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De-Industrialization Patterns of Azerbaijan: Potential Outcomes of Dutch Disease Syndrome

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De-Industrialization Patterns of Azerbaijan: Potential
Outcomes of Dutch Disease Syndrome

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Abstract

This paper focuses on the particular channels of de-industrialization processes of Azerbaijan considering the Dutch disease syndrome as the theoretical framework. After the emergence of the Dutch disease hypotheses, many resource-rich countries have been the main research object of it. One consequence of the Dutch disease syndrome is a shrinking manufacturing sector compared to the booming sector and the services sector. In order to shed light on this aspect of the Azerbaijan economy, important literature examples were examined and mainly descriptive statistics applied to visualize the economy's most recent timeline. This research mainly brings back the actuality of the Dutch disease phenomena to Azerbaijan's economy, depicting and comparing policy responses of the national government.

Keywords: Azerbaijan economy, Dutch disease, de-industrialization, real effective exchange rate, sectoral output.

JEL Codes: P28, Q33, L60

1. Introduction

The Republic of Azerbaijan is a resource-rich post-soviet country, located in the South Caucasus and Caspian Basin. Azerbaijan's history of the oil and gas sector goes back to the late 19th century. The first boom of the oil revenues occurred during the beginning of the last century and oil and gas extraction started to become the main industry of Azerbaijan during the Soviet Union administration. Although the country's proved total oil and gas reserves are only 0.4% and 0.7% of total world reserves respectively (British Petroleum, 2018), natural resources played a major role in attracting revenue to the economy during and after the transition period.

The oil and gas sector has contributed considerably to the economic growth in Azerbaijan beginning in the early 90's and was the main trade objective of the international economic relations. "The Contract of the Century" drawn up in 1994 between Azerbaijan and eleven of the biggest oil companies from eight countries, was the first project among the post-soviet countries attracting a huge amount of western multinational investments¹. Therefore, beginning in the early 2000's, the oil industry began to play an important role in national production and revenue. Figure 1 shows how crude oil production and exports and gas production increased over the last thirteen years. Between 2004-2011 production and exports continuously rose in the oil and gas sector following constant progress, which was the result of the different crucial oil and gas extraction projects, such as "Shafag-Asiman," "Shah Deniz," and "Azeri-Chirag-Deepwater Gunashli." However, starting in 2011, oil production and exports declined due to the reductions in the outcome of the main oil and gas extraction project "Azeri-Chirag-Deepwater Gunashli." In order to stabilize the extraction and production process for future years, additional investments were attracted. Consequently, the mining

¹ Countries: Azerbaijan, USA, UK, Russia, Turkey, Norway, Japan and Saudi Arabia.

Companies and their investment share (in percentage): Azerbaijan State Oil Company (SOCAR) – 20, BP – 17.12, Amoco – 17.01, McDermott – 2.45, UNOCAL – 11.2, Lukoil – 10.0, Statoil – 8.56, Exxon, Turkish Petroleum – 1.75, Pennzoil – 9.81, ITOCHU, Ramco – 2.08, Delta

industry attracted 3.9 % higher investments in 2012 compared to 2011 and this ascending tendency continued until recently, by peaking at 86.2% of investments being directed to the mining sector while manufacturing bottomed around 4.3.% (Figure 2).

Since 2000, the “mineral fuel, lubricants, and similar materials” category in exports dominated by 80%; peaked in 2008 by 97.1% and continued its dominance until 2017 by 89.5% (State Statistical Committee of Azerbaijan Republic). Oil and gas reserves together with the transit position of the country led to becoming an important stakeholder among projects, such as TAP, TANAP, and the Southern Gas Corridor. Moreover, the main financial source of the important country and region-wide projects like Baku-Tbilisi-Ceyhan – the main export pipeline project, the Baku-Tbilisi-Gars railway, and the construction/reconstruction of the water supply and irrigation systems were completed through the State Oil Fund of Azerbaijan (SOFAZ) withdrawals. At the same time, the extension of the Agreement of the Century - New Contract of the Century until 2050 are solid examples of how the oil and gas sector plays an influential role in the Azerbaijan economy.

