
**Table 4.** ANOVA analysis for export of fresh persimmons and pomegranates

| Anova:<br>Single Factor |            |           |             |             |             |             |
|-------------------------|------------|-----------|-------------|-------------|-------------|-------------|
| SUMMARY                 |            |           |             |             |             |             |
| Groups                  | Count      | Sum       | Average     | Variance    |             |             |
| Before subsidy          | 5          | 414519,81 | 82903,962   | 245741170,9 |             |             |
| Subsidy period          | 5          | 577416,21 | 115483,242  | 512010411,8 |             |             |
| ANOVA                   |            |           |             |             |             |             |
| Source of Variation     | SS         | df        | MS          | F           | P-value     | F crit      |
| Between Groups          | 2653523713 | 1         | 2653523713  | 7,003677125 | 0,029417571 | 5,317655072 |
| Within Groups           | 3031006331 | 8         | 378875791,4 |             |             |             |
| Total                   | 5684530044 | 9         |             |             |             |             |

The final statistics of the ANOVA analysis ([Table 4](#)) ( $p=0.05$ ) are shown below. Comparing the values of  $F$  and  $F_{crit}$  in the table, we see that since  $F > F_{crit}$ , the hypothesis  $H_0$  is rejected and the alternative hypothesis is accepted. Thus, we conclude that there was a change in export volumes from before the subsidy and during the subsidy period.

Below is a comparison of export volumes for the two periods, depicted in the form of a figure 2.

**Figure 2:** Export of fresh persimmons and pomegranates



The figure 2 shows that the export of fresh persimmons and pomegranates increased during the subsidy period compared to the previous period.

#### 4.1.3. Grape Wines and Other Alcoholic Beverages

Below is a comparison of the export volumes of grape wines and other alcoholic beverages before the subsidy (2011-2015) and during the subsidy period (2016-2020).

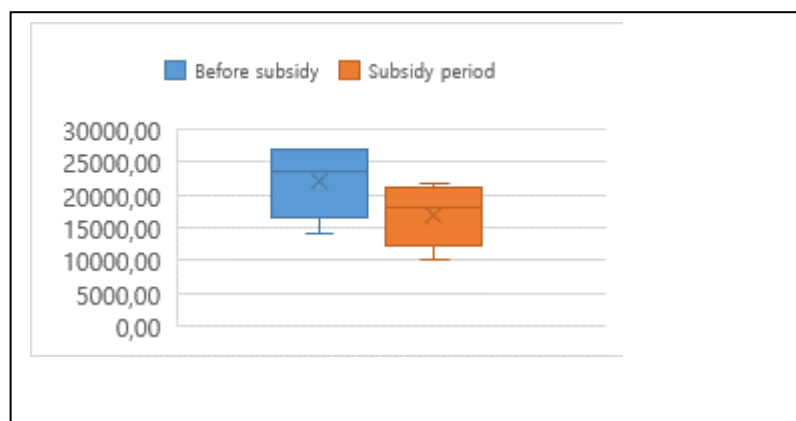
**Table 5. ANOVA analysis for export of grape wines and other alcoholic beverages**

| Anova: Single Factor |           |           |             |             |             |         |
|----------------------|-----------|-----------|-------------|-------------|-------------|---------|
| SUMMARY              |           |           |             |             |             |         |
| Groups               | Count     | Sum       | Average     | Variance    |             |         |
| Before subsidy       | 5         | 110442,51 | 22088,502   | 30748522,83 |             |         |
| Subsidy period       | 5         | 84496,34  | 16899,268   | 23232129,07 |             |         |
| ANOVA                |           |           |             |             |             |         |
| Source of Variation  | SS        | df        | MS          | F           | P-value     | F crit  |
| Between Groups       | 67320373  | 1         | 67320373,77 | 2,494240858 | 0,152917335 | 5,31766 |
| Within Groups        | 215922607 | 8         | 26990325,95 |             |             |         |
| Total                | 283242981 | 9         |             |             |             |         |

The final statistics of the ANOVA analysis (Table 5) ( $p=0.05$ ) are below. Comparing the values of  $F$  and  $F_{crit}$  in the table,  $F < F_{crit}$ , thus the hypothesis  $H_0$  is accepted and the alternative hypothesis is rejected. We conclude that there was no statistically significant difference between the export volumes before the subsidy and during the subsidy period. The figure 3 below gives a comparison of export volumes for

the two periods.

