

Trade policy in a sovereign Palestinian State: what are the options in a final settlement?

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Abstract

The Palestinian economic relations with Israel are governed by the Paris Protocol, which because of the asymmetry of power between the negotiating parties, and the incomplete implementation of its provisions contributed to the sluggish growth of the Palestinian economy and its heavy dependency on Israel. Both economic and security conditions call for a re-negotiation of the terms of the Protocol. There is a wide consensus that a final solution to the conflict should provide for a Palestinian state with unambiguous borders, and full control over economic policies. In line with such a final solution, this paper provides an assessment of the impact of different trade and monetary policies, using a general equilibrium model that allows for a quantification of the outcomes. The model used is modified to consider a multi-trade-partners set-up, a differentiated treatment for large and small trade shares, and tariff rate quotas. The paper addresses the unemployment problem in Palestine and assesses its connections with trade policy. Two modelling approaches regarding the relation between wage and employment rates (the upward sloping and horizontal relations) are compared. The results show that a liberal and non-discriminatory trade regime provides the highest benefits for the Palestinian economy. Such trade regime is superior to a continued customs union, and to any trade regime involving new tariffs on trade with Israel. We found evidence of the leverage trade policies have over unemployment, as well the impact the exchange rate regime has on the outcomes of trade policies. Therefore, a full control over trade and monetary policy instruments will improve the capacity of the Palestinian authorities to address the prevailing unemployment and sluggish economic growth.

Keywords: Applied General Equilibrium, Tariff, Quotas, Unemployment, Exchange rates

JEL Classification: D58, E24, F13, F31

1. Introduction

1.1. Background

The course of economic development and trade performance in the Palestinian territories¹ has been shaped by the unusual links with the Israeli economy. After the 1967 war, Israel implemented a policy of economic integration between itself and the occupied Palestinian territories (Missaglia and Valensisi, 2014). The *de facto* customs union consisted in a trade regime that was ostensibly free and without customs borders within the geographical area comprising Israel, the West Bank and Gaza (Arnon, 2007). However, this economic integration is widely acknowledged as asymmetric as all decisions were made by Israel, and predominantly served its own interests (Dessus, 2004). The development of a productive capacity in the Palestinian economy was held back by restrictions and regulations of different sorts (Botta, 2010). Moreover, the Palestinian production for the domestic market was undercut by the economies of scale realized by the advanced Israeli manufacturers (Naqib, 2003). As a result, the Palestinian economy developed structural trade deficits and a high dependency on Israeli goods and labour markets (UNCTAD, 2016).

After the outbreak of the first Palestinian uprising (1987 – 1993), it became clear that the nature of the economic links between Israel and the Palestinian territories needed re-evaluation. In 1994, an economic agreement known as the Paris Protocol² was signed between the government of Israel and the Palestine Liberation Organization. This protocol was initially concluded for a transitional period of five years (1994 – 1999). During the negotiations, the architects of the Protocol avoided difficult issues of sovereignty, such as the creation of a Palestinian state with full control of external borders and ownership of fiscal and monetary policies, which were deferred to the final status negotiations. Instead, an interim agreement was designed in a way that the two economies would coexist under Israeli-controlled external borders (Arnon and Weinblatt, 2001). This agreement promised the Palestinians high living standards through two channels: firstly, the free access for Palestinian labour to the Israeli market, given that employment in Israel was an important source of income for the Palestinian households³, and secondly the immediate transfer of tax revenue collected by Israel to the Palestinian National Authority (PNA). This mechanism known as tax clearance aimed at providing the new Authority with an immediate source of revenue, while building the internal capacity to operate the institutions of a state (Aix Group, 2005; Frisch and Hofnung, 1997).

¹ Palestinian territories refer to the West Bank and Gaza.

² The terms “Paris protocol” and „Protocol“ are interchangeably used in this paper

³ Before the first Palestinian uprising, Palestinian workers employed in Israel made up between 30% to 40% of total employment in the West Bank and Gaza. Labour income from Israel was 30% and 46% of GDP on average over the period 1989- 93 respectively in the West Bank and in Gaza (Arnon and Weinblatt, 2001).

The protocol was imperfect in many regards, in part due to its transitional nature and in another part due to the asymmetry of power between the two parties (Missaglia and Valensisi, 2014). In contrast to many economic integration agreements, which give more weight to the interests of the smaller parties than their relative economic power would suggest, the customs union between Israel and the Palestinian territories continued to reflect the Israeli customs and was not bilaterally coordinated (Vaggi and Baroud, 2005). While it recognized that the two parties may have different interests and priorities, it only offered the Palestinians a limited policy space. The PNA could only set tariffs on a few imported goods and within certain limits (World Bank, 2002). The Protocol provisions also granted Israel the right to amend the common tariff book, with the only restriction being to give the PNA prior notice of the change (UNCTAD, 2012). While the Protocol provisions grant the PNA the possibility to enter into bilateral trade agreements with third countries, the implementation of the agreements signed by the PNA is undermined by the lack of Palestinian control over its external borders (World Bank, 2008). The only working trade agreements in Palestine are those signed by Israel with third countries and which benefit Palestine because of being in a customs union with Israel. Most of these agreements involve tariff rate quotas. However, the quotas in Palestine are not determined by the PNA alone. They are rather negotiated within a joint committee with the Israeli Trade Authority. As of 2012, Palestinian quotas for imports from countries having trade agreements with Israel (and Palestine) were set at 20% of the Israeli pledges (MAS, PCBS, PMA, 2013). A consequence of the Palestinian limited access to the global markets is a trade diversion and a high dependency on Israel (Astrup and Dessus, 2005).

Besides these inherent flaws, the Protocol also suffered from a selective application of its basic conditions (Elkhafif *et al.*, 2014). Against the presupposed free movement of labour and goods, political and military reality imposed a different path. Following the 1991 Gulf war, Israel altered the condition of free movement of Palestinian labour by introducing a limited number of work permits for Palestinian workers in Israel (Etkes *et al.*, 2012). Following a series of terrorist attacks in 1993, Israel started implementing a closure policy, which consists of roadblocks and curfews restricting the movement of goods, and people between Israel and the Palestinian territories, between the West Bank and the Gaza Strip, and within the West Bank (Eltalla and Hens, 2009). Closures were declared on short notice and for different length of time, hence disrupting Palestinian trade flows, increasing transaction costs and creating more uncertainty in the Palestinian economy (Ihle and Rubin, 2013). Closure together with the the work permit policy substantially reduced the supply of the Palestinian labour to the Israeli economy (Flaig *et al.*, 2013a). Subsequently, unemployment rose sharply in the Palestinian territories. The introduction of the closure policy, and the building of a physical barrier that began in September 2000 are important changes reflecting the move towards economic and physical separation between Israel and the Palestinian territories (Del Sarto, 2014).

The poor performance of the Palestinian economy following the signing of the Protocol is widely attributed to the unbalanced design of the Protocol and the lack of an effective monitoring body (Kanafani, 2001). This is a classic case of an imperfect contract, whereby a party can violate the agreement with no significant consequence. The unilateral imposition of

frequent restrictions on the movement of labour and goods by Israel is an illustration of the asymmetry of power between the two parties (Fischer *et al.*, 2001). Another violation of the Protocol's conditions is the frequent withholding of tax revenue collected by Israel on behalf of the PNA. Between 1997 and 2015, the Palestinian revenue withheld by Israel totalled more than USD 3 billion, and the withholding period lasted between one month and two years (UNCTAD, 2015). Withholding the clearance revenue, which accounts for 75% of the PNA's total revenue, weakens the fiscal position of the PNA and increases uncertainty in the economy, which is detrimental to investment and the overall economic activity (Fernández-Villaverde *et al.*, 2015). Furthermore, the protocol did not provide for the transfer of taxes on indirect import from third countries via Israel, resulting in significant fiscal losses to the PNA (Fjeldstad and al-Zagha, 2004). The Protocol also failed to provide the newly created Palestinian Monetary Authority the power to issue an independent currency. The absence of its own currency deprives the PNA of seigniorage revenues and removes a policy tool that could be used to respond to the economy's specific needs and to external shocks (IMF, 2013).

In conclusion, the Protocol failed to bear the desired fruit of rapid growth of the Palestinian economy (Astrup and Dessus, 2001). Although, it was designed for a temporary period of five years, it has been in place for more than two decades and still governs the Palestinian trade relations with Israel and with the rest of the world. Under the current situation, the Protocol is outdated and no longer addresses the challenges faced by the Palestinian economy (UNCTAD, 2016). In this view, a final political settlement to generate a more balanced agreement for long-term healthier economic relations between Israel and a sovereign Palestinian state may contribute to improving the situation. Among scholars and observers, there is a wide consensus that the economic integration with no internal border largely failed (Arnon and Weinblatt, 2001). Consequently, the final settlement needs to entail the creation of economic borders and grant the Palestinians full control over trade and monetary policies (Malul *et al.*, 2008). After exiting the *de facto* customs union with Israel, Palestinian authorities could choose among several trade options. Conceding that the choice of a future trade regime for Palestine would not be determined by economic criteria alone and that political choices are likely to affect the range of possible options, this study provides a quantitative assessment of the potential impact of different trade options, from a purely economic perspective in order to inform the debate.

1.2. Literature review

Some previous studies examined the question of the optimal trade regime for a future Palestinian state, using mostly descriptive analyses. Arnon and Bamya (2007), Vaggi and Baroud (2005), and Elmusa and El-Jaafari (1995) recommended a free trade agreement between Palestine and Israel, on the premise that clear borders are needed between the two economies but that Palestine would be better off if it secures free access to the Israeli market. The authors also argue that Palestine should independently set tax on trade with third countries. Another group of studies (e.g. Kanafani, 1996; Abed, 1996) favoured a better implementation

of the customs union with Israel, arguing that the absence of customs borders, and a proper working customs union with Israel would secure a smoother flow of Palestinian trade and eliminate the need for rules of origins, which could have negative effects on Palestinian exports to Israel. A third group of studies (e.g. Fischer *et al.*, 2001) suggested that the future Palestinian economy should adopt a liberal and non-discriminatory trade regime.

Beside these descriptive studies, only a few estimates of the economy-wide impacts of different trade regimes have been produced for Palestine. Schiff (2002) used cost-benefit analysis to compare different trade options. While such analysis gives first insights into the effects of different trade regimes, it lacks the multiplier and economy-wide effects that trade policy may generate. Other estimates were produced by UNCTAD (2009) using a macro-econometric model. Whereas such a model is suitable to analyse the outcomes of policy change at the macroeconomic level, it lacks the micro-optimization dimension. A CGE framework, in contrast, can support economy-wide analysis of policy change based on microeconomic theory of utility and profit maximization. The first CGE model to address the question of trade policy change in Palestine was developed by Astrup and Dessus (2001, 2005). However, the model had some rigidities, such as the imbedded assumption of the economy being at full employment, which sits at odds with the observed level of unemployment in Palestine. Some of these rigidities were addressed by Missaglia and Valensisi (2014), who extended the previous model by incorporating several of the specificities of the Palestinian macroeconomic context. Nevertheless, the new model similar to the previous does not incorporate a detailed productive structure, as well as a differentiated labour and household accounts to enable a detailed analysis of the effects of different trade options.

Most of the previous studies also ignored the physical and economic separation of the Gaza territory from the West Bank since the beginning of the second Palestinian uprising in 2000. The economy of the two territories exhibit different patterns (IMF, 2016). Moreover, since the blockade of Gaza in 2007, the economic relations between Israel and the PNA are limited to the West Bank (UNCTAD, 2015). To reflect the present economic reality, this paper focuses exclusively on the West Bank. This paper examines the effects of two alternative trade regimes on the West Bank economy, as compared to the current *de facto* customs union with Israel. For this purpose, a Computable General Equilibrium (CGE) model is used, because this group of models is well suited for the assessment of a policy change on the performance and structure of the whole economy (Arndt *et al.*, 2012). The standard model is modified to accommodate the specificities of the Palestinian economy. To calibrate the model, a newly and comprehensive database for the West Bank economy is used with detailed representation of Palestinian trade partners, labour categories, household groups, and production sectors.