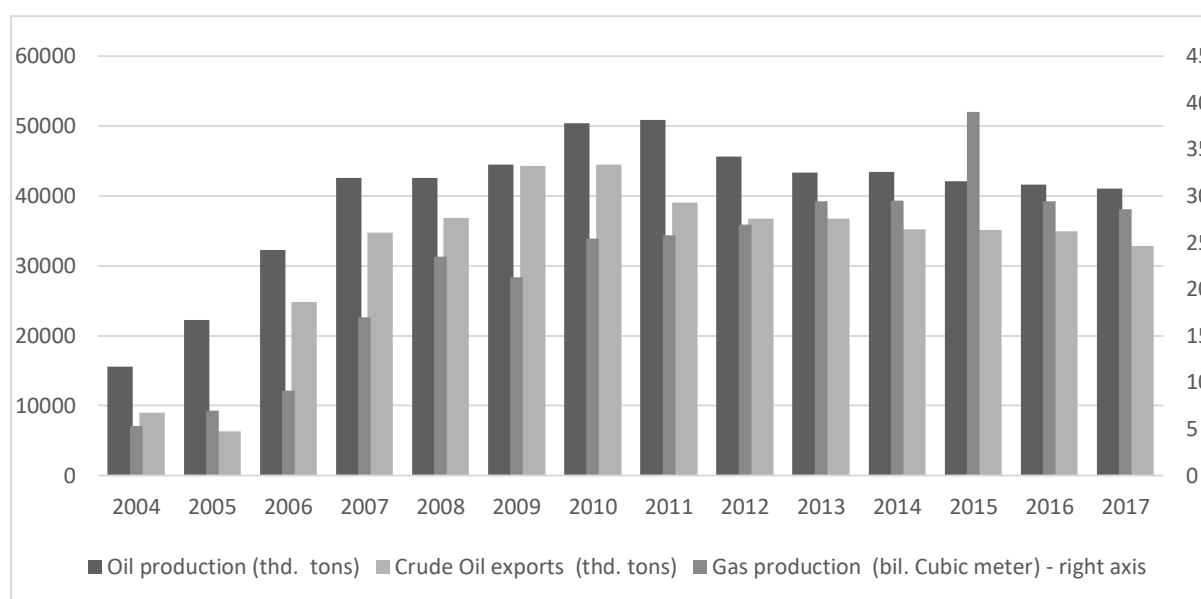


Figure 1. Azerbaijan: Oil Production and Export of Crude Oil

Note: The data excluding for 2004 and 2005 are sourced according to the reports of State Oil Company of Azerbaijan Republic and Azerbaijan International Operating Company.

The high dominance of the oil and gas sector in the economy brings various risks to the country's economy and one of them is the de-industrialization process. Several studies examined Dutch disease symptoms in the Azerbaijan economy; however, there isn't unanimous results about the existence of the phenomena and specifically regarded de-industrialization tendencies. Exchange rate appreciation, changes in real wages, and a shrinking manufacturing sector on the background of the 2009 global financial crises and in 2015 – sharp commodity price downturns showed consistent symptoms with the Dutch disease literature. This work is briefly focusing on the possible path of de-industrialization processes as the main extension of Dutch disease hypotheses.

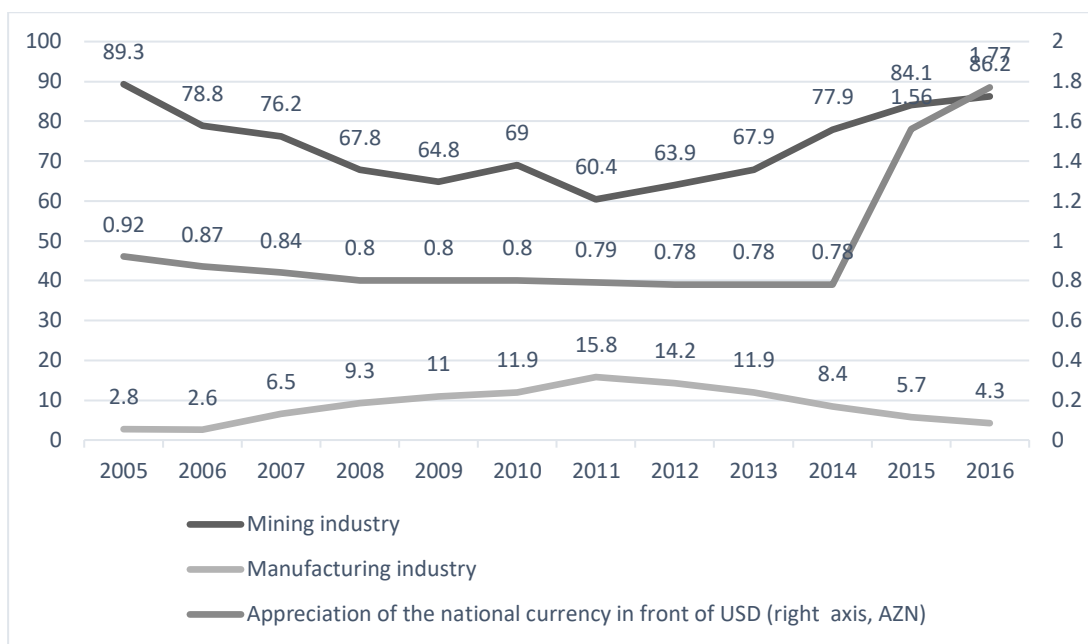


Figure 2. The Structure of the directed investments in the industry, relative to the gross total, of the percentage (Source: The State Statistical Committee of Republic of Azerbaijan)