**Figure 3:** Export of grape wines and other alcoholic beverages



As can be seen from the [figure 3](#), the export of grape wines and other alcoholic beverages showed a slight trend downward during the subsidy period, which is not considered statistically significant compared to the previous period.

#### 4.1.4. Canned Products, Juices, Jams, Sauces

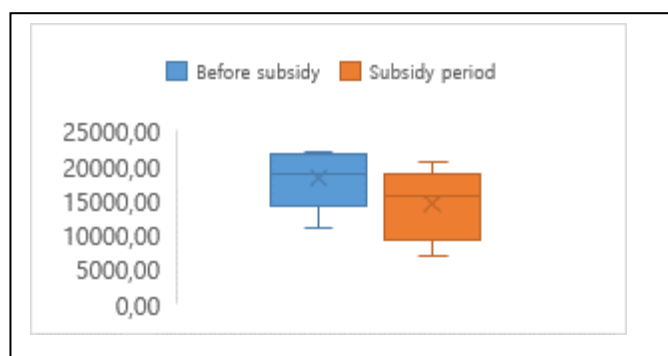
The table below shows the export volumes of canned products, juices, jams, and sauces before the subsidy (2011-2015) and during the subsidy period (2016-2020) ([Table 2](#)).

**Table 6.** ANOVA analysis for export of canned products, juices, jams, and sauces

| Anova: Single Factor |             |          |             |             |             |         |
|----------------------|-------------|----------|-------------|-------------|-------------|---------|
| SUMMARY              |             |          |             |             |             |         |
| Groups               | Count       | Sum      | Average     | Variance    |             |         |
| Before subsidy       | 5           | 90017,64 | 18003,528   | 19823873,74 |             |         |
| Subsidy period       | 5           | 71327,65 | 14265,53    | 27152311,38 |             |         |
| ANOVA                |             |          |             |             |             |         |
| Source of Variation  | SS          | df       | MS          | F           | P-value     | F crit  |
| Between Groups       | 34931572,62 | 1        | 34931572,62 | 1,487203464 | 0,257382352 | 5,31766 |
| Within Groups        | 187904740,5 | 8        | 23488092,56 |             |             |         |
| Total                | 222836313,1 | 9        |             |             |             |         |

Comparing the final statistics of the ANOVA analysis (Table 6) ( $p=0.05$ ),  $F < F_{crit}$ ; thus the hypothesis  $H_0$  is accepted and the alternative hypothesis is rejected. We conclude that there is no statistically significant difference between the export volumes before the subsidy and during the subsidy period. A comparison of export volumes for the two periods is depicted in the form of a figure 4.

**Figure 4:** Export of canned products, juices, jams, sauces



The figure 4 shows that the export of grape wines and other alcoholic beverages trended slightly lower during the subsidy period, which is not considered statistically significant compared to the previous period.

#### 4.1.4. Evaluation of subsidies as promotion using OECD/DAC methodology

The results of the evaluation of the export promotion given to non-oil exports using the OECD/DAC methodology (2019) are given in Table 4 below.

