

# The Impact of Trade Liberalization on the Import Growth: Evidence from Four Recently Acceded Members of WTO

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## Abstract

This paper intends to show that trade liberalization has had a notable effect on the import growth of four developing countries that have joined the WTO in the year 2000: Albania, Georgia, Jordan and Oman. The Random Effects (RE) estimator, the Fixed Effects (FE) estimator and the Generalized Method of Moments (GMM) have been applied to the panel data models and a negative coefficient has resulted for the tariffs imposed on the imports, which confirms that tariff barriers and import growth move in different directions. The results also indicate that joining the WTO and growth in domestic income have a positive effect on the import growth, while both real effective exchange rate and foreign exchange reserves have negative effects on the import growth. Therefore, trade liberalization can be an effective policy for increasing the import growth in the selected developing countries.

**Keywords:** Trade liberalization; Import growth; Random effects; fixed effects; GMM.

## 1. Introduction

There is a close relationship between trade strategies and development in different countries. Several developing countries began to follow an economic trade policy called “Import Substitution Industrialization (ISI)” after the Second World War, which emphasizes the importance of substituting foreign import with domestic productions for rapid industrialization.

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In practice, the result of applying this policy was slower growth in these countries in the long-run. Focusing on import-competing activities could affect the exchange rates, which decreased both export earnings and supply of foreign exchange in turn. Therefore, trade liberalization policies have been introduced to remove the effects of ISI policy and help the developing countries to speed up in growth and industrialization [11]. This paper intends to show the effects of trade liberalization on the import growth of selected developing countries. Based on the Endogenous Growth model and Standard Partial Equilibrium trade theory, trade liberalization can lead to GDP growth through increase in exports by transferring technologies between countries (Goldar & Kumari, 2003; Khan, 1997; Laird, 1997). Most developing countries have a labor-intensive production pattern, while they tend to import most of their essential capital-intensive goods and services from other countries due to comparative advantage issues [11]. Trade liberalization can lead to the purchase of capital goods from other countries through lower tariff rates and promote technological advances through an increase in imports [8]. World Trade Organization (WTO) is a global organization which has been established to help open international markets for trade. Defined by the WTO, there is a group of countries called Recently Acceded Members (RAMs) including 19 members that negotiated and joined WTO after 1995. This group of countries agreed on trade liberalization and less commitments in the negotiations by getting a member of the WTO. Four of these have been chosen for this study: Albania, Georgia, Jordan and Oman. All four acceded in the year 2000, making it possible to compare the effects of trade liberalization on the imports before and after joining the WTO. As mentioned before, this paper intends to show that trade liberalization has had a notable effect on the import growth of four countries: Albania, Georgia, Jordan and Oman. Table 1 presents a summary of average tariff rates and import growth before and after joining the WTO. As it can be seen, by decreasing the average tariff rates on imports after joining the WTO, the average import growth has increased for all the mentioned countries. The biggest improvement has occurred in Georgia which moved from a negative import growth to a high positive growth.

**Table 1:** Import growth and tariff rates before and after joining the WTO

Country	Before joining the WTO (1990-2000)		After joining the WTO (2001-2017)	
	Avg. tariff rates	Avg. import growth	Avg. tariff rates	Avg. import growth
Albania	14.32	9.24	5.86	13.96
Georgia	11.74	-3.83	4.45	18.55
Jordan	16.27	4.97	11.59	12.18
Oman	8.49	7.33	4.78	14.98

The Heritage Foundation has developed a trade policy grading scale which provides a definition for different levels of protection in different countries. This trade policy grading scale is a factor that contributes directly to economic freedom and is used by the Heritage Foundation to calculate an annual Index of Economic Freedom. The trade policy grading scale categorizes the countries base on their level of trade protection in five groups: *very low* protection level which is associated with the countries that have an average tariff rate less than 4% and/or very low non-tariff barriers; *low* protection level which is associated with the countries that have an

average tariff rate in the range of 4-9% and/or low non-tariff barriers; *moderate* protection level which is associated with the countries that have an average tariff rate in the range of 9-14% and/or moderate non-tariff barriers; *high* protection level which is associated with the countries that have an average tariff rate in the range of 14-19% and/or high non-tariff barriers; *very high* protection level which is associated with the countries that have an average tariff rate greater than 19% and/or very high non-tariff barriers that practically close the market to imports [15].