The paper is organized as follows: Section 2 provides a brief literature review of the Dutch disease syndrome on two scopes: theoretical level and country level, meaning surveying the body of literature, which directly and indirectly addressed the mentioned phenomena in Azerbaijan. In Section 3, data sources and main methodology are depicted. Section 4 argues about the descriptive characteristics of the de-industrialization patterns within the Dutch disease framework through exchange rate appreciation, changes in real wages, and sectoral disproportions. In Section 5, policy responses and future policy implications were mentioned. Section 6 is the conclusion.

2. Literature Review

Since the “Dutch disease” term was introduced in 1977 by “The Economist” to illustrate how the Dutch manufacturing sector declined after the discovery of the large natural gas field in 1959, it has attracted a huge academic interest among scholars. The phenomena explain how the manufacturing or agriculture sector shrinks because of the great amount of foreign currency inflow to the economy’s “booming sector.” The first definitive model of Dutch disease was coined by Corden and Neary (1982) to describe the effects and structural changes of the boom-generated economic growth. However, before the Dutch disease hypotheses became popular, Rybczynski (1955) theorized (also known as the Rybczynsky theorem) that if the factor supply increases, then the corresponding sector’s output and exports, which use that factor intensively will rise as well. On the other hand, the other sectors, which do not use that particular factor will produce less output and consequently, the export levels will go down. The Rybczynsky theorem was a premature theoretical background of a booming-sector-based economy.

The classic model of the Dutch disease theory identifies two sectors: tradable - the booming sector and manufacturing (lagging) or non-tradable - including services. Generally, the extraction of natural resources such as oil, natural gas, non-ferrous metals, or the production of coffee or cocoa are the main sources of the booming sector. However; usually, manufacturing and agriculture are the lagging sectors. If a resource boom happens in the economy, this influences the economy in two ways: the resource

movement effect and the spending effect. The resource movement effect is the production shift away from the manufacturing sector through increased labor demand and the spending effect is the flow of revenue towards non-tradables via additional revenue that the booming sector generated.

Periodically, Dutch disease hypotheses attract various critics on its address, scrutinizing it as a “non-disease” (Van Wijnbergen, 1984; Kojo, 2014) and different interpretations like a shift in the equilibrium state as the result of the booming sector (Davis, 1995). Such assessments pointed out that there is no need to settle this idea as an independent economic phenomenon. Despite the critics, the Dutch disease syndrome can be a useful theoretical framework to understand resource-rich countries and their role in the international economy. Although the ultimate goal of natural resource management from an economics perspective is to find the socially optimal use of resources, Lecomber (1979) mentioned, the characteristics of the optimal paths are not obvious.

Before the research of Dutch disease established a relationship to de-industrialization studies, Forsyth & Kay (1981) examined how an increase in the oil exports of Britain can cause de-industrialization as the result of a real exchange rate appreciation. Accordingly, de-industrialization can be direct (as the result of the resource movement effect) and indirect (sourcing from the spending effect). Azerbaijan presents interesting trends like exchange rate appreciation, increases in the real wages of the oil sector, and descending sectoral output during a financial crisis period, as well as, during the oil price shocks on the international commodity markets.

Some examples of the established body of literature depict different perspectives to track down the presence of Dutch disease hypotheses in the Azerbaijan economy after independence. Early works can be found from Gahramanov & Fan (2002), considering the Balassa-Samuelson model to determine if Dutch disease can be found in the Caspian Region or not. They found “no evidence of Dutch disease” based on the terms of trade (TOT) indicator from the empirical model, thus pointing out that the monetary sector does not show any vulnerability to the Dutch disease phenomena. Another early attempt came from Kaser (2003), who described possible threats of Dutch disease based on diversification and political risks based on the macroeconomic comparison of transition countries.

Hasanov (2013) defended the thesis that the Dutch disease theory is an actuality for the Azerbaijan economy because of relative de-industrialization observations of the non-oil tradable sector and quite naturally for Dutch disease, an increase in the non-tradable sector’s share of the GDP. Gurbanov et al. (2017) showed through empirical models that despite fiscal regulations and oil revenue management practices of SOFAZ, the production of industrial tradables declined. The other research is intersectoral balance and intersectoral labor balance assessments from Sadik-Zada et al. (2019). They indicated the lacking linkages between extractive industries and non-extractive industries. However, increasing the output level of petroleum machinery, transport, refineries, and especially the petrochemical industry in the economy provides a strong impression that a powerful link between so-called “close sectors” is occurring. Alternative to the aforementioned Dutch disease-supporter works, Egert (2009; 2012) argued that due to the declining relative oil prices and lack of data, it is not possible to track resource-movement and spending effects among post-soviet countries.