**Table 7: Evaluation of promotion of non-oil exports using OECD/DAC methodology**

| Evaluation criteria | Evaluation results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Relevance</b>    | <p><b>Are promotion objectives in line with farmers' needs?</b></p> <p><b>How does the subsidy support the specific needs of farmers?</b></p> <p>Hazelnuts, pomegranates, persimmons are competitive products of Azerbaijan and the coefficient of Domestic Resource Costs is considerably less than one (Shalbuzov et al., 2020). Also, the RCA (revealed comparative advantage) calculation that the year before the subsidy was given in 2015: RCA indicator of hazelnuts was 55, and the RCA indicator of persimmons was 228. In 2016, the RCA indicator of hazelnuts was 95, and persimmons 240, in 2017 it was 83 and 196, and in 2018 it was 59 and 207. It shows that these products were competitive before the subsidy was given. RCA indicator being greater than 1 reflects the existence of a revealed comparative advantage, and less than 1 reflects its absence (Fikretzade et al., 2019). Therefore, this product would be one of the most exported products in the non-oil sector in 2018-2020, even if no export promotion was given. Promoting their exports, however, is, at first glance, a suitable measure to increase exports, and it was carried out in a planned manner.</p> |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Coherence</b>      | <p><b>How well does the export subsidy align with the country's export promotion measures and with other government support measures (production subsidies, tax breaks)?</b></p> <p>The aim of these criteria is to better capture linkages, systems thinking, partnership dynamics, and complexity (OECD, 2019). As we know a lack of coherence can lead to duplication of efforts and thus undermine overall progress.</p> <p>We could not determine the extent to which the intervention adds value while avoiding duplication of effort. But one point is clear: products such as peeled hazelnuts, persimmons, and pomegranates receive both export and production subsidies. The production subsidy has a greater effect on the increase in the production and export of these products.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Effectiveness</b>  | <p><b>Are the subsidy promotions achieving their objectives?</b></p> <p>The promotion of non-oil exports was aimed at increasing exports. Initially, we can see that total exports of the four product groups receiving the main export promotion increased from \$213 million to \$285 million in 2021 compared to 2015. But the results for individual products were different. For example, in 2017, the year before the promotion, 20.8 thousand tons of hazelnuts worth \$114.5 million were exported. The year after the end of the promotion, that is, in 2021, 18,000 tons of hazelnuts worth \$109 million were exported. The 11.1 million manats incentive funds given to hazelnuts from the state budget did not play a role in increasing exports. Also, in 2015, grape wines and other alcoholic beverages worth \$24 million were exported, but in 2021 this decreased to \$11 million. The export of canned products, juices, jams, and sauces decreased from \$10 million to \$9.5 million. An increase was observed in the export of fresh persimmons and pomegranates. In general, the results show that new trends and innovations have not been sufficiently accounted for. Even with no export promotion, it would have been possible to export non-oil products from Azerbaijan in 2016-2020 in the volume and value shown in figure 3.</p> |
| <b>Efficiency</b>     | <p><b>Could the outputs be produced with fewer resources or do they cost more than initially foreseen? Was the policy implemented in a timely manner?</b></p> <p>In 2016-2020, incentives equal to the value of US \$15.6 million were paid from the state budget. Resources have not been fully utilized. The implementation of the measures did not fully cover exporters in the first and second year. This leads to the conclusion that, in 2018, half of the hazelnut exporters did not apply for incentives. In 2019, the interest of exporters in receiving the incentive increased, so in the last year of the incentive, i.e., in 2020, exporters benefited from it. In general, this measure did not have the effect of promoting vigorous growth in the products promoted, and the results obtained did not justify the costs. The incentives given for the export of selected petroleum products also did not fully meet the needs of the target groups.</p>                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Sustainability</b> | <p><b>Are the outcomes achieved sustainable?</b></p> <p>Compared to 2019, non-oil exports in 2020 decreased by 5.2 percent to US \$1,852 million due to the impact of the pandemic. Non-oil exports increased by 47 percent in 2021, the year after the suspension of export promotions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p>Specifically, regarding the export of the product that received the most export promotion—hazelnuts—exports in 2020 decreased by 9.3 percent to US \$113.6 million, compared to 2019, and this decrease continued in 2021. In general, compared to 2017, hazelnut exports in 2021 decreased by five percent in terms of value and 15.5 percent in terms of volume.</p> <p>Also, the export of grape wines and other alcoholic beverages decreased by 54 percent in 2020 compared to 2019; the export of fresh persimmons and fresh pomegranates decreased by 2.4 percent; and the export of canned goods, juices, jams, and sauces decreased by 2.9 percent. As a result, these promotional measures were not sustainable, and after 2020, these measures were stopped and not expanded.</p> |
| <b>Impact</b> | <p><b>To what extent have the results contributed to immediate or ongoing change?</b></p> <p>The measures implemented did not have a significant impact on increasing exports of products targeted for 2016-2020. As for social, environmental and economic impacts, there has been only a slight effect, a lessening of the losses caused by the global fall in the price of these commodities in 2018. Subsidies did not contribute to the diversification of non-oil export and development of distribution channels.</p>                                                                                                                                                                                                                                                                    |

## 4.2. Discussions

Although the calculation of correlation coefficients related to subsidies and non-oil export products and a linear regression model were established, the model was not statistically significant, since it is based on a weak correlation and does not demonstrate a linear relationship between the two variables. We would like to note that the model was built only for Azerbaijan and the data used in building the model refers to the country as a whole. We checked the non-linearity before the model was built. A low correlation between subsidies and exports results in an insignificant model. There is no relevant form of statistical method for modeling our data. Hence, it is concluded that the subsidies do not affect the export of the goods.