The next section presents the specifications of the model used and the distinctive features of the database that serves as benchmark for the model. Section 3 describes the trade options that are simulated. In section 4, we present and discuss the key results of the study. Finally, section 5 draws the main conclusions.

2. Method

2.1. Data

Few Social Accounting Matrices (SAMs) have been developed for the Palestinian territories. A common feature of the previous SAMs by Astrup and Dessus (2001), Bayar (2013), and Missaglia and Valensisi (2014) is the high aggregation of the production sectors in Palestine. Moreover, households, production factors, and trade partners are also highly aggregated. The nature of the interaction between the Palestinian and Israeli economies and the complexity of the trade flows between them on one-side, and between Palestine and the rest of the world on the other side requires a more detailed SAM. Accordingly, the SAM used in this study based on Agbahey *et al.* (2016) addresses the shortcomings of the previous SAMs for Palestine and has several distinctive features. It focuses exclusively on the West Bank economy, which is currently the only Palestinian territory with official trade relationships with Israel since the blockade of the Gaza Strip in 2007. It is extensively disaggregated with 161 accounts, and incorporates a multiple product activity setup, with 38 commodity groups produced by 28 activities. It features seven foreign regions based on the major trade agreements in which Palestine is a member. These include the customs union with Israel, the preferential trade agreements with EU-28, EFTA⁴, USA, Turkey, Jordan and the Greater Arab Free Trade Area (GAFTA). The other countries with the majority not having a specific trade agreement with Palestine are classified under the umbrella of “rest of the world”. The SAM includes 34 tax accounts, among which are seven import tariffs and seven export taxes associated with each trade partner. This detailed disaggregation of trade partners and import/export tax accounts allows for a thorough assessment of different trade options of the West Bank economy. The list of the accounts included in the SAM is supplied in *Appendix 1*.

Table 1 presents the trade shares in the base period (2011) for the seven regions involved in trade with the West Bank. It highlights the predominance of Israel for both West Bank imports and exports. Given these uneven trade shares, the model used is modified to apply a differentiated treatment to regions that account for large and small trade shares of a commodity import and export (see *section 2.2*).

⁴ EU-28 refers to the 28 members of the European political and economic Union, while EFTA stands for the European Free Trade Association formed by Iceland, Liechtenstein, Norway, and Switzerland.

Table 1. Shares of West Bank imports and exports by trade partner in base period (in %)

	Import	Export
Israel	71.3	80.6
USA	0.8	1.4
EU-28 + EFTA	8.3	9.5
Turkey	3.7	0.1
Jordan	5.4	2.9
GAFTA zone	3.8	2.5
Rest of the world	6.6	2.9

Source: Agbahey *et al.*, 2016.

Table 2 presents the tariff rates for different commodity groups (for presentation purposes all commodities in the SAM are grouped into these four categories). Due to the current customs envelope, imports from Israel are free of tariff with the only exception being petroleum products, which are actually indirect imports since Israel is not an oil producer. According to an agreement between the PNA and Israel, tariffs collected by Israel on petroleum products that are re-exported to Palestine are transferred to the PNA (UNCTAD, 2012). Due to the preferential trade agreements, tariff rates on imports from the USA, Europe, Turkey, Jordan and the GAFTA zone are substantially lower than on imports from the rest of the world, which are subject to the Most Favoured Nation (MFN) rates. Noteworthy is that tariff rate quotas are in place in Palestine, mostly on agricultural and food products. With most commodities being imported within the quotas (MAS, PCBS, PMA, 2013), the tariff rates displayed in *Table 2* can be considered the in-quota rates. Therefore, these rates do not fully reflect the level of protection of the domestic food and agricultural sectors in Palestine. *Section 2.2* describes how tariff rate quotas are modelled in this paper.

Table 2. Tariff rates (in %) by commodity groups and by trade partner in the base period

	Agricultural products	Food products	Industrial products	Services
Israel	0.0	0.0	21.0	0.0
USA	0.1	25.1	0.0	0.0
EU-28 + EFTA	0.6	6.3	0.0	0.0
Turkey	0.0	32.3	0.0	0.0
Jordan	0.0	26.0	0.2	0.0
GAFTA zone	0.1	17.8	0.2	0.0
Rest of the world	37.3	58.8	65.4	0.0

Source: Agbahey *et al.*, 2016.

The SAM further encompasses 17 production factors, among which 15 are labour groups classified by nationality (domestic or foreign labour), region of employment (West Bank, Israel, and Rest of the world), education levels (low or high skill), gender and age groups. There is one account respectively for capital and land. Households are disaggregated into 30 groups,

based on income quintiles, region of employment and education level of their economically active members. The SAM provides detailed information on transaction costs represented by three accounts for wholesale, retail trade and transport margins. The reference year is 2011, for it is a relatively “normal year” with respect to political stability between Israel and Palestine, as well as for data availability reasons.

2.2.Model

The model used in this study is an adjusted version of the standard STAGE-2 model (McDonald and Thierfelder, 2013). STAGE-2 belongs to a suite of single-country SAM-based CGE models. This class of models represents the whole economy with clear interconnections between the factor markets, the commodity markets, and the different institutions in an economy. STAGE-2 is based on microeconomic theory of utility and profit maximization, and assumes all markets to be in equilibrium. Therefore, any change in the economy is mediated through the price mechanism and the model can assess the impact of such a change on the whole economy (Arndt *et al.*, 2012). The model uses a combination of linear and non-linear relationships governing the behaviour of the agents. Households maximize their utility subject to preferences represented by Stone-Geary functions. Production technologies can be specified as nested constant elasticity of substitution (CES) functions. Domestic output is distributed between domestic and export markets, using constant elasticity of transformation (CET) functions. Imperfect substitutability is assumed between imports and domestic output (Armington assumption). The model allows for the integration of multiple product activities with commodities differentiated by the activities that produce them, such that the numbers of commodity and activity accounts are not necessarily the same. It applies a generalized treatment for trade relationships by incorporating provisions for competitive imports and exports, as well as for the non-tradable commodities. In addition, the model relaxes the Harberger convention of homogeneous labour by capturing labour in physical units. Subsequently, heterogeneous labour can be modelled with workers receiving different wages in different activities. Finally, the model explicitly accounts for trade and transport margins. This specification is especially relevant for the West Bank where transaction costs are high due to the closures.

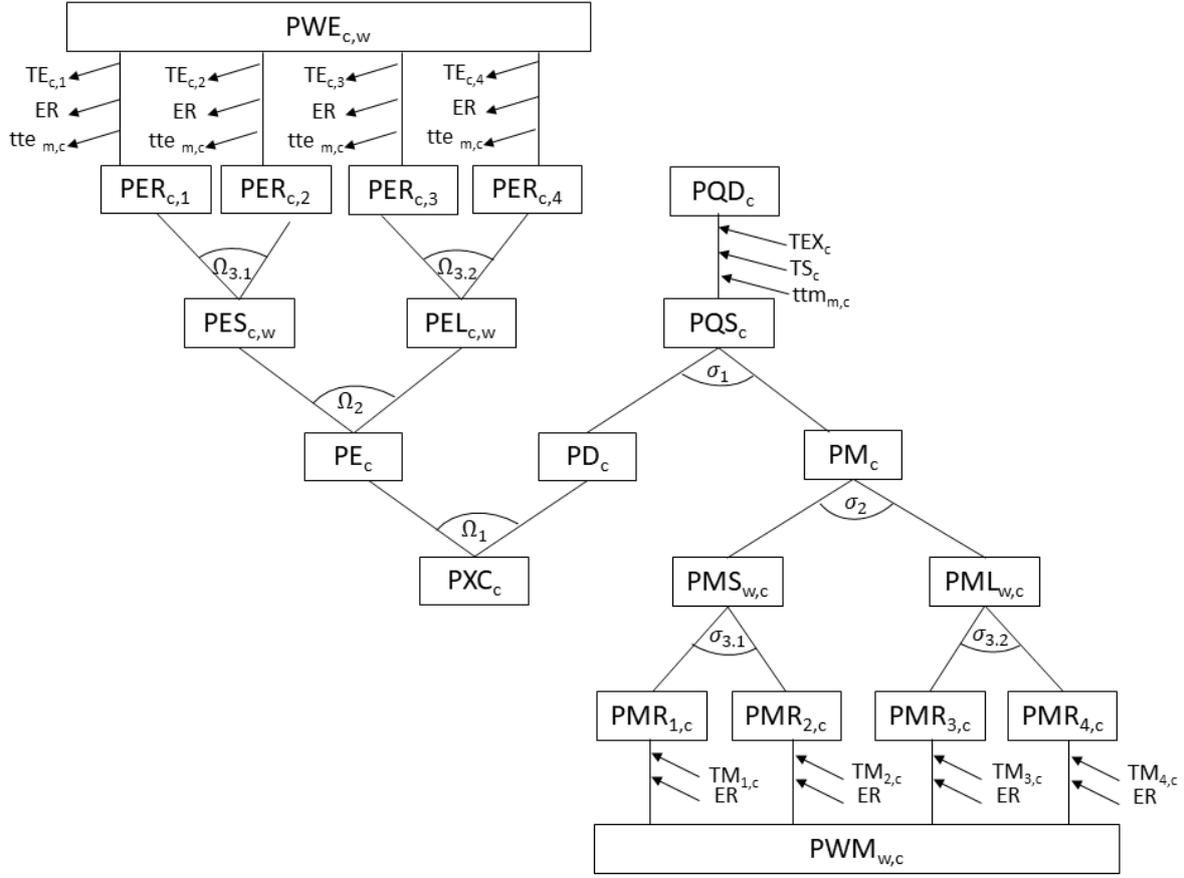
For this study, the standard STAGE-2 model is modified to depict several special features of the Palestinian economy and its interaction with the rest of the world. First, a multiple trade partner set up is introduced in order to capture Palestine’s membership in different preferential trade agreements. Second, regions accounting for small shares of import/export of a commodity are treated differently from those representing large shares. This treatment aims at avoiding regions with small shares to have disproportionately large terms of trade effects after the simulation of a policy shock. For this purpose, a modified version of the approach by McDonald and Thierfelder (2015) is used. On the import side, if a trade partner w accounts for more than 10% of the Palestinian import for a commodity c , then for that commodity this trade partner falls in the sub-nest of large partners. If the import share of a trade partner is less than 10% of the total import of a commodity, that trade partner falls in the sub-nest of small partners

for this specific commodity. In each sub-nest, the characteristics of the product are assumed to be closer, and hence a high substitution is allowed. From the sub-nests, two aggregates are generated. A lower substitution is assumed between the two aggregates, implying that import from a small trade share region can substitute import from a large trade share region but at a slow pace. On the export side, a similar nesting structure is developed using constant elasticity of transformation functions. The values of the elasticities used at each level of the price system are displayed in *Appendix 2*.

Figure 1 presents the price system in the model with an indicative number of four trade partners. The domestic consumer prices (PQD) are a composite of the supply prices (PQS), to which trade and transport margins (ttm), as well as the sales (TX) and excise taxes (TEX) are added. The supply prices are determined by the domestic prices of the domestically supplied commodities (PD) and the domestic prices of the composite imports (PM). PM is a volume-weighted average of the composite prices of regions with large (PML) and small import shares (PMS). PML and PMS in turn are CES aggregates of the domestic prices paid for imports from individual regions (PMR). PMR prices are expressed in domestic currency after conversion of the world market prices (PWM) using the nominal exchange rate (ER) and including the tariff (TM) associated with each trade partner.

With Palestine being a small player on the world markets, the small country assumption is implemented by fixing the world market prices. In other words, both Palestinian importers and exporters are price takers on the world markets. The domestic prices of exported commodities (PER) are obtained after converting the world market prices (PWE) into domestic currency and deducing trade and transport margins for exported commodities (tte) as well as export taxes (TE). The composite prices of exports to regions with large (PEL) and small trade shares (PES) are volume-weighted averages of the domestic prices of exports to individual trade partners. The prices of composite exports (PE) are CET aggregates of the composite prices for regions with large and small export shares. The producer prices (PXC) are determined by the prices of composite exports and the domestic prices of the domestically supplied commodities (PD).