The other dimension mentioned in the researches about Azerbaijan is the relationship between government spending and oil revenue. Effective revenue management is very crucial for natural resource revenue windfalls and for the industrialization process. Accordingly, Aliyev et. al (2016) showed that a 1% reduction in government spending might cause a 0.73-0.87% lower non-oil GDP. In oil-rich

countries, revenue booms are generally transmitted to the economy through government consumption (spending effect). However, there are successful examples like Norway, which regulated the resource movement effect and the spending effect in order to create a centralized wage formation system and to gain productivity increases in the manufacturing sector (Gurbanov & Merkel, 2009). Another work from Hasanov & Samadova (2010) introduced the relationship between the real exchange rate and non-oil exports. Correspondingly, the research indicates that a 1% appreciation of real exchange rate leads to a 1.63% decrease in non-oil exports in real terms and 1.46% decline in non-oil GDP for the long-term. However; in the short-term, a 1% appreciation of the real exchange rate leads to a 4.18% and 3.89% decline respectively among the aforementioned indicators.

We can also find confusing works from authors like Nuri Aras et al., (2016) and Bulut & Syleymanov (2012), which indicate that government expenditures and investments are measures against Dutch disease. However, instead of improving the performance of lagging sectors and increasing the observable outcome of the “2015–2020 State Program on Industrial Development”, government spending and investments increased the relative price of the non-tradables, leading to indirect de-industrialization.

Considering these literature examples, the research questions for this paper are next:

1. Does the data show direct and indirect de-industrialization patterns as the result of the resource movement and the spending effects in Azerbaijan?
2. What are the policy responses of the national government as a response to critical years like 2008-2009 and 2014-2015?

3. Data and Methodology

In order to track the data, which leads to understanding direct and indirect de-industrialization, mainly descriptive statistics and calculations based on disaggregated data were used with sourcing from the State Statistical Committee of the Republic of Azerbaijan, the Central Bank of Azerbaijan, the Chamber of Accounts, and the Ministry of Finance.

In some parts of the work, data are given for the mining sector and in some parts, solely the oil and gas sector data were indicated. The main reason is the availability of the data according to the considered categories of analysis; however, it should be kept in mind that the mining sector itself is heavily based on the oil and gas sector.

To shape a more unbiased perception of the sectors in Section 4, the annual growth of the “oil and gas” sector was solely considered, depicting crude oil and gas extraction. Such sub data like polygraph services (or due to the committee Printing production) and “Repair and installation of machinery and equipment” were excluded from the “Manufacturing” data despite that the State Statistical Committee of Azerbaijan includes it in the overall manufacturing sector data. The services sector was considered as non-tradable to be consistent with the classic Dutch disease literature and defined as a combination of construction, trade, transportation, and communication.

4. Tracking De-Industrialization Patterns

The 20th century was quite rich with the de-industrialization cases in European, OECD, and mineral-rich countries as Palma (2008) states. The author also describes four types

of de-industrialization, of which one is Dutch disease². According to the Dutch disease theory, direct and indirect de-industrialization can occur through resource movement and spending effects. The main focus points, which lead to the previously mentioned effects and the de-industrialization patterns, are exchange rate, real wages and industrial employment, and outputs.

Dutch disease is a phenomenon of the country's chronic exchange rate overvaluation resulting from the discovery of cheap and abundant resources (Bresser-Pereira, 2013). Fast transferal of the natural resources to the international markets attracts huge revenue and capital to the economy. Surveyed literature from Magud & Sosa (2013) showed forty-one papers which supported that Dutch Disease led to appreciation while only eight research studies contradicted this. At the same time, thirty-one investigations defended the thesis that natural resource revenue and capital inflow booms cause appreciation while opposite views were found seven times less. It is consistent with the case of Azerbaijan because, until the "low oil price" era, strong national currency (Figure 3) reinforced economic growth leading to the highest GDP growth rates since independence from the USSR. However, following the commodity price downturns, the economy showed national currency devaluations, banking bankruptcies, and growth declines.