The comparative analysis of exports in the non-oil sector before and during the subsidy period-the analysis of variance-showed that the trend for the products promoted during the subsidy period was low, which is not considered statistically significant when compared to the previous period.

In 2018, the export of peeled hazelnuts from Azerbaijan amounted to US \$93.5 million and the export of persimmons amounted to US \$114.5 million ([State Statistical Committee, 2022b](#)). In 2018, hazelnuts accounted for 5.5 percent and persimmons for 6.8 percent of exports in the non-oil sector.

Export of other fresh fruits (pomegranates, etc.) amounted to US \$17.8 million. In general, 50% of the export promotion paid in 2018 was applied to these three products. It should be noted that, by the decision of the CoM of Azerbaijan and dated June 25, 2018, the list of goods to be promoted for export was expanded and peeled hazelnuts were added to this list. In 2018, the largest export promotion was paid to peeled hazelnuts (1.34 million manats). This accounted for 27% of the export promotion paid in the country for that year. However, compared to 2017, in 2018 exports of peeled hazelnuts decreased by 18.4 percent in terms of value and 12.2 percent in terms of volume. This decline played

an important role in lowering the price of hazelnuts on the world market. However, providing incentives did not prevent this decline.

The number of non-oil sector products in the second group was much higher than the first group, and they were paid a coefficient of 1.5, so up to 4.5 percent of the value declared in the customs export declaration. [Appendix 1](#) represents agricultural and other products. Poultry eggs and olive oil were added to this list by decision of the CoM, dated June 25, 2018. Most products in the non-oil sector belonged to Group 3, and these products were paid an export promotion rate of two, so up to six percent of the value specified in the customs export declaration. The table shows that, with the decision of the CoM dated June 25, 2018, other fruit wines, including pomegranate wine, and with the exception of grape wines, were added to the list of goods that received export promotion.

Costs incurred in promoting the increase of exports of non-oil products, for five years (from March 1, 2016 to December 31, 2020), came to about 27 million manats (US \$15.6 million). These were paid to entrepreneurs from the state budget.

If we look at the structure of payments to promote exports of non-oil products, it is clear that peeled hazelnuts, fresh persimmons and fresh pomegranates, canned goods, juices, jams, sauces, grape wines and other alcoholic beverages were the main recipients of promotion.

## 5. Conclusions

From 2011-2021, the share of non-oil exports in Azerbaijan's total exports increased from 5.7 percent to 11.4 percent ([State Statistical Committee, 2022a](#); [State Statistical Committee, 2022b](#)). In particular, in 2016, when the export promotion was applied, the share of non-oil exports in total exports was 9.4 percent, while in 2022 it increased to 11.4 percent and again decreased to 8 in 2022. However, this increase was due primarily to the change in the price of oil and gas in the world market. Furthermore, during this period, oil production in Azerbaijan decreased by 24 percent from 45.4 million tons to 34.4 million tons ([State Statistical Committee, 2022a](#)).

It should be noted that one of the main goals of promotion for non-oil sector export was to increase the competitiveness of local products in international markets which in its turn had to increase the export volumes of these products. But, evaluating the promotion for non-oil sector goods the results over five years did not demonstrate a significant impact on exports of these products. The assessment of Azerbaijan's export promotion, using the criteria of compatibility, effectiveness, efficiency, sustainability, impact and coherence, showed that the 27 million manats spent for this purpose did not affect an increase in exports. Also, this export promotion measure did not contribute to the development of distribution channels in the country. Other support measures implemented in our country will be more effective in the development of distribution channels, increasing production and exports in the non-oil sector. Therefore, halting the export promotion was the right decision. In general, analyses showed that the export subsidy applied with the aim of increasing non-oil exports from oil-exporting countries is not a very efficient tool. It would be more appropriate for the government to increase production using subsidies and other state support mechanisms. The analysis of Azexport.az portal data also showed that there was not enough product in Azerbaijan to meet the incoming export orders. Therefore, better results can be achieved if the subsidy is directed to the production of competitive products.