Figure 1. Commodity price system



Source. Authors' own illustration.

To model the tariff rate quotas (TRQ) that are in place in Palestine on food and agricultural products, a revised form of the mixed complementary problem modelling approach of Flaig *et al.* (2013b) is adopted. Accordingly, the quantity imported by region and commodity (QMR) consists of in-quota imports (QMI) and over-quota imports (QMO). When the imported quantity is below the quota, the quota premium rate (τ^p) is zero. If the imported quantity surpasses the quota, τ^p is exactly the difference between the out-of-quota tariff rate (τ^o) and the in-quota rate (τ^i). With a binding quota, i.e. when the imported quantity equals the quota, τ^p lies between zero and the difference between the in and the out-of-quota tariff rates (Equation E1).

$$\mathbf{0} \leq \tau_{w,c}^p \leq \tau_{w,c}^o - \tau_{w,c}^i \quad \text{with} \quad QMO_{w,c} \geq \mathbf{0} \quad (E1)$$

For agricultural and food products, the tariff rate (TM) is composed of the in-quota tariff (τ^i) that is levied on the total import (QMR) and the quota premium (τ^p) that applies only to the over-quota imports (QMO) (see Equation E2).

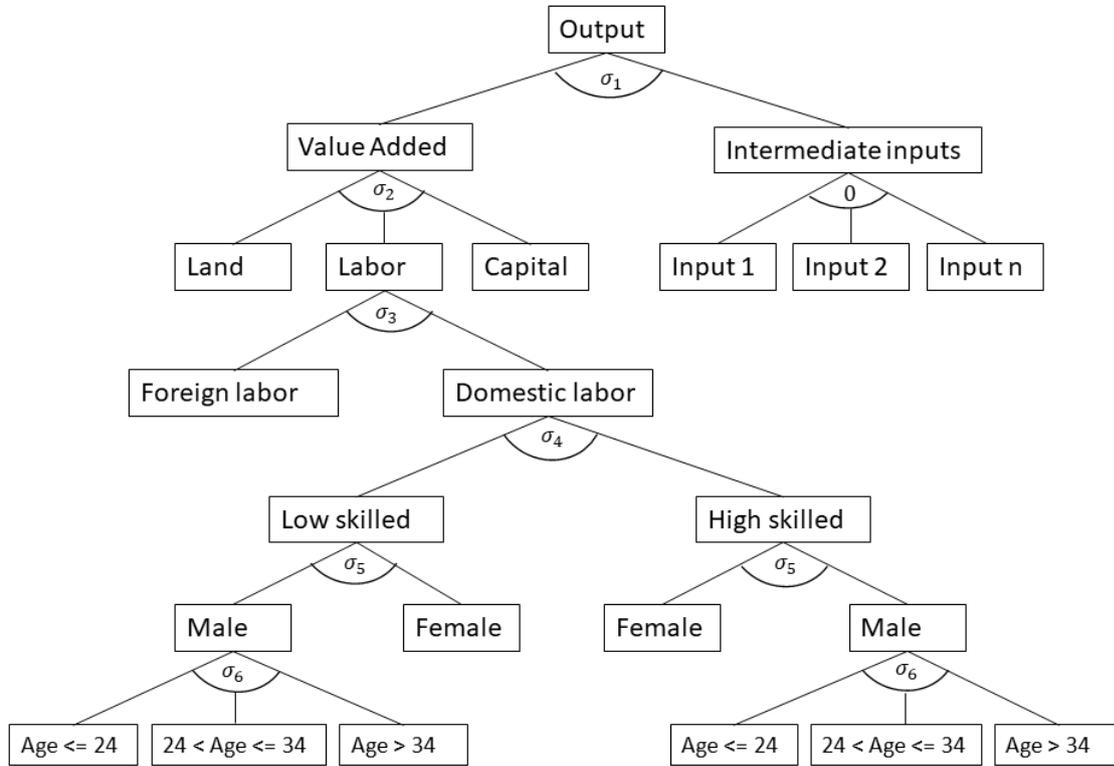
$$TM_{w,c} = \frac{(\tau_{w,c}^i * QMR_{w,c}) + (\tau_{w,c}^p * QMO_{w,c})}{QMR_{w,c}} \quad (E 2)$$

As import licenses are distributed to Palestinian importers free of charge, the quota rent then accrues to the Palestinian enterprises as shown in *Equation E3* where *YENT* is the enterprise basic income and *YE* the final income including the quota rent.

$$YE = YENT + \sum_{w,c} (\tau_{w,c}^p * PWM_{w,c} * QMI_{w,c} * ER) \quad (E 3)$$

The production module of the STAGE-2 model is modified to accommodate the six-level production process that reflects the composition of the labour force in the West Bank. Each level of the production process involves CES or Leontief aggregation functions (*Figure 2*). The values of the elasticities used in the production module are reported in *Appendix 3*.

Figure 2. Production module



Source. Authors' own illustration.

2.3. Model closures

The model closures for the factor market are such that capital and land are fully employed and mobile across activities and their prices are flexible. While capital is used in all activities, land is only employed by agricultural activities. Labour is allowed to be unemployed and mobile

across activities. Labour unemployment is explicitly included, because the Palestinian labour market is characterized by a relatively high unemployment rate. Unemployment is modelled following the neoclassical supply and demand theory. Accordingly, unemployment results from a mismatch between supply and demand due to the market wage being higher than the equilibrium wage. Hence, the stock of unemployed labour is considered as a spare capacity that can enter into production without needing to increase wage. Accordingly, the model allows extra labour demand to be met at fixed wages. To avoid an unlimited movement into employment, the stock of unemployed labour is determined based on official statistics for the West Bank in 2011 (PCBS, 2012). Subsequently, labour is drawn out of unemployment to enter the production system at a fixed wage until the stock of unemployed labour is empty. From that point onwards, any further labour demand is translated into wage increase, reflecting full employment with wage balancing the supply and demand of labour. Following this modelling approach, the labour supply curve can be represented as having two segments: an horizontal segment reflecting employment increase at a fixed wage, and a vertical segment reflecting wage increase at a fixed employment level.

The model is investment-driven as investments in the Palestinian economy are largely exogenous. The share of investments in final demand is fixed because a better economic environment in the West Bank and lower tension with Israel will generate economic growth, higher final demand, and provide a secured environment that will attract more foreign investments (Naqib, 2003). To keep the balance between savings and investments, household and enterprise savings rates vary equiproportionately. Government savings are fixed and the direct tax rate adjusts multiplicatively to maintain the balance. The income tax rates in the base period are in the range of 0.1% to 0.2% for all the household groups. The choice to let the direct tax rate adjust and not any other tax rate is based on the progressivity of the direct tax rate, which is absent in the other tax instruments. Government consumption is a fixed share of final demand, such that when final demand increases as the economy expands, government consumption follows suit. This assumption is grounded in the tendency of the public sector in Palestine to expand quickly (UNCTAD, 2006). To close the foreign market, the current account balance is fixed to avoid any borrowing from foreign funds and thus a transfer of welfare effects to future periods. For international trade, it is assumed that after exiting the customs union with Israel, Palestine also leaves the currency union and creates its own currency. A floating exchange rate is implemented as this currency regime provides the highest monetary autonomy (Yoshino et al., 2004). Finally, the consumer price index serves as numeraire in the model.

To evaluate the effect of a different modelling approach to unemployment on the results, an alternative functional form of the labour supply curve is explored and the results are reported as sensitivity analysis. The alternative functional form is the upward sloping labour supply curve derived from empirical results by Blanchflower and Oswald (1995). Based on survey data from over 30 countries, Blanchflower and Oswald (1995) found wage rates to be negatively correlated with unemployment rates. They derived a labour supply, which reflects that an extra demand for labour increases both the real wage and employment. Such an upward-sloping labour supply curve (or wage curve) offers an intermediate choice between the

horizontal and the vertical labour supply curves reflecting respectively unemployment as a spare capacity and full employment. The theoretical background for using the wage curve in a CGE framework is however shaky. To rationalize the use of the wage curve Blanchflower and Oswald (1995) appealed to non-competitive theories of the labour market such as the union bargaining power, efficiency wage, and labour contract analytical frameworks. The log-linear functional form of the wage curve as used in Böhringer et al. (2008) is adopted in this study. The study contributes to the existing literature on wage curves by estimating for the first time the wage curve elasticity for Palestine. The data used are panel data on wages and unemployment rates in the West Bank governorates⁵ between 2000 and 2015 (PCBS, 2017a; PCBS, 2017b). The variability between regions is controlled with the fixed effects estimation procedure. The estimated model is shown in *Equation E4*, where $\ln(w_f)$ is the logarithm of the wage, $\ln(urate_f)$ the logarithm of the unemployment rate, and ε stands for the fixed effects. As both the local unemployment and wage rates are entered as logarithms, the coefficient of the unemployment rate represents a proportional change and can be read off as an elasticity. The model estimates are statistically significant at the 1% level.

$$\ln(w_f) = -0.072 \ln(urate_f) + \varepsilon \quad (E 4)$$

Regarding international trade and foreign market closure, two alternatives to fixed current account balance and floating exchange rate are explored and the results are also reported as sensitivity analysis:

1. In the first alternative, called Alternative 1, a Palestinian currency is considered, but instead of a floating exchange rate regime, a currency-peg against a basket of foreign currencies⁶ is implemented. This alternative closure is implemented by fixing the exchange rate and the producer price index, which serves as numeraire. The current account balance is set flexible, which implies that Palestine has extensive access to foreign capital markets and can borrow unlimited foreign funds.
2. In the second alternative closure, called Alternative 2, Palestine is assumed to still peg its currency against a basket of foreign currencies but cannot borrow indefinitely from the foreign markets. Subsequently, both the exchange rate and the current account balance are fixed. The exchange rate serves as numeraire.

⁵ There are 10 West Bank governorates after excluding Jerusalem East

⁶ A basket-peg is widely seen as more desirable than a bilateral-peg for a small economy (see Schenk and Singleton, 2011; Yoshino *et al.*, 2004 and Argy *et al.*, 1989)

3. Simulations

The analysis compares the outcomes of the current policy framework (the *status quo* represented by a base scenario that reflects the data in the SAM) to two different trade policy scenarios, all assuming the exit from the customs envelope with Israel. The two scenarios can be regarded as extreme and were chosen on purpose to reflect the full range of effects a change in trade policy could have on the Palestinian economy. Scenario 1 simulates the elimination of the tariffs on imports from all trade partners. It represents a non-discriminatory liberalization of the West Bank external trade and is called *Full Lib* scenario. To keep the scenario realistic, only the in-quota tariff rates are removed for agricultural and food products. The size of the quotas and the over-quota tariffs rates are left unchanged to reflect a certain protection of the domestic agricultural and food sectors. Later in the sensitivity analysis, a change in the size of the quotas is simulated to assess the effects of protecting the domestic agricultural and food sectors on the whole economy. Scenario 2 introduces high tariffs on imports from Israel. It considers the West Bank to exit the customs envelope without forming any other trade agreement with Israel. Israel is treated similar to other trade partners without specific trade agreement and falls under the MFN trade regime. Scenario 2 is referred to as *MFN* scenario. The tariff structure with respect to the other trade partners is unchanged⁷.

Table 3 presents the weighted tariff rates, where the weights are the volumes of imports for the respective commodities in the base situation, as well as the rates in the different scenarios. Details on the shock on imports from Israel in the *Base* and in the *MFN* scenario by commodity group is summarized in *Appendix 4*.

⁷ Exiting the current customs envelope with Israel is likely to be associated with more restricted access for Palestinians to the Israeli labour market, which is not captured in this paper for simplicity reasons. Similarly, the *ceteris paribus* assumption applies regarding potential changes in Israeli trade policy towards Palestine. A sovereign Palestinian state with full control over its territory is likely to be associated with reduced transaction costs related to removing the existing internal closures. Likewise, building and maintaining a customs administration at the borders involves costs. These different aspects are ignored in this study for simplicity reasons, and are assessed in other studies to isolate their respective effects on the West Bank economy.