Table 2 presents the changes in the level of protection for the selected countries as a result of the changes in the tariff rates by joining the WTO. The biggest change has occurred in Albania by moving from the high protection level to the low protection level. Georgia and Jordan both improved one level and although Oman has stayed in the same level of protection, its average tariff rate decreased significantly by joining the WTO.

**Table 2:** Classification of countries based on the Heritage Foundation trade policy grading scale: 1995-2000 before and after joining the WTO

Country	Before joining the WTO	After joining the WTO
Albania	High protection	Low protection
Georgia	Moderate protection	Low protection
Jordan	High protection	Moderate protection
Oman	Low protection	Low protection

The rest of the paper is organized as follows. Section 2 describes the evolution of trade policy in Albania, Georgia, Jordan and Oman. Section 3 provides empirical evidence on related literature. Section 4 describes the model and related panel data methods as well as different variables and data sources. Section 5 reports the empirical results of both random effects (RE) and fixed effects (FE) estimations as well as the results of generalized method of moments (GMM) estimation. Finally, a summary and conclusion is provided in section 6.

## 2. Evolution of trade policy in the selected countries

This section describes the trade policies in the selected countries including Albania, Georgia, Jordan and Oman, and their joining process to the WTO.

### 2.1. Albania

Since 1994, Albania's government imposed intense economic isolation by controlling all economic activities and completely forbidding private ownership. This reduced the country's economic relationships with other countries to an absolute minimum. Finally, the government of Albania recognized that in order to increase the economic well-being, the country should try to open trade with other countries and in November 1992, it requested accession to the General Agreement on Tariffs and Trade (GATT). So, in December of the same year,

a Working Party was established by the GATT to see if the government of Albania can accede the General Agreement. Therefore, Albania's government started passing new legislations that provided open competition, private ownership, bankruptcy, foreign investment and lots of other elements required for a country to move toward a modern trade policy regime. In January 1995, the GATT 1947 Accession Working Party was transformed into a WTO Accession Working Party and finally on September 8<sup>th</sup>, 2000, Albania was listed as a WTO member [17]. By joining the WTO, Albania has engaged in a transformation process from an isolated economy to an open market based economy which provides privatization for small, medium and large enterprises. As a result of trade liberalization in the form of decreasing the tariff rates from 30 to 20 percent and imposing no tariff quotas, the trade share of GDP has increased for Albania. It also helped the per capita GDP to more than double during the period of 2002 to 2008 [21].

## **2.2. Georgia**

Although Georgia is a relatively small country with a low population, it has an important strategic location between the Black and Caspian seas, which allows it to have a major trading role in the transits happening in this area. Pursuing the aim of transforming from a centrally-planned economy to an open market-oriented economy, the government of Georgia requested accession to the World Trade Organization in June 1996. In July of the same year, a Working Party was established by the General Council to see if the government of Albania could accede the World Trade Organization. Therefore, Georgia's government started passing new laws, especially in the major trade related areas such as different business legislation, standardization and certification, air transport, intellectual property, privatization and many other elements required for a country to move toward a modern trade policy regime. The country had access to different technical assistants from WTO and other international organizations while imposing the new laws so that they could be in full compliance starting from September of 1998 and was able to use different sources of help in the reform process [18]. Finally, on June 14<sup>th</sup>, 2000, Georgia was listed as a World Trade Organization member [21].

## **2.3. Jordan**

In the 1970s and 1980s decades, Jordan's development plans heavily relied on the development of human resources. The point was to increase the level of external financing and remittances of the Jordanian workers living abroad. An economic stabilization policy was introduced in the late 1980s in order to make the government of Jordan meet the external obligations, which was a successful program. In January 1994, the government of Jordan requested accession to the GATT. In late January of the same year, a Working Party was established by the GATT to see if the government of Jordan could accede the General Agreement. The government of Jordan started new reform policies mostly focusing on trade liberalization and also privatization. The medium-term aim of the Jordan reform program was to get a 6 percent growth in GDP and a 10 percent growth in exports annually [19]. Finally, on April 11<sup>th</sup>, 2000, Jordan was listed as a WTO member [21]. Moving toward trade liberalization, as stated in [19], "the government had drafted a customs law based on international best practice. Actions to improve customs clearance included streamlining of the temporary entry and duty drawback regime, a "green channel" for easy clearance of imports and computerization and upgrading and training of customs staff." Accession to the WTO and removing the trade barriers, gave Jordan the chance to

link its trading system with other members of the WTO.