The GoA's target for the increase in volume of non-oil/gas exports is 85% in 2026

compared to 2021. For this purpose, state support for the promotion of non-oil and gas exports will be increased. Azerbaijan's non-oil exports should be sold for the highest price in the best markets, whether this means cheaper products to regional markets, or high value products to more sophisticated markets, while maintaining links to traditional markets. To maximize returns from exporting, value-added production is needed so as not to waste opportunities because of limited production. For example, Azerbaijan's agriculture sector currently exports more unprocessed (lower-value) products than processed (higher-value) products (State Statistical Committee 2022b). There is a real need to develop quality infrastructure to take advantage of value-added production.

Azerbaijan should be known for a few high quality products. It has a diverse export base that maximizes its export opportunities through a differentiated approach that matches non-oil product values to the best markets. Products from Azerbaijan are generally of high quality and appreciated in the market (e.g. its fresh tomatoes are considered the best quality in CIS), as well as some unique products, such as pomegranate wine and paste (although there is no way to prove quality due to lack of infrastructure for both food safety and technical regulations). The realities of export markets are such that even for niche products, a minimum level of production is needed to be viable, as well as to have a serious impact on diversification. Existing non-oil exports are focused on the Russian market, and efforts should be focused elsewhere (around 30.5% of non-oil exports were destined for Russia in 2022).

## 5. Limitations and Future Research

Despite the contributions of this study, there are some limitations. The study was not considered other subsidies and state support measures on exported products. Also, the short duration of the subsidy period was another limitation experienced when authoring the paper. As a result the analysis used a relatively modest number of observation units.

And we would like to encourage other researchers and make some recommendations for future research. This is the first research on impacts of export subsidies on non-oil exports in Azerbaijan. Therefore, the results obtained can become the basis of new research. For instance, impact of other type of subsidies on non-oil sector products (especially agricultural products) export, development of distribution channels can be examined in future research. Therefore, further researchers are advised to consider this parameter. Also, the current study has been carried out in Azerbaijan; future research in other oil-rich countries is, therefore, necessary to increase the validity of the findings. However, our findings may show different results when using data from other countries. Also, future research might be performed to look into issues that were not included in this article such as the impact of export subsidy on employment and income of exporters. Azerbaijan is negotiating to become a member of the WTO, and if this membership becomes a reality, its impact on exports and subsidies can be examined.

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## Appendixes

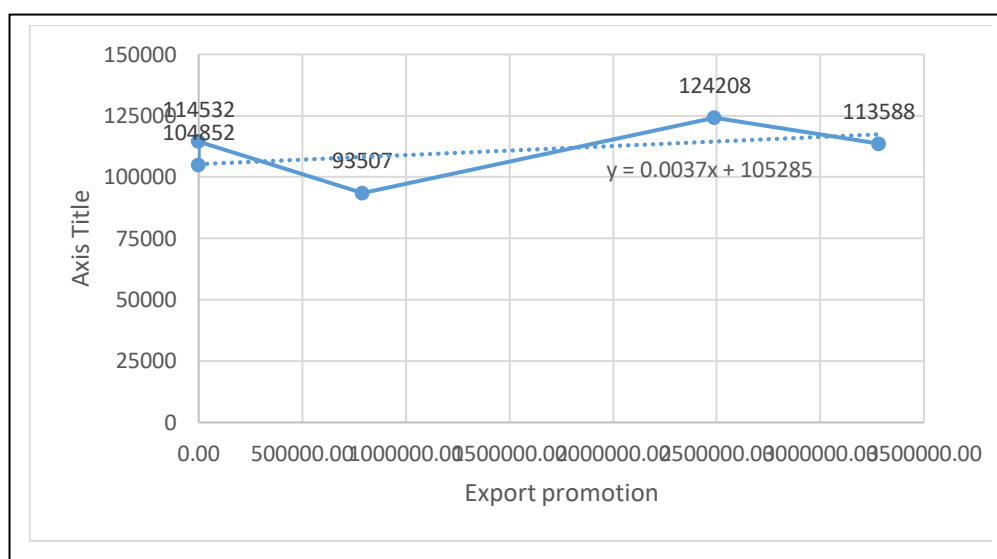
### Appendix 1: List of non-oil products for which export promotion is paid