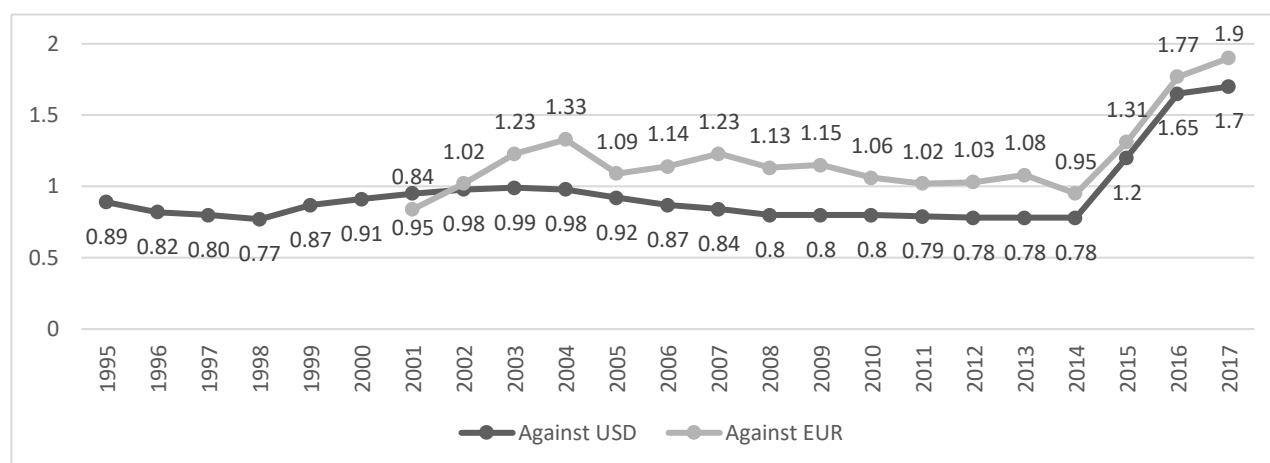


Figure 3. The exchange rate of Azerbaijani Manat (AZN) against USD and EUR.

Source: The State Statistical Committee of The Republic of Azerbaijan, Central Bank of Azerbaijan, and the author's own calculations.

Sharp drops in oil prices in 2014-2015 created severe external shocks for the Azerbaijan economy. Weak macroeconomic foundations and oil dependence of the economy influenced the country's financial sector immediately, leading to double-digit inflation, less oil revenue, and a decline in industrial output (Ibadoghlu et al., 2013). In 2017, the GDP fell 45.8% compared to 2014, whereas the GDP per capita in PPP declined from \$17,926.7 USD to \$17,453 USD (2016), industrial output had a -4.2% growth decline in contrast to the previous year and the non-oil sector shrank to 62.8% from 69.7% in 2015. Furthermore, the budget deficit was -1.6% in 2017; however, in 2014 the indicator was -0.5% (Azerbaijan State Oil Fund).

The appreciated position of AZN starting in 2003-2004 is followed by the descending manufacturing output growth after 2006, while oil production and exports increased between 2006-2009 (Figure 1 and Figure 4). On the other hand, revenue of

² The previous three sources are an 'inverted-U' relationship between manufacturing employment and income per capita; a declining relationship over time between income per capita and manufacturing employment; changing income per capita corresponding to the turning-point of the regression.

SOFAZ was high during 2011-2014, whereas after 2014 it declined almost double. The Central Bank of Azerbaijan had to take radical steps towards the exchange rate policy in order to stabilize the fiscal environment.

The Central Bank of Azerbaijan identified the new fixed exchange rate of USD to AZN as 1.05 AZN on 21 February 2015 (Statement of the Central Bank, 2015). Secondly, the Central Bank of Azerbaijan declared “a floating exchange rate” and a second devaluation on 31 December 2015 as 1 USD=1.5610 AZN (Statement of the Central Bank, 2015). According to The Central Bank of Azerbaijan, this action created more maneuvering capabilities for the government to adapt to the national currency value accordingly to the oil prices. However, following that year fifteen banks closed because they could not meet the necessary capital requirements.

Although foreign currency accumulation in SOFAZ helped Azerbaijan to overcome regulation issues about appreciation and depreciation fluctuations in the economy, having a higher propensity to consume led the government to increase its consumption as a share of the GDP from 10.8% in 2014 to 13.3% in 2016. Moreover, the exchange rate became a political factor in the Azerbaijan economy, which pushed the economy towards non-market mechanisms instead of the well-integrated, and it adapted to the world economy through the manufacturing or tradable sectors.