#### **2.4. Oman**

The Sultanate of Oman, an old trading country, believed that an international rule-based system could provide strong world trade, especially for a developing country. The government of Oman requested accession to the World Trade Organization in April 1996 and in June of the same year, a Working Party was established by the General Council to see if the government of Oman could accede the World Trade Organization. Moving toward a modern economy with open trade relationships, customs valuation and intellectual property legislations required a great level of change in order to adhere to the WTO agreement. Additionally, Oman's privatization program was moving forward slowly as well [20]. Finally, on November 9<sup>th</sup>, 2000, Oman was listed as a WTO member [21].

### **3. Literature Review**

There are several empirical studies that support the view that trade liberalization can increase exports relative to imports so that there is a positive effect on the trade balance. The authors in [1] investigated the impact of trade liberalization policy, including the changes in tariff and non-tariff barriers and also transportation costs, on the U.S. merchandise trade growth. They used two different methods of partial equilibrium analysis and computable general equilibrium analysis and found a significantly positive impact of trade liberalization policy on the trade balance of the U.S. over the period of 1980 to 2006. Their study showed that while trade liberalization policy increased the U.S. export by 35-40 percent, it explained 25 percent of the import growth, which caused an increase in the trade balance. The authors in [5] used a Balance of Payments Constrained Growth (BPCG) model to assess the impact of trade liberalization on the balance of payment equilibrium growth rate in Mexico and compared their results with the previous studies. In their model, they used two different types of imports including intermediate and final goods as well as two kinds of exports including manufactures and primary products. The difference between their model and previous studies was that they took the composition of import goods and export commodities into account, especially the elasticity of intermediate goods with respect to manufactured products. In contrast with the previous studies, they got the result that the balance of payment equilibrium growth rate has increased for Mexico by trade liberalization. Their study also pointed to the importance of using real exchange rates in estimating the related model. The authors in [8] used an Autoregressive Distributed Lag method (ARDL) to estimate the effect of trade liberalization on aggregate import in Bangladesh during 1972-2005 and found a significant negative relationship in the short-run, but not a significant effect in the long-run. They also showed that the domestic income is the most important determinant of the aggregate import demand, while they found low negative impacts of both foreign exchange reserves and relative prices of imports. The author in [12] used a tariff-ridden import price index to examine the Melo-Vogt (1984) hypothesis in regards to the determinants of the import demand and found a strong positive relationship between trade liberalization and income elasticity. Melo and Vogt studied the case of Venezuela and as stated in [12], they provided two hypotheses. First, by an increase in the degree of import liberalization, there would be an increase in the income elasticity of import demand as well. Second, price elasticity of import demand would increase as a result of economic progress. The author in [12] tested these two hypotheses for the case of

Thailand emphasizing the manufacturing sector and imports of capital goods. Although the results of his study supported the first hypothesis of Melo and Vogt, the results did not support the second hypothesis.

The authors in [2] analyzed the impact of trade policy reforms towards trade liberalization in India on the manufacturing industry's pattern of trade specialization. This study demonstrated that the reduction in tariff rates disposed the related industries to import more capital-intensive goods from other countries and move toward getting more specialized. Based on the comparative advantage issues, the technological structure of industries in India transferred from low-technology to medium-technology sectors during the period 1990-2006. The study presented in [4] compares the consequences of trade liberalization as a reduction in the tariffs on intermediate inputs vs. a reduction in the tariffs on the final outputs. They state that, "lower output tariffs can increase productivity by inducing tougher import competition, whereas cheaper imported inputs can raise productivity via learning, variety, and quality effects." The study shows that a reduction in the tariffs on intermediate inputs has a significantly higher impact on the firm's productivity compared to a reduction in the tariffs on the final goods. This study estimates the relationship between the import growth of four developing countries including Albania, Georgia, Jordan and Oman with different possible effective factors, such as, real effective exchange rate, foreign exchange reserves, domestic income and the tariff rates to see if decreasing the tariff rates as a measure of import liberalization would have a positive effect on the import growth. I apply both random effects (RE) and fixed effects (FE) estimators as well as the generalized method of moments (GMM) to the panel data models to estimate this relationship.