| Groups                                                                   | HS code of product                | Name of product                                                                              | Coefficient |
|--------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------|-------------|
| 1                                                                        | 2                                 | 3                                                                                            | 4           |
| <b>Group 1. Export promotion is paid up to 3% of the customs value</b>   | 0802 22                           | Peeled hazelnuts                                                                             | 1,0         |
|                                                                          | 0810 70 000 0                     | Persimmon                                                                                    | 1,0         |
|                                                                          | 0810 90 7501                      | Pomegranate                                                                                  | 1,0         |
| <b>Group 2. Export promotion is paid up to 4.5% of the customs value</b> | 0407                              | Bird's egg                                                                                   | 1,5         |
|                                                                          | 0409 00 000 0                     | Natural honey                                                                                | 1,5         |
|                                                                          | 0804 20 900 0, 0806 20, From 0813 | Dried fruits                                                                                 | 1,5         |
|                                                                          | 1509 90                           | Other olive oil and its fractions                                                            | 1,5         |
|                                                                          | From 1905                         | Flour confectionery, including baklava, shakarbura (national cake) and other oriental sweets | 1,5         |
|                                                                          | From 2001                         | Vegetables, fruits, nuts canned with vinegar or acetic acid                                  | 1,5         |
|                                                                          | From 2006 00                      | Canned vegetables, fruits, nuts with sugar                                                   | 1,5         |
|                                                                          | From 2201                         | Natural or artificial mineral waters, carbonated waters                                      | 1,5         |
|                                                                          | 2202                              | Non-alcoholic beverages                                                                      | 1,5         |
|                                                                          | 5007                              | Silk fabrics                                                                                 | 1,5         |
| <b>Group 3. Export promotion is paid up to 6% of the customs value</b>   | 2002                              | Tomatoes prepared or canned without vinegar or acetic acid                                   | 2,0         |
|                                                                          | 2005                              | Other vegetables prepared or canned without vinegar or acetic acid, not frozen               | 2,0         |
|                                                                          | 2007                              | Jams, jams, fruit jellies, marmalades, fruit or nut puree, fruit or nut paste                | 2,0         |
|                                                                          | from 2008                         | Other processed or canned fruits and nuts, including packaged nuts, hazelnuts and almonds    | 2,0         |
|                                                                          | 2009                              | Pomegranate juice, including fruit and vegetable juices                                      | 2,0         |
|                                                                          | From 2103                         | Sauces and spices                                                                            | 2,0         |

|  |                                                 |                                                                                         |     |
|--|-------------------------------------------------|-----------------------------------------------------------------------------------------|-----|
|  | 2204                                            | Natural grape wines and grape juice                                                     | 2,0 |
|  | 2205                                            | Vermouths and other natural grape wines with the addition of plant or aromatic extracts | 2,0 |
|  | 2206                                            | Other fruit wines, including grape wines, including pomegranate wine                    | 2,0 |
|  | 2208                                            | Cognac, brandy, liqueurs and other alcoholic beverages, distillates of grape wines      | 2,0 |
|  | From 3004900000                                 | Naphthalene ointment                                                                    | 2,0 |
|  | From group 42                                   | Natural leather clothing and other products                                             | 2,0 |
|  | From 5701                                       | Hand-woven pile carpets                                                                 | 2,0 |
|  | From 5702                                       | Hand-woven pileless carpets                                                             | 2,0 |
|  | From group 61<br>From group 62<br>From group 63 | Clothes, accessories and other ready-made textile products from cotton yarn             | 2,0 |
|  | 6403                                            | Shoes made of natural leather                                                           | 2,0 |

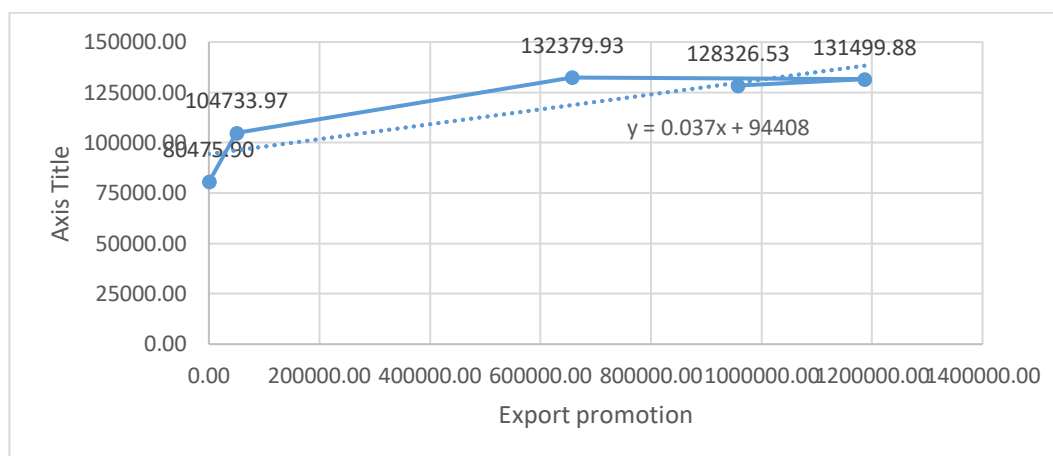
**Appendix 2: Regression Statistics for shelled hazelnuts**