Table 3. Weighted tariff rates (in %) aggregated over all commodities in the base situation and the two scenarios

	Base	<i>Full Lib scenario</i>	<i>MFN scenario</i>
Israel	15.3	0.0	55.5 ⁸
USA	3.2	0.0	3.2
EU-28 + EFTA	0.8	0.0	0.8
Turkey	5.9	0.0	5.9
Jordan	4.3	0.0	4.3
GAFTA zone	7.6	0.0	7.6
Rest of the world	62.7	0.0	62.7

Source: Authors' own calculations.

4. Results

This section starts with a presentation of the effects of the two policy scenarios assuming a floating exchange rate, and domestic employment to increase without change in wages until the unemployed labour is exhausted. Next, the sensitivity of the results to changes in the macroeconomic environment is analysed. Due to space contingency results are mostly displayed for aggregated categories, although the study uses a very detailed SAM in many respects⁹.

4.1. Effects on trade performance

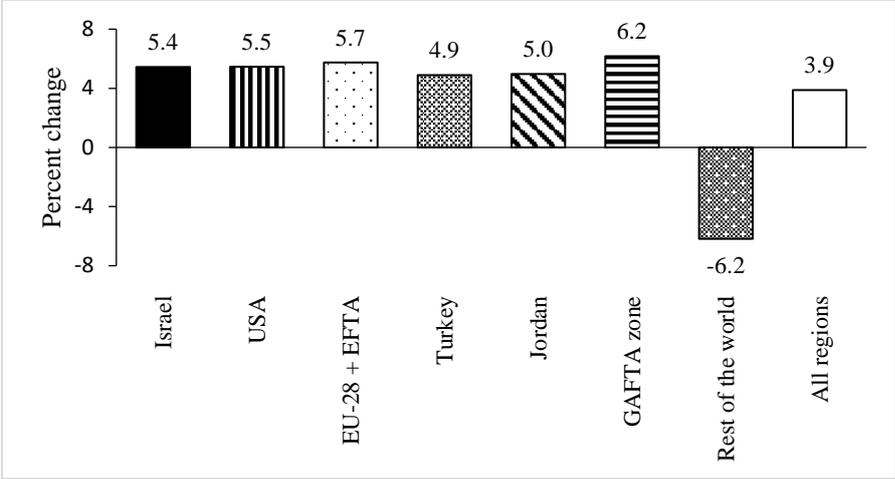
In the *Full Lib* scenario, the elimination of tariffs makes the domestic prices of imports to decrease, which raises demand for imported commodities. Due to the rising import demand, the exchange rate adjusts with a currency depreciation of 7%. Because of the currency depreciation, domestic prices of imports increase. The net effect of currency depreciation and tariff elimination varies according to the region and depends on the height of the initial tariff rates. For the “rest of the world” region, which initially carries the highest tariff rates, the effect of eliminating the tariffs predominate and leads to a net decline in the domestic prices of imports by 6%. For the other regions, which have preferential trade agreements with Palestine and with originally low tariff rates, the currency depreciation effect dominates with the outcome of increasing the domestic prices of imports by 5-6% (*Figure 3*). The domestic price of composite imports, which is the volume-weighted average of the prices of imports from individual regions, increases by 4%. In other words, the price drop for imports from the “rest

⁸ For the MFN scenario, the tariff rate on individual commodity imported from the rest of the world region in the base period is applied to imports from Israel. Using the weighted averages to come to one figure that can be displayed in the table leads to a weighted tariff rate for Israel in the MFN scenario of 55.5% that is different from the 62.7% for the rest of the world in the base period because the volumes used as weights are different for the two regions.

⁹ More detailed results can be provided upon request.

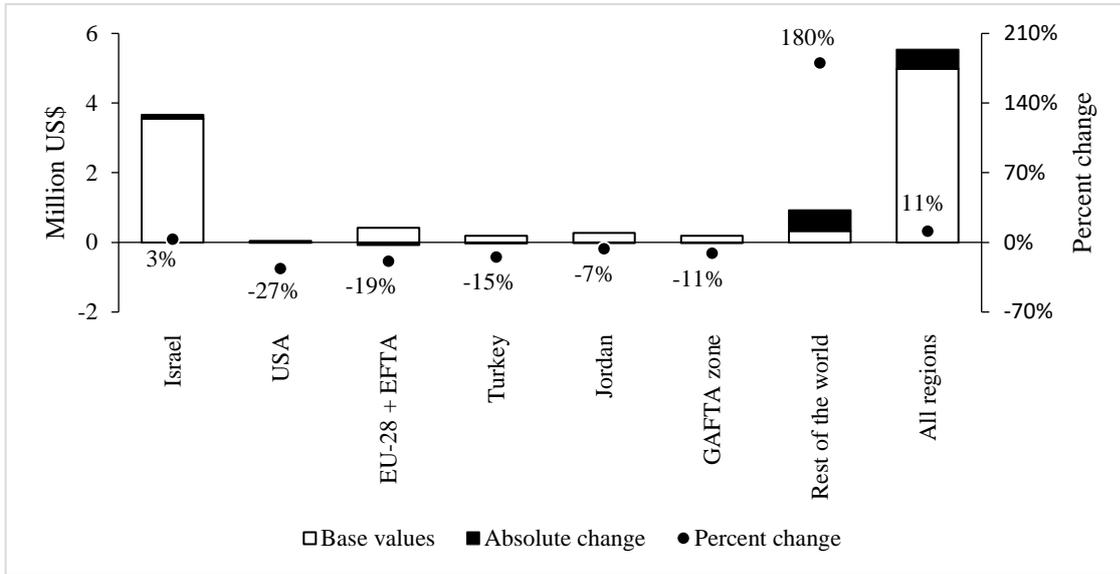
of the world” region is overcompensated by the price increase for imports from the other regions. This result reflects the initially low share of the “rest of the world” region in the West Bank’s total imports (see *Table 1*).

Figure 3. Change in domestic prices of imports by region in Full Lib scenario



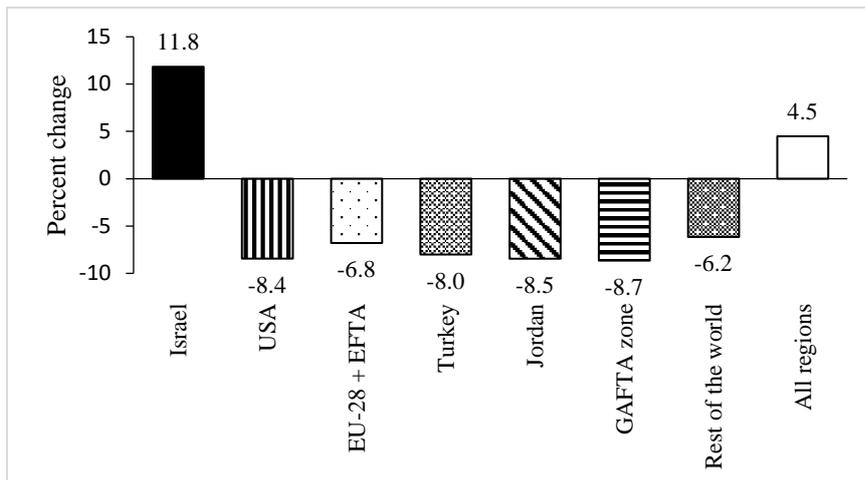
The net effect of removing the tariffs is an increase in the West Bank’s total imports by 11%. However, the change in the imported quantities differs across the trade partners. Because of the price drop, imports from the “rest of the world” region more than double (*Figure 4*). The import share for the “rest of the world” region jumps from 6.6% to 16.7%. Imports from Israel experience a 3% increase due to two effects. First, for some commodities, Israel is the dominant if not the only source of Palestinian import. Therefore, the general increase in demand in the economy is translated into increase in import demand for those commodities that can only be imported from Israel. Second, tariffs on imports from Israel are initially only levied on petroleum products. Removing those tariffs decreases the price and boost the import demand for petroleum products from Israel. Despite this increase in import, the import share of Israel decreases from 71.3% to 66.2% due to total imports increasing relatively more. For the remaining five regions, both the import shares and the volume of imports decrease due the substitution effect with the “rest of the world” region. Most commodities imported from these five regions are also imported from the “rest of the world”. Hence, the change in relative prices favours substituting commodities from these regions with imports from the “rest of the world”, which experience a strong price decrease. These findings show that adopting a non-discriminatory trade policy will change the pattern of Palestinian trade by reducing trade diversion caused by the customs union and the existing trade agreements. Nevertheless, Israel will remain West Bank’s main trade partner. This finding confirms the prediction of Arnon and Weinblatt (2001) that Israel, being the largest economy in the region and the most natural outlet for Palestinian trade, will remain its major trade partner.

Figure 4. Volume of imports by region of origin in Full Lib scenario as compared to Base period (in million US\$ and % change)



In the *MFN* scenario, the most favoured nation tariffs are applied to imports from Israel and they trigger a 12% increase in the domestic price of imports from Israel (*Figure 5*). For the other regions, whose tariff rates remained unchanged, the decrease in the domestic price of imports stems from the appreciation of the local currency by 9%. The net increase in the price of composite import by 4% reflects the large initial share of Israel in Palestinian total import.

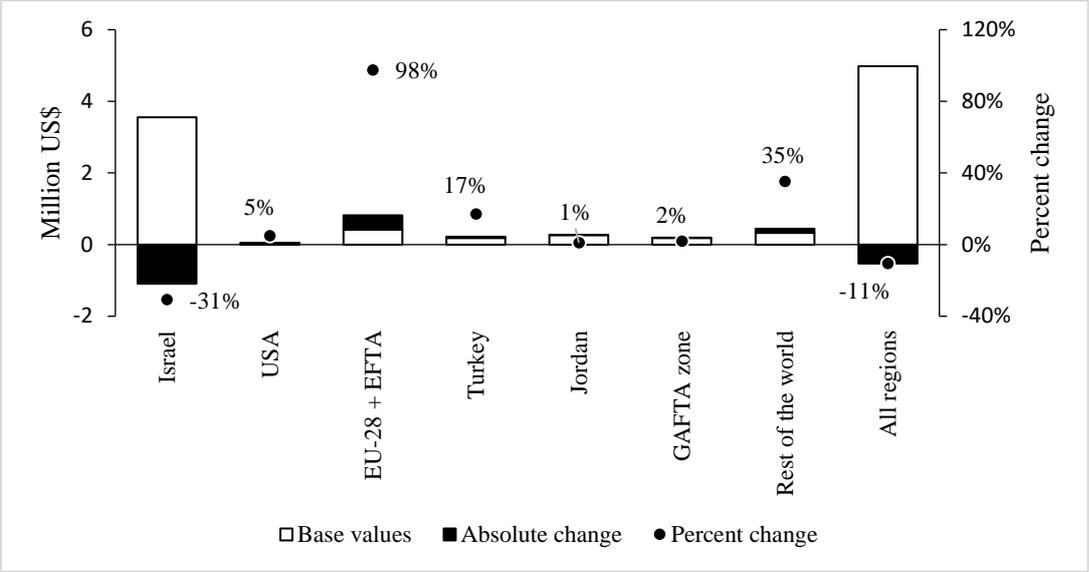
Figure 5. Change in domestic prices of imports by region in MFN scenario



Because of the price increase, the volume of imports from Israel drops substantially by about one third and drives the total import demand in the West Bank down by 11% (*Figure 6*). Despite a decline in the total import demand, the volume of imports from the other six regions increases, implying that imports from those regions to some degree substitute imports from Israel. This substitution effect is particularly important for the regions “EU-28 + EFTA” and