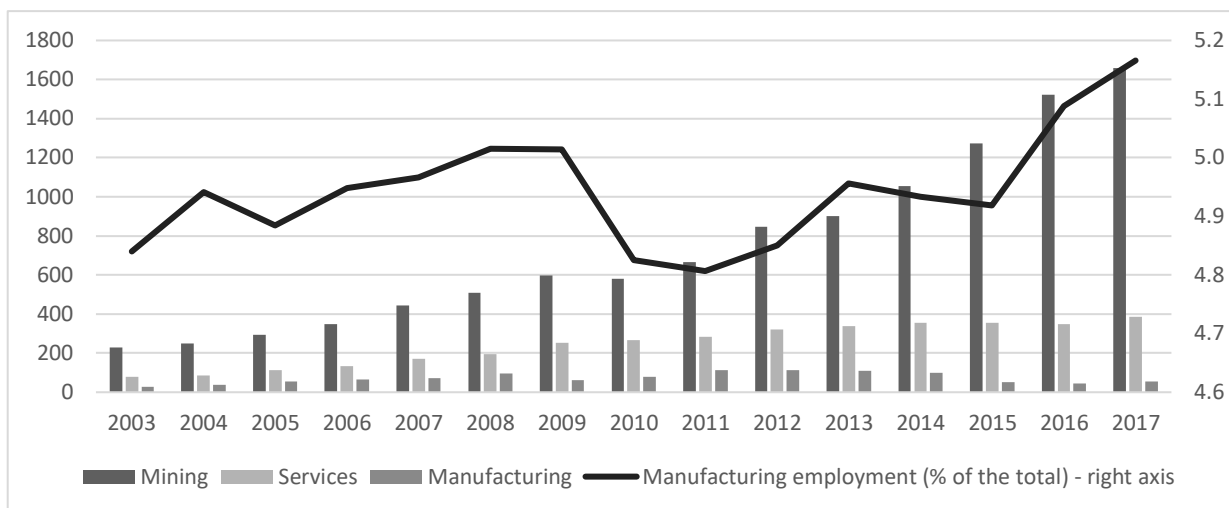
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
8.6	10	10.7	10.3	10.8	10.7	8.4	11.1	10.8	10.1	10.1	11.1	10.8	12.4	13.3

Table 1. General government final consumption expenditure (% of GDP)

Source: World Bank national accounts data, and OECD National Accounts data files.

Elevated government expenditures on the backstory of the exchange rate appreciation lead to a real wage increase in services (non-tradables). There was rapid real wage growth, initially in the mining sector between 2003 and 2017 (Figure 4), as consistently envisioned in the Dutch disease hypotheses with the resource movement effect. It overlapped with the increases in crude oil extraction and exports until 2011 when the extracting industry was adapting to the new global demand and prices. After 2011, the extraction and exports remained stable, mainly due to technological advances before 2010 and 2011. Alongside the mining industry, in 2017, the real wages in services grew roughly 5 times and in manufacturing 3.8 times relative to 2003 indicators. Meanwhile, the manufacturing sector did not show consistent growth during high oil revenue, as well as real wage appreciations in mining and services sectors.

According to the original model of Corden and Neary (1982), real exchange rate appreciation is the result of the increased prices of non-tradable or service sector sourcing from high oil prices (spending effect). However, this assumption is true if the energy sector uses relatively few resources by not leading the resource movement effect of Dutch disease.



Figures 4. Average monthly real wages and salaries by sectors of the economy, in USD
Base year 2003.

Source: The State Statistical Committee of Republic of Azerbaijan

As the aggregate demand shifts outward resulting from government expenditures when labor is mobile, high oil prices will stimulate workers to leave the oil and manufacturing sectors and go to the services sector. In this case, due to the labor supply shortage, the oil and manufacturing sectors will increase their wages. After the sharp commodity price downfalls in the international markets (2014-2015), we still observe decent increases in the real wages of the mining sector, which shows consistency with the literature. Also, Figure 4 shows manufacturing employment as a percentage of total industrial employment.

Excluding such years as 2009, 2014, and 2015 respectively (because of Global financial crises and sharp commodity price downturns), the services sector always had a higher growth rate compared to the manufacturing sector (Figure 5). As Kalcheva and Oomes (2007) depicted, the dominance of the services sector growth over the manufacturing sector cannot be evidence of Dutch disease, simply because that sector started to develop only after the collapse of the Soviet Union and the radical structural transformations. However, there is an interesting trend. During the high oil prices on the international markets and accordingly high oil revenues, the services sector showed gradual growth compared to a gradual recession of manufacturing. Basically, having the largest manufacturing subsectors, such as the production of the oil and chemistry products after food production

, the main strength of manufacturing growth is based on the oil and gas sector as well. Accordingly, declines in oil and gas output lead to a decline in manufacturing too.