| SUMMARY OUTPUT        |                     |                       |               |                |                  |                  |                    |                    |                     |
|-----------------------|---------------------|-----------------------|---------------|----------------|------------------|------------------|--------------------|--------------------|---------------------|
| Regression Statistics |                     |                       |               |                |                  |                  |                    |                    |                     |
| Multiple R            | 0,479621            |                       |               |                |                  |                  |                    |                    |                     |
| R Square              | 0,230036            |                       |               |                |                  |                  |                    |                    |                     |
| Adjusted R Square     | -0,026618           |                       |               |                |                  |                  |                    |                    |                     |
| Standard Error        | 11703,559862        |                       |               |                |                  |                  |                    |                    |                     |
| Observations          | 5                   |                       |               |                |                  |                  |                    |                    |                     |
| ANOVA                 |                     |                       |               |                |                  |                  |                    |                    |                     |
|                       | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | Significance F   |                  |                    |                    |                     |
| Regression            | 1                   | 122767452,8           | 122767452,8   | 0,896287384    | 0,413623239      |                  |                    |                    |                     |
| Residual              | 3                   | 410919940,3           | 136973313,4   |                |                  |                  |                    |                    |                     |
| Total                 | 4                   | 533687393,1           |               |                |                  |                  |                    |                    |                     |
|                       | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> | <i>Lower 95,0%</i> | <i>Upper 95,0%</i> | <i>Coefficients</i> |
| Intercept             | 105284,8737         | 7325,788978           | 14,37181361   | 0,00073016     | 81970,94365      | 128598,8038      | 81970,94365        | 128598,8           | Intercept           |
| X Variable 1          | 0,00217798          | 0,002300542           | 0,946724556   | 0,413623239    | -0,005143373     | 0,009499332      | -0,005143373       | 0,009499           | X Variable 1        |

**Appendix 3: Export of shelled hazelnuts****Appendix 4: Regression Statistics for fresh persimmons and pomegranates**

| SUMMARY OUTPUT        |                     |                       |               |                |                       |                  |                    |                    |                     |
|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|--------------------|--------------------|---------------------|
| Regression Statistics |                     |                       |               |                |                       |                  |                    |                    |                     |
| Multiple R            | 0,869249            |                       |               |                |                       |                  |                    |                    |                     |
| R Square              | 0,755593824         |                       |               |                |                       |                  |                    |                    |                     |
| Adjusted R Square     | 0,674125099         |                       |               |                |                       |                  |                    |                    |                     |
| Standard Error        | 12917,09497         |                       |               |                |                       |                  |                    |                    |                     |
| Observations          | 5                   |                       |               |                |                       |                  |                    |                    |                     |
| ANOVA                 |                     |                       |               |                |                       |                  |                    |                    |                     |
|                       | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | <i>Significance F</i> |                  |                    |                    |                     |
| Regression            | 1                   | 1547487620            | 1547487620    | 9,274648902    | 0,055628196           |                  |                    |                    |                     |
| Residual              | 3                   | 500554027,3           | 166851342,4   |                |                       |                  |                    |                    |                     |
| Total                 | 4                   | 2048041647            |               |                |                       |                  |                    |                    |                     |
|                       | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i>      | <i>Upper 95%</i> | <i>Lower 95,0%</i> | <i>Upper 95,0%</i> | <i>Coefficients</i> |
| Intercept             | 94407,89873         | 9014,490571           | 10,47290448   | 0,001858641    | 65719,76652           | 123096,0309      | 65719,76652        | 123096,0309        | 94407,89873         |
| X Variable 1          | 0,021764003         | 0,007146445           | 3,045430824   | 0,055628196    | -0,000979174          | 0,044507181      | -0,000979174       | 0,044507181        | 0,021764003         |

## Appendix 5. Export of fresh dates and pomegranates



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