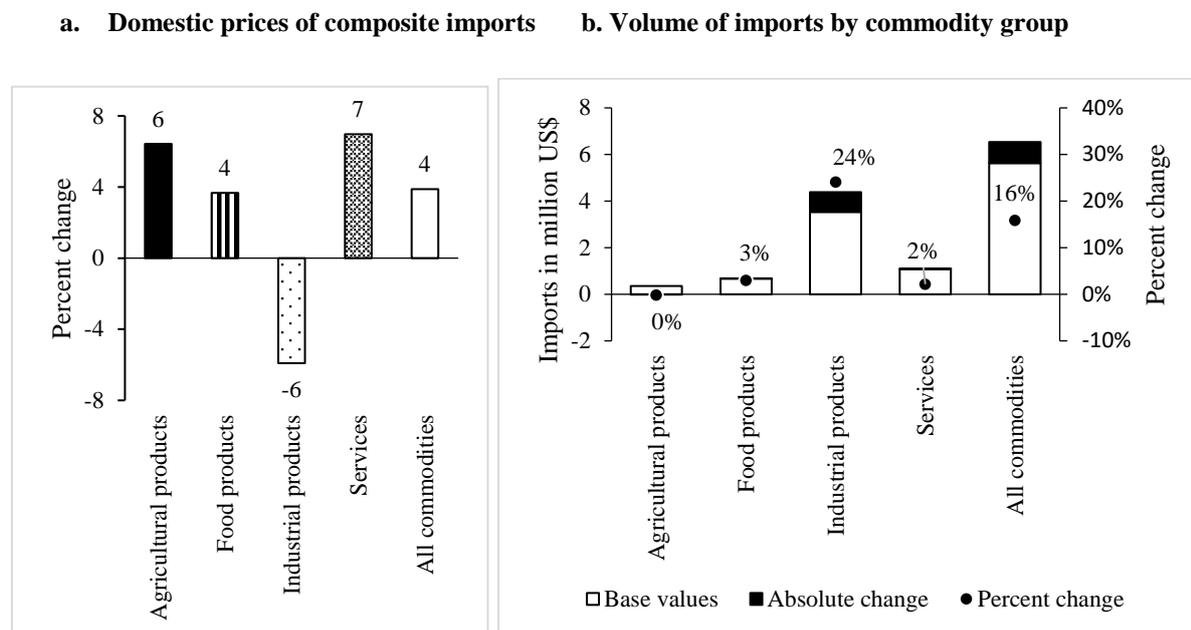
“rest of the world”, for which the import demand increases respectively by 98% and 35%. Whereas the import share for Israel diminishes strongly from 71.3% to 55.3%, the regions “EU-28 + EFTA” and “rest of the world” increase their import shares respectively from 8.3% to 18.4% and from 6.6% to 10.0%. These results show that introducing tariffs on imports from Israel helps to diversify the import sources and to reduce the trade diversion effect of the customs union.

Figure 6. Volume of imports by region of origin in MFN scenario as compared to Base period (in million US\$ and % change)



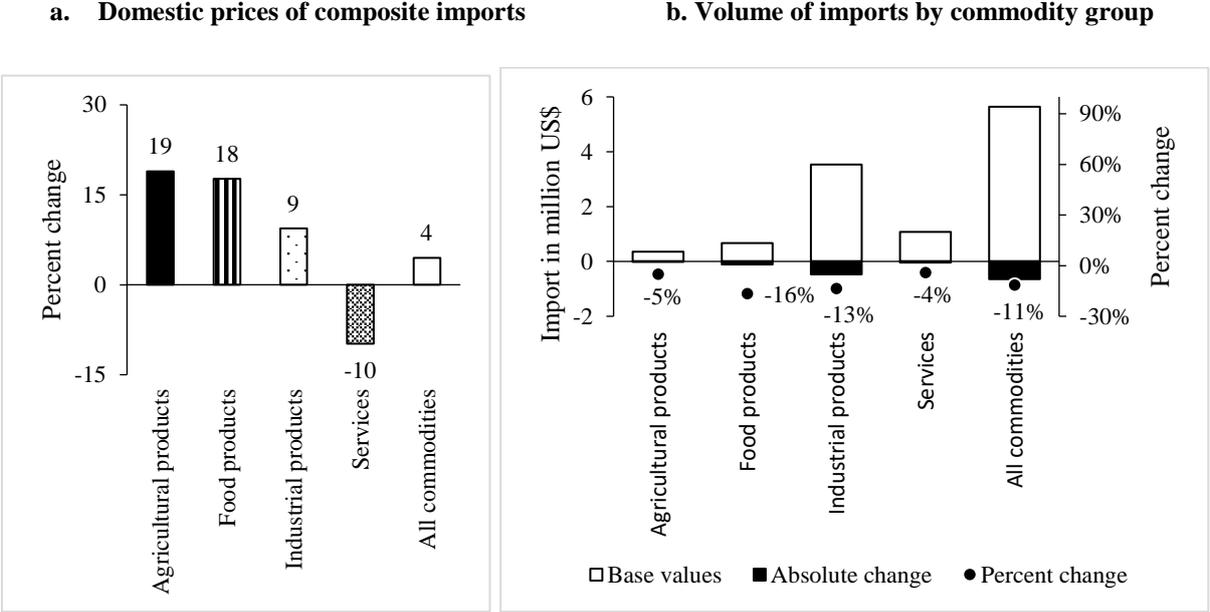
The change in domestic price of composite imports, which is the volume-weighted aggregate of the imports from individual region, varies according to the commodity group (Figure 7a). In the *Full Lib* scenario, it increases for all commodity groups, except for industrial products. The increase in the domestic price of composite imports for services by 7% only reflects the currency depreciation, since services do not carry any tariff in the base period (see Table 2). For agricultural and food products, the increase in price of composite imports is not only related to the currency depreciation but also to the tariff rate quota system. In fact after removing the in-quota tariffs, the allowed quotas for several agricultural and food commodities are reached. As a result, the imported quantity of food and agricultural products remains fairly constant (Figure 7b). There are no over-quota imports. Instead, the domestic price of composite import increases, reflecting the protection of the domestic agricultural and food sectors. As for the industrial products, no quota was specified initially and the tariff rates applied were high. Subsequently, the effect of removing the tariffs outweighs the currency depreciation effect and leads to a price drop by 6% for imported composite industrial products. As their prices drop, the volume of imported industrial products increases by 24%.

Figure 7. Change in domestic prices and volumes of composite imports by commodity in Full Lib scenario



In the *MFN* scenario, the domestic prices of composite imports increase for goods (agricultural, food and manufactured products), because in this scenario the additional tariffs on imports from Israel are only introduced on goods and not on services. Therefore, while the price of composite imports decreases for services by 10% due to the currency appreciation, for goods the effect of the additional tariffs outweighs the effect of the currency appreciation (*Figure 8a*). Import prices increase strongly for agricultural and food products (19% and 18% respectively), and moderately for industrial products (9%). This differentiated effect stems from the tariff rate quota mechanism, with the allowed import quotas for some regions being reached for a number of agricultural and food products. In quantity terms, the increase in prices for agricultural, food and industrial products is translated into a drop in the import demand for these commodities (*Figure 8b*). The import demand for services also declines by 4% because the overall demand in the economy falls as will be discussed in more detail in *section 4.2*.

Figure 8. Change in domestic prices and volumes of composite imports by commodity in MFN scenario



On the export side, the price of composite export increases on average by 5% in the *Full Lib* scenario, and it decreases on average by 8% in the *MFN* scenario. The price change in both scenarios mainly reflects the change in the exchange rates, with a currency depreciation in the *Full Lib* scenario, and a currency appreciation in the *MFN* scenario. The volume of export increases by 38% in the *Full Lib* scenario, with the highest increase for industrial products. The finding that industrial products benefit more from the increased export capacity stems from these products being in the base period the West Bank’s leading exports. By contrast, in the *MFN* scenario, the export supply decreases by 34% and the industrial products face the highest decline. These findings stem from both the changes in the price of composite export and changes in the domestic output in *section 4.2*. In the *Full Lib* scenario, both real import and export values increase and the net trade effect is that the Palestinian trade deficit increases by 10%. In the *MFN* scenario, both real import and export values decrease and the net trade effect is a reduction in the trade deficit by 5%.

4.2.Effects on domestic output and unemployment

In the *Full Lib* scenario, the depreciation of the local currency stimulates the domestic production, with the domestic sectors increasing their demand for production factors. For labour, this increased demand is met with drawing people out of unemployment. Hence, unemployment decreases substantially from 19.1% to 6.5% (*Table 4*). Among labour categories, full employment is reached for low-skilled females and high-skilled males. Unemployment persists only for the labour groups with high unemployment rates in the base period. By contrast, in the *MFN* scenario, the domestic production shrinks and thus the unemployment rate increases. Thereby, unemployment rates increase relatively more among

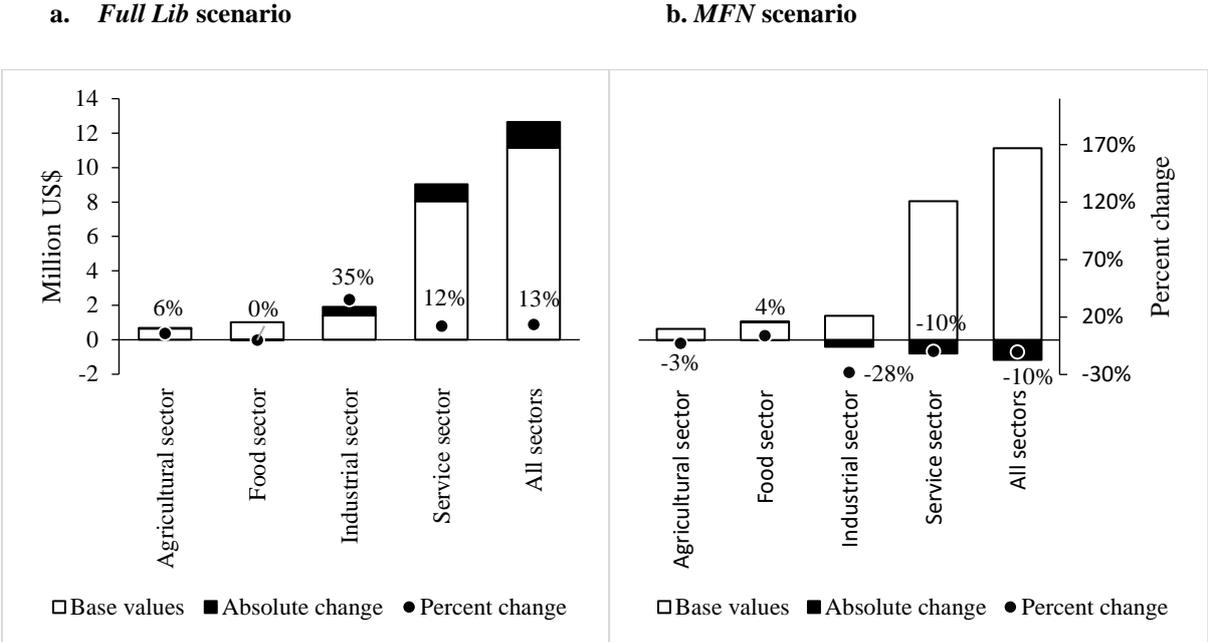
low-skilled females and high-skilled males, which in the base period face the lowest unemployment rates (*Table 4*). These findings confirm the leverage effect that trade policy has on unemployment rate and hence endorses the results of UNCTAD (2009) suggesting that the Palestinian authorities can achieve considerable reduction in unemployment should they be empowered with full control over trade policy instruments.

Table 4. Unemployment rates (in %)

	<i>Base scenario</i>	<i>Full Lib scenario</i>	<i>MFN scenario</i>
Low-skilled male	20.4	5.9	32.3
Low-skilled female	9.0	0.0	17.7
High-skilled male	11.8	0.0	23.7
High-skilled female	32.7	23.3	40.5
Total labour	19.1	6.5	30.0

In the *Full Lib* scenario, wages increase for the labour categories, for which full employment is reached. On average wages increase by 1%. For capital and land that are assumed fully employed, factor price increases substantially more (by 21% and 9%, respectively). The increase in factor prices ultimately leads to increasing production cost by 5% on average across domestic sectors. Despite the increased production cost, increase in domestic demand leads to a domestic output increasing on average by 13%. Domestic output rises more in the industrial and service sectors as compared to the agricultural and food sectors (*Figure 9a*). This effect comes mainly from the demand side. With increasing household income, the demand for industrial products and services rises strongly because the income elasticity of demand (see *Appendix 5*) for these two commodity categories is high. Income elasticity of demand for agricultural and food products is low because these are “necessity” commodities. Accordingly, the increase in demand for these commodities in the *Full Lib* scenario is low. In the *MFN* scenario, in which the overall economy shrinks, demand for the “necessity” commodities remains stable, while it decreases for services and industrial products. The consumption signals are transmitted to the production system, causing output to fall in the service and industrial sectors (*Figure 9b*).