#### 4. Methodology and Data

Traditional theories define the changes in the import demand as a function of changes in the relative price of import and domestic income, where relative price of import is the ratio of domestic price to the price of import substitutes [15]. Due to the difficulty in finding data for the relative price of import, the author in [15] used a substitute variable for it called the real effective exchange rate. On the other hand, the author in [6] introduced another variable called foreign exchange reserves which can be used in the import demand functions as well. His assumption was that since the main source of foreign exchange reserves is export earning, expanding the exports could increase the imports of capital goods by relaxing the foreign exchange constraint. Based on the previous studies and looking for the impact of trade liberalization as the changes in the tariff rates, this study assumes the import growth function as the following:

$$M_t = \beta_0 + \beta_1 Y_t + \beta_2 REER_t + \beta_3 FER_t + \beta_4 T_t + \beta_5 D_t + u_t \quad (1)$$

where  $M_t$  is import growth in period  $t$ ,  $Y_t$  is growth in domestic income,  $REER_t$  is the growth in real effective exchange rate,  $FER_t$  is the growth in foreign exchange reserves,  $T_t$  is the tariff imposed on the imports as a measure of trade liberalization and  $D_t$  is a dummy variable which is used to catch the effects of joining the WTO.  $D_t$  gets a zero value for the years before 2000 and gets a value of one for the years after that. Following the author in [15] and based on the hypothesis of the lagged adjustments of each year's import growth relative to the growth of the previous period, dynamic panel data analysis can be used to estimate the growth import function presented in equation (1) by applying both fixed-effects (FE) and generalized method of moments

(GMM) to the panel data models.

In a basic dynamic panel data model, the aim is to estimate a population regression function as follows [7]:

$$E(y|y - 1, w, \alpha) = \delta y - 1 + w' \varphi + \alpha \quad (2)$$

where  $w$  contains time-variant and invariant observable random variables and  $\alpha$  contains unobservable random variables. There could be two situations:  $\alpha$  could be uncorrelated with each  $w$  and so not systematically related to the observable in interest random variables; on the other hand,  $\alpha$  could be correlated with some of the observable variables which is the case that may cause problems in the estimation due to putting  $\alpha$  in the error term [3, 10]. In the modern econometrics, we say  $\alpha$  could be treated either as a “random effect” or as a “fixed effect”. The term “random effect” is related to the first case where  $Cov(\alpha, w) = 0$  and the term “fixed effect” is related to the second case where  $Cov(\alpha, w) \neq 0$  [16]. Based on the fixed effects estimator, time independent effects are imposed to consider the constant factors over time related to each country [15]. Assuming basic panel data model characteristics such as small  $T$  and large  $N$ , equation (2) can be changed to the following [7]:

$$y_{it} = \delta y_{i,t-1} + w'_{it} \varphi + u_{it}, \quad u_{it} = \alpha_i + v_{it}, \quad i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T \quad (3)$$

where  $v_{it}$  are error terms. Equation (3) presents a fixed effect estimator. The fixed effect estimator is a good choice for the purpose of this study as in many applications, allowing the unobservable variables to be correlated with the observable variables is the main point of using panel data. The fixed effect estimator is consistent only under a set of particular assumptions. As presented by the author in [16], the first assumption is that the observable or explanatory variables must be strictly exogenous conditional on the unobservable variables, so that:

$$E(u_{it}|w_i, \alpha_i) = 0 \quad (4)$$

The second assumption is that the matrix of time-demeaned observable variables must have a standard rank which emphasizes on the fact that why we cannot use time-constant variables in a fixed effects estimation. This assumption can be presented as:

$$rank(\ddot{w}' \ddot{w}) = K \quad (5)$$

These two assumptions guarantee that the fixed effects estimator is unbiased, while the third assumption ensures that the FE estimator is the most efficient estimator. The third assumption implies that the error term has a constant variance across time and can be shown as:

$$E(u_i u_i' | w_i, \alpha_i) = \sigma_u^2 I_T \quad (6)$$

If any of these particular assumptions which are necessary for the fixed effect estimator to be efficient fail, another approach that can be useful is generalized method of moments (GMM). Assuming a general weighting matrix in the quadratic form and letting  $\widehat{W}$  to be a symmetric positive semi-definite matrix in the form of an

estimator, a GMM estimator of  $\beta$  can be defined as [16]:

$$\hat{\beta} = (X'Z\widehat{W}Z'X)^{-1}(X'Z\widehat{W}Z'Y) \quad (7)$$

which solves the following problem:

$$\min_b [\sum_{i=1}^N Z'_i(y_i - X_i b)]' \widehat{W} [\sum_{i=1}^N Z'_i(y_i - X_i b)] \quad (8)$$

where the whole expression (8) is a quadratic function of  $b$  and  $X'Z\widehat{W}Z'X$  in equation (7) is assumed to be nonsingular. The data that has been used in this study consists of annual data for the period 1990-2017 which were obtained from various reports of the World Bank, World Trade Organization, International Monetary Fund and International Financial Statistics. For the variable of import growth, growth has been calculated for the imports of goods and services in current U.S. dollars relative to the previous year. These import values, as mentioned by the World Bank, “include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.” For the variable of growth in domestic income, growth has been calculated for the GDP data in constant 2005 U.S. dollars relative to the previous year. Defined by the World Bank, “GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.” For the variable of real effective exchange rate, the related index has been used assuming the year 2005 as the base (2005=100). The real effective exchange rate is calculated as the ratio of the nominal effective exchange rate to a price deflator or index of costs. As defined by the World Bank, the nominal effective exchange rate is “a measure of the value of a currency against a weighted average of several foreign currencies.” The data that has been used in this study for the variable of foreign exchange reserves, defined by both International Monetary Fund and International Financial Statistics, consists of different monetary authorities’ claims on nonresidents which is needed for the balance of payments but not include holdings of currency by the issuing country. These claims can be in different forms of foreign banknotes, bank deposits, treasury bills, and short- and long-term government securities. For the variable of import tariffs, the simple tariff average has been used according to the tariff line averaging method which assigns equal importance to all tariff lines and considers the duties of all tariff lines included in the selection for a product group, so that the simple average equals to the ratio of the sum of duties to the number of lines. Although the simple average tariff tends to underestimate the level of liberalization due to attribute not a precise weight to an item, it has been used in this study because the data on the weighted average was not as complete as the simple one. It is also important to mention that on the other hand, weighted average tariff tends to overestimate the level of liberalization due to assigning higher weights to the tariff lines with lower duties [9].

## 5. Results

Table 3 presents the results of the random effects estimator vs. the results of the fixed effects estimator. The

coefficient for domestic income or GDP growth is positive and significant in both estimators, which indicates that an increase in the domestic income growth would increase the import growth as well. However, the resulted coefficient from the fixed effect estimator is smaller than the resulted coefficient from the random effect estimator. The negative coefficient for the real effective exchange rate, which was a result in both estimators, confirms that import growth and REER move in different directions. However, a one percent increase in the real effective exchange rate would decrease the import growth more using the fixed effect estimator compared to the random effects estimator. Also, the coefficient of foreign exchange reserves is negative in both estimators, confirming that an increase in the foreign exchange reserves would decrease the import growth. However, the coefficients for the foreign exchange reserves are not statically significant in both estimators. The negative and significant coefficient for the tariff rates on the imports of the selected countries, confirms that import growth and tariff rates move in different directions. The resulted coefficients indicate that a one percent increase in the tariff rates would decrease the import growth more using the fixed effect estimator compared to the random effects estimator. Finally, the positive and significant coefficient of the dummy variable confirms the positive effect of joining the WTO on import growth and this effect is slightly higher when using the fixed effect estimator compared to the random effect estimator.