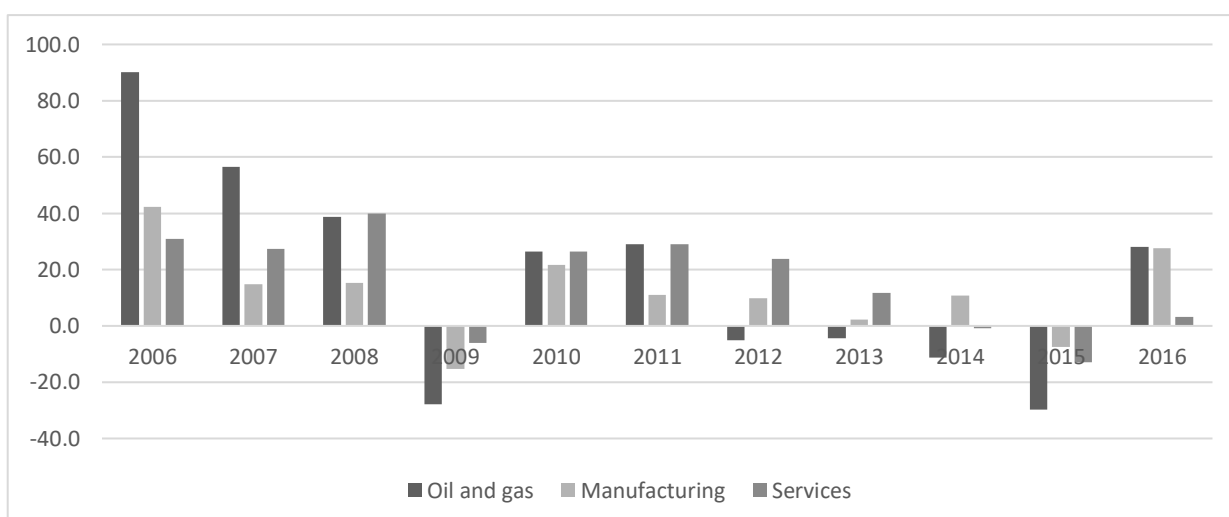


Figure 5. Sectoral Economic Indicators – Output Growth by Sector, 2006-2016.
Annual Percent change relative to the previous year.

Source: The State Statistical Committee of Republic of Azerbaijan

Previously mentioned tendencies among the sectors of the Azerbaijan economy are the result of a booming sector. Subsequently, the relationship between the oil and gas and manufacturing sectors is the result of exchange rate regimes sourcing from international commodity prices and oil revenue, which led to the de-industrialization path signaling the Dutch disease hypotheses.

5. Examination of the Policy Responses

The national government always considered effective revenue management and diversification actions; however, most of them used were mainly political tools on the eve of elections. It became clear in 2014-2015 that dependence on the oil prices and revenue raised many challenges for the Azerbaijani economy. Global Financial Crises and recent downturns in oil prices influenced GDP growth, inflation, investments, and sectoral outputs. For this reason, we can observe such comprehensive and multidimensional strategic approaches of the national government level starting in 2016.

After the 2014-2015 period, the most important policy response was The Strategic Roadmap of the Azerbaijan Republic on National Economic Perspectives in 2016. The document considers twelve strategic roadmaps in eleven sectors of the economy and makes responsible, appropriate policies for the identified targets. Establishment of the Legal Entity of Public Law Center for Analysis of Economic Reforms and Communication was another crucial step to build a holistic framework for the application and monitoring of the policies. Meanwhile, various other decisions by the higher levels were made in order to minimize the effects of future commodity price shocks. Table 1 summarizes the main policy responses before and after the so-called “era of the low oil prices” (2014-2015).

Authority and date	Name of the policy/program	Brief characteristics
Decree of the President of the Republic of Azerbaijan No. 128 dated 15 July 2004	Long-Term Strategy for the Management of the Oil Revenue	Identifies the main principles of oil revenue management and the middle-range cost policy.
Order of the President of the Republic of Azerbaijan No. 128 dated 15 July 2004	“Azerbaijan 2020: Outlook Into The Future” Concept Of Development	The main strategic view of the concept is to take account of the current opportunities and resources and attain a stage characterized by sustainable economic growth and high social welfare, effective state management and supremacy of the law, the full assurance of all human rights and freedoms, and the active status of the civil society in the country’s public life.
Order of the President of the Republic of Azerbaijan No. 212 dated 10 January 2014	State Program on the Development of Industry in the Republic of Azerbaijan in 2015-2020	The program aims to increase the competitive ability of the industry by upgrading its structure and increasing the non-oil GDP. Science, innovation, and human capital development are the main objectives of the state program.