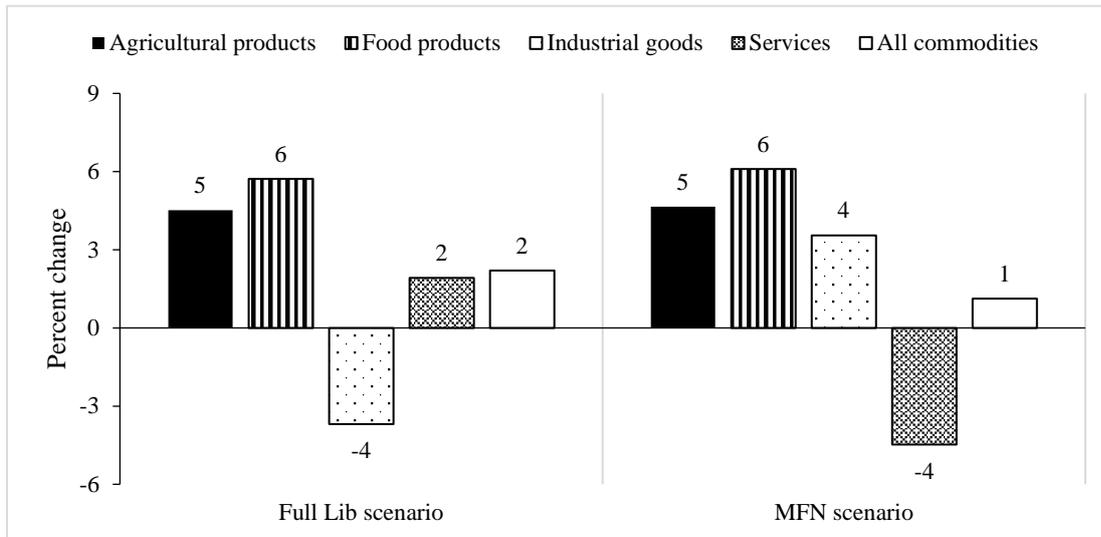
Figure 9. Domestic output by sectors



4.3. Effects on final consumption

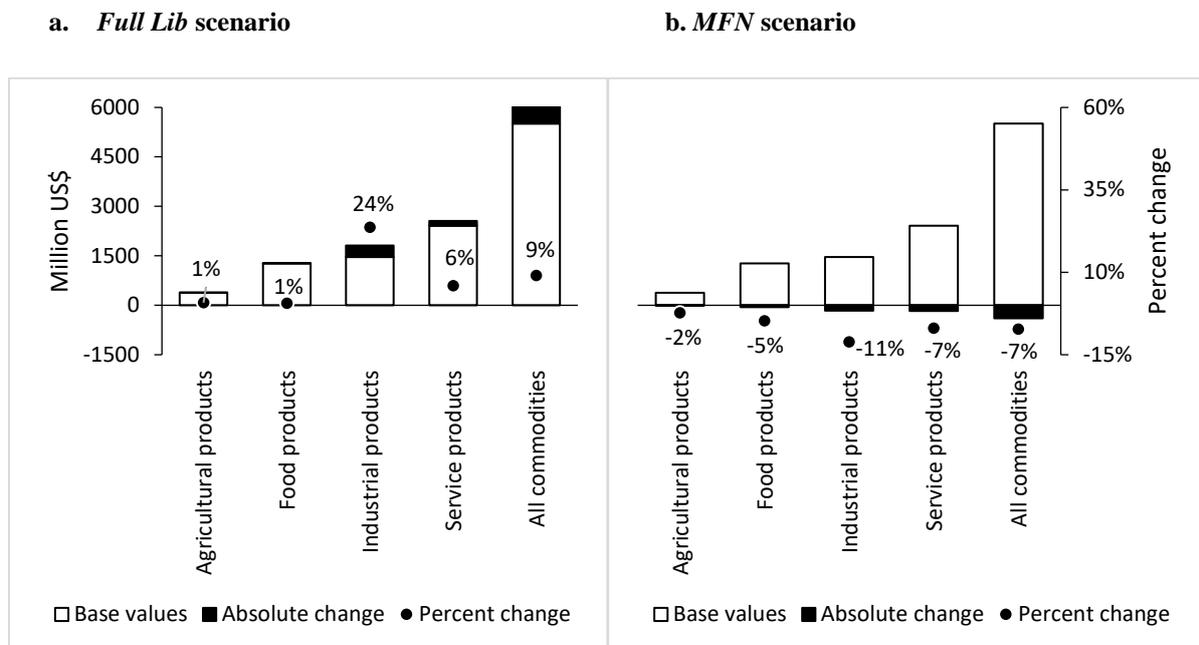
The changes in the domestic consumer prices are determined by changes in the price of composite imports, production costs, and transport and trade margins. In the *Full Lib* scenario, the margins increase by 2%, the production costs increase across all sectors by 5% on average, and the price of composite imports increases for all commodity groups, except the industrial products (see *Figure 7a*). The finding that the domestic consumer prices increase across all commodity groups, except for the industrial products (*Figure 10*) shows that the effect of the decreasing price of composite imports for industrial products outweighs the increase in their production costs and in the margins. To understand this finding, one needs to look at the initial shares of imports and domestic production in the total supply, since the domestic consumer prices are volume-weighted averages of the prices of composite imports and the prices of the domestically supplied commodities. For industrial products, imports initially account for 83% of the total supply (see *Appendix 6*). This large share of imports in the total supply explains the dominating effect of the change in the prices of composite imports in determining the domestic consumer prices. In the *MFN* scenario, the production costs decrease on average by 3% in all sectors, and the margins decrease by 8%. For services, the price of composite imports also decrease (see *Figure 8a*). Subsequently, the domestic consumer prices decrease for services. For agricultural, food and industrial products, while the production costs and the margins decrease, the prices of composite imports increase (see *Figure 8a*). The finding that domestic consumer prices for these three categories increase (*Figure 10*) can also be traced back to the initial shares of imports in total supply (see *Appendix 6*). These shares are on average high for goods (68%) and low for services (12%).

Figure 10. Change in consumer prices by commodity group



Changes in final consumption are mostly determined by household consumption. In the *Full Lib* scenario, household consumption increases for almost all commodities (*Figure 11a*), because households enjoy a higher income through production factors they own. Consumption increases the most for services and industrial products, due to the higher income elasticity of demand for these products. By contrast, in the *MFN* scenario, household income decreases driving overall consumption down, with consumption of services and industrial products being the most negatively affected (*Figure 11b*).

Figure 11. Household consumption by commodity group



4.4.Effects on household income and expenditure

Households in the West Bank derive most of their income from labour earnings and a substantial share from capital returns (see *Appendix 7*). In the *Full Lib* scenario, total labour income increases by 11%, driven by both the increased employment and the increased wages. Total capital return increases by 21% due to a higher capital rent. Subsequently, income increases for all household quintiles by 15% on average. As capital return increases relatively more than labour income, the richer households deriving more income from capital experience a slightly higher income increase. Due to the raise in income, households also spend more, however consumption expenditures increase on average by only 8%. The remainder is set aside as savings or spend on transfers, which account for the difference between their income and expenditure.

In the *MFN* scenario, the reduced employment drives income from labour down by 13%. As demand for capital decreases, capital rent also decreases and ultimately total capital return declines by 19%. Consequently, income decreases for all household quintiles by 13% on average. It decreases slightly more for the richer households, since they derive a higher share of their income from capital, which experiences the higher income drop. Similar to income, household expenditure declines by 9% on average. Household expenditure declines less than household income, because households reduce savings and transfers.

4.5.Change in Government revenue

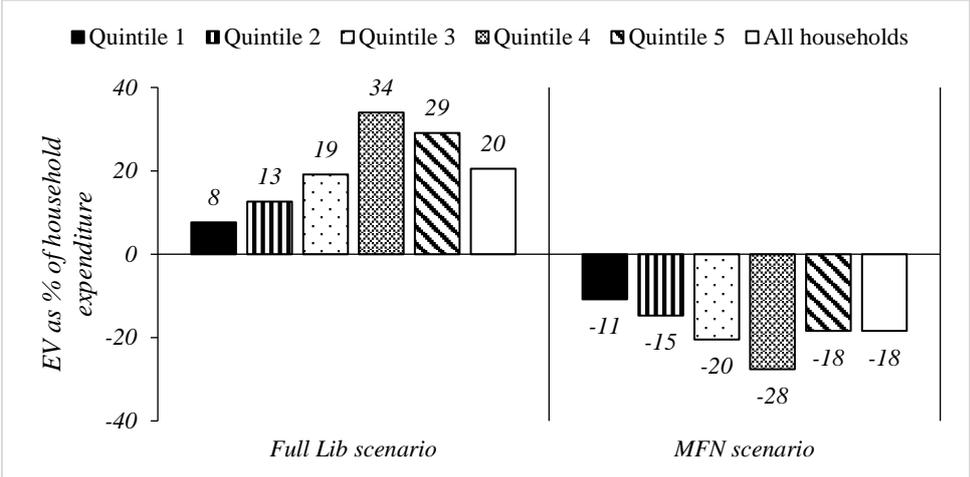
The changes of tariff rates affect the tax revenue and hence total government revenue. Tariff revenue initially accounted for 27% of the government revenue. In the *Full Lib* scenario, government revenue increases by 6%, meaning that the loss in tariff revenue is overcompensated by additional revenue from other tax instruments. Making government consumption a fixed share of the final demand in the model drives government expenditure up as final demand increases in the *Full Lib* scenario. To finance the additional expenditure, government revenue has to increase. This model mechanism actually reflects a long-run adjustment, whereby the removal of tariffs stimulates consumption, which increases the tax base for value added tax and sales tax. The additional consumption also stimulates the domestic production (*Figure 9*) and household income (see *section 4.4*), hence increasing the tax base for factor use tax and income tax. As all tax rates are kept fixed except for income tax rate, a substantial increase in the government income happens through the income tax instrument, which increases tenfold. This change is equivalent to an increase in the income tax rate from 1% in the baseline to 9%. Although this rate change is substantial, it needs to be highlighted that the effective income tax rate in Palestine is much lower than the official rates, which are 5% for the lowest income bracket, 10% for the middle income bracket and 15% for the top income bracket (PIPA, 2017). Fjeldstad and al-Zagha (2004) show that income tax collection in Palestine is subject to negotiations in virtually all cases, and that the tax base is eroded by generous exemptions. Moreover, the tax administration suffers from insufficient resource allocation, and lack of human capital.

In the *MFN* scenario, the introduction of tariffs on imports from Israel, which retains a share of 55% of the West Bank imports, together with increasing imports from the other trade partners (see *Figure 6*) generate a 66% increase in the tariff revenue. Nevertheless, as final demand decreases in the economy, tax revenue collected from the other instruments decline and ultimately government revenue decreases by 7%. Through the model mechanism, income tax revenue decreases the most and becomes negative, implying that the central government makes additional transfers to households and enterprises.