**Table 3:** Results of the random effects and fixed effects estimators

	C	Y	REER	FER	T	D
Random effects estimator						
M	-0.04	2.15	-0.51	-0.45	-0.53	0.09
t-statistics	-2.59*	9.79*	-1.89*	-2.73	-2.06*	4.77*
Fixed effects estimator						
M	-0.19	1.96	-0.59	-0.48	-0.63	0.13
t-statistics	-3.92*	8.57*	-2.32*	-2.81	-3.39*	6.21*

\*denotes statistical significance at the 95% levels.

Table 4 presents the results of the generalized method of moments (GMM) estimator. The coefficient for domestic income or GDP growth is positive and significant but smaller than both estimated coefficients in the fixed effect and random effect estimators. The negative coefficient for the real effective exchange rate is slightly higher than the estimated coefficients using the two previous estimators, which confirms that a one percent increase in the real effective exchange rate would decrease the import growth more when using the generalized method of moments compared to the random effects and the fixed effect estimators. The coefficient of foreign exchange reserves is negative and significant here, while it was statically insignificant using the two previous estimators. Also, the related coefficient is higher when using the generalized method of moments compared to the random effects and the fixed effect estimators. The coefficient for the tariff rates on the imports of the selected countries is negative and significant here and even greater than the related previous coefficients, which confirms a bigger effect of decrease of the tariff rates on the import growth. Finally, the coefficient for

the dummy variable is significantly positive and the amount is the same as the one resulted from the fixed effect estimator.

This shows that joining the WTO had a positive impact on import growth of the selected countries.

**Table 4:** Results of the generalized method of moments (GMM)

	C	Y	REER	FER	T	D
M	-0.46	1.75	-0.71	-0.66	-0.84	0.13
t-statistics	-6.83*	6.76*	-2.94*	-4.48*	-5.01*	5.94*

\*denotes statistical significance at the 95% levels.

## 6. Summary & Conclusion

Trade liberalization can lead to GDP growth through increase in exports by transferring technologies between countries (Goldar & Kumari, 2003; Khan, 1997; Laird, 1997). It can also lead to the purchase of capital goods from other countries through lower tariff rates and promote technological advances through increase in imports [8]. There are several empirical studies that support the view that trade liberalization can increase exports relative to imports so that there is a positive effect on the trade balance. This study estimates the relationship between the import growth of four developing countries that has joined the WTO recently including Albania, Georgia, Jordan and Oman with different possible effective factors such as real effective exchange rate, foreign exchange reserves, domestic income and the tariff rates to see if decreasing the tariff rates as a measure of import liberalization would have a positive effect on the import growth. Random effects (RE) estimator, fixed effects (FE) estimator and generalized method of moments (GMM) have been applied to the panel data models and a negative coefficient has been resulted for the tariffs imposed on the imports, which confirms that an increase in tariff barriers would decrease the import growth. Also, a dummy variable has been used to catch the impact of joining the WTO and the resulted coefficient was positive, which confirms the positive effect of joining the WTO on import growth. The results also indicate that growth in domestic income has a positive effect on the import growth, while both real effective exchange rate and foreign exchange reserves have negative effects on import growth. However, the coefficient for the foreign exchange reserves is not statically significant in both random effects (RE) and fixed effects (FE) estimators, while it is significantly negative by using the generalized method of moments (GMM).

## 7. Recommendations

Domestic income or real GDP growth has the highest effect on the import growth in all three methods followed by the tariff rates which considered as a measure of trade liberalization, the real effective exchange rate which has been used as a substitute for the relative price of import, and finally the foreign exchange reserves which was not even significant in some cases. Therefore, trade liberalization both in forms of accession and reducing

the tariff rates can be an effective policy for increasing the import growth in the selected developing countries along with an exchange rate depreciation policy. However, trade liberalization policy should be imposed to a degree not to have a negative impact on the trade balance through increasing the imports too much relative to exports. Tougher financial regulations in the form of high tariff rates could create an increased cost of capital independent of interest rate levels specially for a developing country [14]. In addition, having a government that is not anti-business, but rather provides a reasonable regulatory trade environment, is another important factor in increasing the import growth. It would really help to recognize business taxes like high tariff rates on imports can disadvantage a country's business compared to foreign competition. That is, shifting taxation on imports from business to individuals would promote a higher growth of import and a more dynamic economy [13].

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