Decree of the President of the Republic of Azerbaijan No. 745 dated 18 January 2016	Additional Actions to Investment Promotions	Institutional and legal support within the program of "State Program on the development of industry in the Republic of Azerbaijan in 2015-2020"
Decree of the President of the Republic of Azerbaijan No. 760 dated 3 February 2016	Establishment of the Legal Entity of Public Law Supervision of Financial Markets	Ensuring transparency and agility by creating and supporting additional regulations for securities markets, investment funds, banking and insurance, as well as payment systems, to respond to the recent developments in the world economy.
Decree of the President of the Republic of Azerbaijan No. 811 dated 1 March 2016	Additional Measures on Promotion of the Non-oil Products	Financially supporting non-oil exporters at the expense of the state budget. 3 % of the customs value of the exported products will be paid as the export promotion for the non-oil products.
Decree of the President of the Republic of Azerbaijan No. 879 dated 20 April 2016	Establishment of the Legal Entity of Public Law Center for Analysis of Economic Reforms and Communication	Organization of the necessary analytical framework of the state economic reforms among the government agencies and institutions. Identifying, offering, and implementing particular economic policies which adapt the national economy to the global competition.
Decree of the President of the Republic of Azerbaijan No. 995 dated 15 July 2016	Financial Stability Committee	To minimize the effects of sharp decreases in oil and gas revenue. Taking advance steps to protect the negative influences of the global crises in the middle and long-term periods.
Decree of the President of the Republic of Azerbaijan No. 1138 dated 6 December 2016.	The Strategic Roadmap of the Azerbaijan Republic on National Economic Perspectives	Aims to increase sustainable economic and social development of Azerbaijan by responding to the global challenges and inclusiveness of the competition.

Table 2. Main policies of Azerbaijan Republic

Additionally, the State Development Program of the Azerbaijan Republic on Economic and Social Development should include the years 2004-2008 and 2009-2013, as well as the current period of 2014-2018, as the main focus on regional development. The program encompassed such objectives as improving local production, enhancing entrepreneurship potential, increasing employment, and stimulating exports-oriented production. Nonetheless, sectoral output data (Figure 5) is inconsistent with the targets and objectives of the indicated policy responses before and after the low oil and gas price era. After such comprehensive policy mechanisms and non-oil development initiatives, the rural regions of Azerbaijan are underperforming. According to the year's data from 2017, the three largest sources of household revenue are, free farming – 29.3%, patronage – 18.1%, and pension – 15.5%, while the private sector is 4.2% and agriculture is only 0.4% of household revenue (The State Statistical Committee of the Republic of Azerbaijan).

6. Conclusion and Discussions

This study sought to investigate what the patterns of the de-industrialization process are through the resource movement effect and spending effect of Dutch disease hypotheses. In order to do so, two research questions were constructed. Does the data show direct and indirect de-industrialization patterns as the result of resource

movement and spending effects in Azerbaijan? What are the policy responses of the national government as a response to critical years like 2008-2009 and 2014-2015?

The main findings were based on the descriptive statistics of the exchange rate, real wages, and that sectoral output indicated lowering tendencies in industrial employment and that output paralleled with the negative shocks of global financial crises and sharp commodity price declines. The national government created more sophisticated policy responses after the “low oil price” era; however, prior considerations concerning diversification and regional developments are not consistent with the statistical data. The economy of Azerbaijan is still dependent on the revenue from crude oil and gas exports.

The time frame is short but despite that, there was enough time to analyze recent policy responses and the government acknowledges the challenges of the oil-dependent economy. Six important policy responses were presented in only one year. Manufacturing output started to show noteworthy growth in 2016, compared to previous years; however, more powerful emphasis should be directed towards the non-oil sector development and industrialization. Otherwise, de-industrialization patterns will keep occurring in upcoming years as well.

The evaluation of this paper, based on the latest timeline of Azerbaijan economy, supports previous de-industrialization claims from Hasanov (2013) and Gurbanov et al. (2017). Depicted data on the falling manufacturing employment and output are consistent with the work of Sadik-Zada et al. (2019). With their work, Gurbanov & Merkel (2009) indicated three successful countries (Norway, Indonesia, and Botswana) where Dutch disease effects were reduced. Assuming those same tendencies are applicable to the Azerbaijan economy, some further policy implications and suggestions regarding de-industrialization are mentioned below.

A centralized wage formation system can avoid overall wage increases sourcing from a booming sector, as in Norway a similar decision has been made. It will allow calculating productivity increases in the manufacturing sector via neutral institutions. This helped Norway to limit the resource movement effect and direct de-industrialization. Furthermore, Azerbaijan should limit the transfers from SOFAZ to the state budget and subsequently, regulating government expenditures in order to overcome indirect de-industrialization. Finally, exchange rate policies should be developed to protect foreign trade structures and regulate competition-related issues.

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