4.6. Welfare effects and macroeconomic effects

A welfare indicator used to summarize the effects from changing prices and income on households is the equivalent variation¹⁰ as a share of the household initial expenditure. *Figure 12* shows that welfare improves for all household groups in the *Full Lib* scenario. The richer the household, the higher the welfare gain. The finding that welfare gain for households in quintile 5 is lower than that of households in quintile 4 is due to a welfare transfer from quintile 5 households to the others. In fact, 62% of all inter-households transfers in the West Bank, including the religious transfers from wealthy to poor households (*Zakat*), are conducted by quintile 5 households. Hence, the largest burden of the increased transfers falls on the quintile 5 households, reducing their welfare gain to the benefit of the other household groups. In the *MFN* scenario, welfare declines for all household groups. The richer the household the more the welfare loss. The finding that the welfare loss for households in quintile 5 is less than that of households in quintile 4 is due to reduced inter-household transfers, dampening the welfare loss of households in quintile 5.

Figure 12. Change in household welfare by household quintile



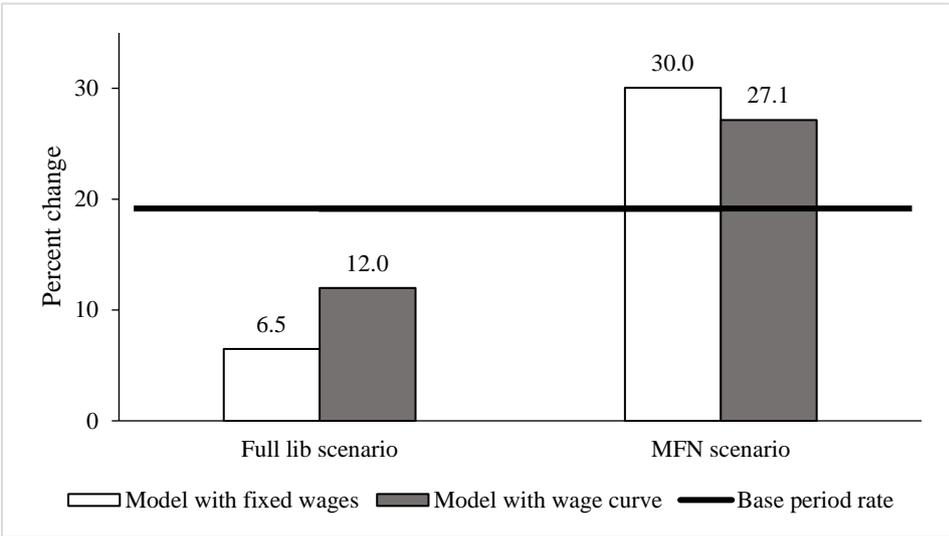
¹⁰ The Equivalent Variation is defined as the amount of compensation, that must be added (subtracted) to (from) the household's initial income, to leave him as well off as under the combined price and income changes

Summarizing all the individual effects discussed above in the real GDP macroeconomic indicator shows that in the *Full Lib* scenario, eliminating the tariffs stimulates the West Bank economy, which grows by 8.3%. By contrast, a more restrictive trade policy, imposing new tariffs on trade with Israel (*MFN* scenario) leads the economy to shrink by 8.5%. These results are in line with the predictions by Fischer *et al.* (2001) and Astrup and Dessus (2005) that a liberal and non-discriminatory trade regime is the most suitable for a sovereign Palestinian state.

4.7. Results with alternative assumptions on macroeconomic environments
 4.7.1. *Alternative assumptions on unemployment*

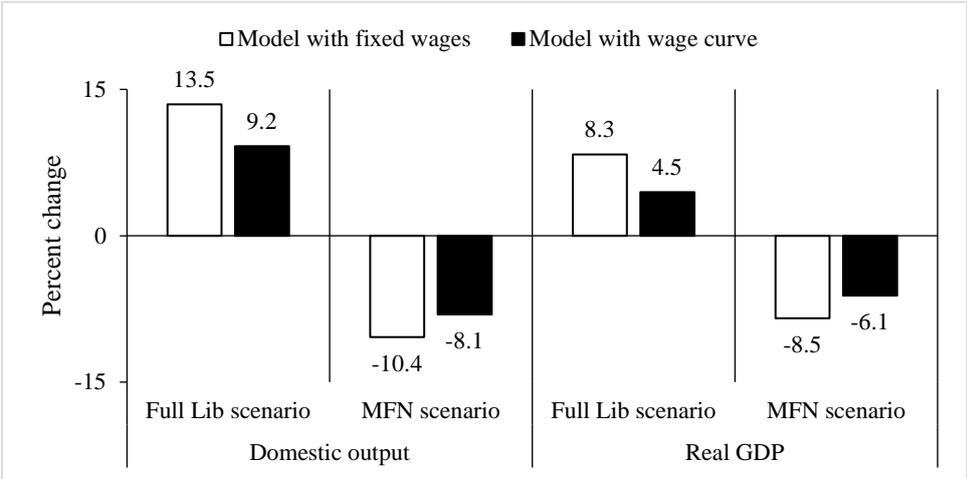
In this section the results of the model with an alternative approach of modelling the relation between wage and unemployment, that is the wage curve, are compared to those of the previous model. With the wage curve, any extra labour demand in the economy is translated into increasing both employment and wage rates. This mechanism makes it expensive for employers to hire more workers. Similarly, when the economy shrinks, the wage curve approach avoids a rapid exit of labour from employment, by allowing wages to decrease. Subsequently, the model with the wage curve shows a less sharp decrease in unemployment rate in the *Full Lib* scenario, while the increase in unemployment rate in the *MFN* scenario is more moderate, as compared to the results of the fixed wage model (*Figure 13*).

Figure 13. Change in unemployment rate under fixed wage and wage curve models



Other factors (capital and land) are affected similarly due to the wage curve assumption. Accordingly, factor demand by the domestic production sectors increases less in the *Full Lib* scenario with a wage curve, while it declines less in the *MFN* scenario. Ultimately, domestic output and real GDP follow the same trend (*Figure 14*). These results show that the assumption about the relation between unemployment and wage rates in the model has a substantial influence on the magnitude but not on the direction of the results.

Figure 14. Change in domestic output and real GDP under fixed wage and wage curve models



4.7.2. Changes in the monetary policy

Two alternatives to the initial closure of floating exchange rate regime and flexible current account balance are simulated as described in Section 2.3. The two alternatives assume a fixed exchange rate or currency-peg. Alternative 1 assumes in addition a flexible current account balance, while Alternative 2 incorporates a fixed current account balance. The results show that adopting a currency-peg, as assumed in both alternatives cause domestic prices of import to fall for all trade partners in the *Full Lib* scenario, due to the removal of tariffs. In both alternatives, the domestic prices of imports drop relatively more for the region “rest of the world” because on that region initially the highest tariffs were imposed. As compared to the initial model, where a floating exchange rate is assumed, the currency depreciation effect driving the domestic prices of imports from individual trade partners up does not play any role in the two alternative models. Similarly, in the *MFN* scenario, the currency appreciation depressing the domestic prices of imports in the initial model is absent. Only the additional tariffs introduces drive the domestic prices of imports from Israel substantially up and the domestic prices of imports from the other regions up as well.

While the price effects are similar in the two alternative models, the effects on the imported quantities differ considerably. In Alternative 1, the total import demand increases sharply in the *Full Lib* scenario. The additional imports are financed by foreign borrowing, with the current account deficit increasing by 64%. However, in Alternative 2, import demand increase is much smaller because a fixed current account balance is assumed removing the possibility to borrow foreign money to finance the imports. The additional import demand in Alternative 2 only originates from the “rest of the world” region, where the price drop is the strongest. In the *MFN* scenario, results of the Alternative 1 show a sharp decline in the import demand that is associated with a reduction in the current account deficit by 57%. By contrast, results of Alternative 2 indicate a more moderate decline in the total import demand. Table 5 summarizes and compares the results of the original model with its two alternative on domestic prices of import and total import demand in the West Bank.

Table 5. Impacts on import demand under three monetary policies

	Domestic prices of imports (% change)			Change in import demand (Million US\$)		
	Initial model closure	Alternative 1	Alternative 2	Initial model closure	Alternative 1	Alternative 2
Full Lib scenario						
Israel	5.4	-1.4	-1.4	114	368	-46
USA	5.5	-1.2	-1.5	-11	-9	-12
EU-28+EFTA	5.7	-0.9	-1.2	-79	-59	-94
Turkey	4.9	-1.4	-2.0	-28	-17	-33
Jordan	5.0	-1.5	-2.0	-18	15	-27
GAFTA zone	6.2	-0.7	-0.8	-21	1	-27
Rest of the world	-6.2	-11.8	-12.5	595	651	551
All regions	3.9	-2.8	-2.9	554	950	312
MFN scenario						
Israel	11.8	24.0	24.0	-1091	-1326	-979
USA	-8.4	1.2	1.7	2	-1	4
EU-28+EFTA	-6.8	3.0	3.4	405	340	449
Turkey	-8.0	1.6	2.2	32	13	41
Jordan	-8.5	1.2	1.7	3	-37	13
GAFTA zone	-8.7	1.1	1.5	4	-22	10
Rest of the world	-6.2	3.7	4.2	116	77	136
All regions	4.5	15.6	15.9	-529	-957	-326

At the macroeconomic level, the results of Alternative 1 are larger in magnitude than the results of the initial model. In the *Full Lib* scenario, fuelled by the additional borrowing from foreign markets, total demand in the economy increases, which stimulates the domestic production and *in fine* the real GDP increases by 9.3%, as compared to 8.3% in the initial model. In the *MFN* scenario, about half of the foreign debt is repaid, instead of being reinvested in the economy. As a result, final demand falls more rapidly than in the initial model. Ultimately, the real GDP drops by 10.1% as compared to 8.5% in the initial model. While in the *Full Lib* scenario, the model does not account for the repayment of the additional foreign debt at some point in the future, in the *MFN* scenario the repayment of the past foreign debt acts as a burden to the economy.

The results of Alternative 2 show more moderate effects of both trade scenarios on the economy. In the *Full Lib* scenario, real GDP grows only by 1.9%, while in the *MFN* scenario it declines by only 0.8%. In conclusion, these results indicate that the monetary policy adopted has a considerable impact on the outcomes of any trade policy. Therefore, the Palestinian authorities should seek the fullest control over exchange rate and monetary policies.

5. Conclusions

The Paris Protocol, which governs the economic relations between Israel and the Palestinian territories, formalized the customs envelope between the two parties. This customs envelope is largely based on the Israeli rules and due to the structural differences between the two economies, those rules are not favourable to the Palestinian economy. The Paris Protocol as a transitional agreement is supposed to pave the way for a final settlement, where a sovereign Palestinian state would eventually have full control over its trade and monetary policies. In the context of such a final settlement, this study simulates two trade options, in which the customs envelope with Israel is assumed to be removed and trade policy is solely determined by the Palestinian authorities. The first scenario is the elimination of the tariffs on imports from all trade partners (*Full Lib* scenario), and the second scenario simulates the imposition of high tariffs on imports from Israel (*MFN* scenario).

Of the two analysed trade policy options, only the abolishment of import tariffs improves all macroeconomic indicators of the West Bank's economy as compared to the *status quo* of a continued customs union. By contrast, introducing new tariffs on imports from Israel, as simulated in the *MFN* scenario, will hurt the West Bank's economy. Consequently, a sovereign Palestinian state should adopt a liberal and non-discriminatory trade regime. Adopting such a trade policy can diversify the Palestinian trade and reduce the trade diversion caused by the current customs union and other trade agreements. Although the heavy dependency on Israel for trade is likely to continue as highlighted by the results, this can be seen as a short run problem. Israel, by the size of its economy, and its geographical position as the natural corridor for Palestinian trade will remain a major trade partner to Palestine. However, in the long term, removing the customs union and its associated trade distortions will provide Palestine with more trade options than can be captured by the model. In fact, the model construction while depicting well the current trade pattern, imbeds the distortions caused by the customs union. These distortions are twofold. First, there are indirect imports shown as imports from Israel, which fully originate from third countries. A good example of this is the petroleum products, which constitute 24% of West Bank imports from Israel. Assuming an exit from the customs union and the possibility for Palestine in the long term to source these products directly from their origins, this will significantly reduce the trade share of Israel. Second, the initial position of Israel as the dominant trade partner is partly a result of trade diversion due to the customs union, with some products being sourced mostly, or only from Israel. Hence, when import demand increases, as in the *Full Lib* scenario, the model setup only allows the additional demand to be sourced from Israel. However, exiting the customs union and removing its distortions may provide Palestine in the long term with more possibilities to source those products from third countries.

The results of this study show that eliminating the in-quota tariffs hardly affects the import of agricultural and food products, because the domestic agricultural and food sectors are protected with a system of tariff rate quotas. The finding that these quotas become binding and that there is no over-quota imports demonstrates the importance of modelling explicitly these tariff rate

quotas. The tariff rate quota system protects the Palestinian domestic agricultural and food sectors from a strong import competition. However, this protection comes at a cost for the economy, since farmers are better-off but consumers are worse-off, and the economy as a whole bears a net welfare loss. To assess the effect of the tariff rate quota system on the economy, the two analysed trade options are simulated along with an increase in the import quotas by 50%. The results indicate that the outcome of both trade policy options is improved if the quotas are increased. In fact, increasing the quotas reduces the constraint imposed upon the economy and in both trade policy options more imports take place. Ultimately, real GDP increases in the *Full Lib* scenario by 8.7% as compared to 8.3% when quotas are not increased. In the *MFN* scenario, real GDP decreases by 8.1%, while it decreases by 8.5% when quotas are not increased. A complete removal of the tariff rate quota system is likely to further magnify the positive benefits of the simulated trade policies for the economy as a whole, although domestic producers of agricultural and food products are hurt. Therefore, a revision of the tariff rate quota system is a political decision the Palestinian authorities should make depending on whether the national interest is protecting domestic producers and ensuring domestic supply or enhancing overall economic benefits. Revising the level of the import quotas will also depend on the final agreement with Israel, since the current levels are negotiated with Israel because of the two entities forming a customs union. If in the final status, Palestine gains full control over all trade and economic policy instruments, the Palestinian authorities may decide freely on the levels of their import quotas.

The results also highlight that trade policy in Palestine has a substantial leverage on unemployment. In the *Full Lib* scenario, unemployment decreases from 19.1% to 6.5%. Hence, empowering the Palestinian authorities with full control over trade policy instruments can improve their capacity to tackle the unemployment problem. Changes in the employment rates have direct effects on household income, and thereby on household welfare. In the *Full Lib* scenario, household welfare improves for all household groups by 20% on average. However, welfare gains are higher for richer households than for poorer households. Therefore, if the Palestinian authorities aim at a fairer distribution of the welfare gains, they should increase transfers to poorer households. Government revenue is expected to increase despite the loss of tariff revenue because the tax base for other tax instruments (VAT, income tax, sales tax) increases along with increasing final demand and household income.

This paper also compares the outcomes of two modelling approaches regarding the relation between unemployment and wage rates. The first approach is the horizontal labour supply curve, which assumes that the employers can hire as many unemployed labour, as they wish without needing to increase wages. While this assumption fits well in the neoclassical theory of supply and demand, from an empirical perspective a wage curve with an upward sloping relation between employment and wage rates has been found in many countries. This paper contributes to the empirical literature, first by estimating the wage curve elasticity for the West Bank and second by analysing its influence on the outcomes of changes in trade policy. The results show that assuming a wage curve reduces the magnitude of the trade policy effects. This is because under the wage curve, any increase in labour demand is met with increase in both

wage and employment rates. Hence, when the economy grows, as it is the case in the *Full Lib* scenario, less unemployed people move into employment when an upward sloping curve is assumed than when an horizontal labour supply curve is assumed. Similarly, when the economy shrinks, the wage curve by allowing wages to decline, avoids a rapid exit of workers to unemployment. Thus, the economic losses in the *MFN* scenario are more moderate if a wage curve is assumed. This shows that the assumptions about the relation between wages and unemployment rates have an important influence on the magnitude of model outcomes.

Because the two simulated trade options are arguably extreme cases, a moderate variant of the *MFN scenario* is simulated assuming that after the exit from the customs union, Palestine signs a preferential trade agreement (PTA) with Israel. In this *PTA* scenario, the average tariff on trade partners having already trade agreements with Palestine is applied to imports from Israel. In addition, the introduction of rules of origin causing higher transaction costs is assumed through an increase of prices for imports originating from Israel by 3% and a reduction of the export prices for exports to Israel by 3%. The results as expected are moderate as compared to those of the *MFN* scenario. As illustration, GDP decreases by 3.5% in the *PTA* scenario, as compared to 8.5% in the *MFN* scenario. This finding first shows that both *PTA* and *MFN* scenarios are less desirable than the *status quo* of continued customs union with Israel, since in both cases GDP decreases relatively to the *status quo*. Second, it shows that the higher the tariffs introduced on imports from Israel, the worse the outcome for the West Bank's economy. Hence, concluding a trade agreement with Israel is more desirable than trading with Israel under the most favoured nation trade regime.

In another variant of the *MFN* scenario, it was assessed whether forming a new customs union with the Arab countries members of the GAFTA free trade area could compensate the economic costs of imposing high tariffs on imports from Israel. In this *GAFTA customs union* scenario, tariffs on imports from the GAFTA members (GAFTA zone and Jordan) are removed, while applying the most favoured nation tariff rates to Israel. However, the results of the *GAFTA customs union* scenario hardly differ from those of the *MFN* scenario. This finding reflects the fact that the GAFTA members only make a tiny share of the Palestinian trade and entering a GAFTA customs union will not compensate for imposing high tariffs on imports from Israel, which is likely to remain Palestine's main trade partner. Consequently, a greater integration with other Arab countries is important, but it cannot be a substitute to the economic links with Israel. Finally, we found that the monetary policy adopted has a substantial impact on the magnitude of the trade policy effects. Therefore, the PNA should seek the fullest control over its national currency and its exchange rate. The highest overall welfare gains could be achieved with the most liberal and non-discriminatory trade policy, i.e. abolishing tariffs and quotas with respect to all trade partners. Yet, for a fairer distribution of the welfare gains, the Palestinian authorities should compensate the losers, especially the domestic producers of agricultural and food products and make more transfers to the poor households, for whom welfare gains are smaller.

6. References

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APPENDICES

Appendix 1: List of accounts in the SAM

No	Commodity (c)	No	Activity (a)
1	Olives	1	Olive
2	Cereals, other crops	2	Growing of cereals and other crops
3	Fruits, nuts and flowers	3	Farming animals
4	Vegetables, horticultural specialties	4	Forestry
5	Animals	5	Mining
6	Milk	6	Food processing
7	Forestry products	7	Manufacture of oils and fats
8	Fishery products	8	Manufacture of other food and beverages
9	Stone, sand, clay	9	Manufacture of textile and clothing
10	Meat, meat products	10	Manufacture of wood products
11	Fish, fish products	11	Manufacture of paper articles
12	Processed fruits, vegetables	12	Manufacture of chemical products
13	Oils, fats	13	Other manufacturing
14	Other food	14	Electricity and gas supply
15	Beverages	15	Construction
16	Clothing	16	Wholesale trade
17	Wood, wood products	17	Repair of household goods
18	Paper, paper products	18	Retail sale
19	Coke, petroleum products	19	Hotels and Restaurants
20	Other chemical products	20	Transport, storage
21	Other manufacturing	21	National post activities
22	Electricity, gas	22	Remaining communication
23	Water	23	Financial services
24	Construction	24	Business and rental activities
25	Wholesale	25	Public administration, defense
26	Repair of household goods	26	Education
27	Retail sale	27	Health and social work
28	Hotels	28	Other services
29	Restaurants		
30	Transport	No	Domestic institutions
31	National post activities	1	Government
32	Communication	2	Enterprise
33	Finance and auxiliary services	3	Non-profit institutions
34	Business activities	4	Zakat
35	Public administration, defense	5	Kapital account
36	Education	6	Stock change
37	Health, social work		
38	Other services		

- 6 Quintile 1 with high skilled members working Abroad
 - 7 Quintile 2 with low skilled members working in Palestine
 - 8 Quintile 2 with low skilled members working in Israel
 - 9 Quintile 2 with low skilled members working Abroad
 - 10 Quintile 2 with high skilled members working in Palestine
 - 11 Quintile 2 with high skilled members working in Israel
 - 12 Quintile 2 with high skilled members working Abroad
 - 13 Quintile 3 with low skilled members working in Palestine
 - 14 Quintile 3 with low skilled members working in Israel
 - 15 Quintile 3 with low skilled members working Abroad
 - 16 Quintile 3 with high skilled members working in Palestine
 - 17 Quintile 3 with high skilled members working in Israel
 - 18 Quintile 3 with high skilled members working Abroad
 - 19 Quintile 4 with low skilled members working in Palestine
 - 20 Quintile 4 with low skilled members working in Israel
 - 21 Quintile 4 with low skilled members working Abroad
 - 22 Quintile 4 with high skilled members working in Palestine
 - 23 Quintile 4 with high skilled members working in Israel
 - 24 Quintile 4 with high skilled members working Abroad
 - 25 Quintile 5 with low skilled members working in Palestine
 - 26 Quintile 5 with low skilled members working in Israel
 - 27 Quintile 5 with low skilled members working Abroad
 - 28 Quintile 5 with high skilled members working in Palestine
 - 29 Quintile 5 with high skilled members working in Israel
 - 30 Quintile 5 with high skilled members working Abroad
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Appendix 2. Elasticities used in the price systems (Armington and CET elasticities)

Commodity groups in the SAM	σ_1	σ_2	$\sigma_{3.1}$	$\sigma_{3.2}$	Ω_1	Ω_2	$\Omega_{3.1}$	$\Omega_{3.2}$
Olives	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Cereals, other crops	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Fruits, nuts and flowers	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Vegetables, horticultural specialties	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Animals	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Milk	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Forestry products	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Fishery products	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Stone, sand, clay	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Meat, meat products	1.58	1.2	3.2	3.2	2.0	1.2	4.0	4.0
Fish, fish products	1.58	1.2	3.2	3.2	2.0	1.2	4.0	4.0
Processed fruits, vegetables	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Oils, fats	1.436	1.2	2.9	2.9	2.0	1.2	4.0	4.0
Other food	1.745	1.2	3.5	3.5	2.0	1.2	4.0	4.0
Beverages	3.342	1.2	6.7	6.7	2.0	1.2	4.0	4.0
Clothing	1.335	1.2	2.7	2.7	2.0	1.2	4.0	4.0

Wood, wood products	3.195	1.2	6.4	6.4	2.0	1.2	4.0	4.0
Paper, paper products	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Coke, petroleum products	1.079	1.2	2.2	2.2	2.0	1.2	4.0	4.0
Other chemical products	4.834	1.2	9.7	9.7	2.0	1.2	4.0	4.0
Other manufacturing	1.463	1.2	2.9	2.9	2.0	1.2	4.0	4.0
Electricity, gas	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Water	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Construction	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Wholesale	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Repair of household goods	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Retail sale	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Hotels	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Restaurants	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Transport	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
National post activities	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Communication	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Finance and auxiliary services	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Business activities	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Public administration, defense	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Education	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Health, social work	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0
Other services	2.2	1.2	4.4	4.4	2.0	1.2	4.0	4.0

Appendix 3. Elasticities used in the production module

Elasticities in the production system	
σ_1 CES for Output	0.5
σ_2 CES for Value added	0.8
σ_3 CES for Labour	1.1
σ_4 CES for Domestic Labour	1.3
σ_5 CES for Low and High Skilled Labour	1.5
σ_6 CES for Male Labour	1.8

Appendix 4: Tariff rate on imports from Israel in base and MFN scenarios (in %)

		Baseline	MFN
Agricultural products	Olives	0.0	37.3
	Cereals	0.0	32.5
	Fruits	0.0	39.8
	Vegetables	0.0	60.2
	Milk	0.0	37.3
	Animals	0.0	22.4
	Fish	0.0	37.3
	Forest products	0.0	20.2

Food products	Meat and dairy products	0.0	44.8
	Fish products	0.0	35.3
	Processed fruits and vegetables	0.0	32.4
	Oils and fats	0.0	59.6
	Other food products	0.0	43.9
	Beverages	0.0	73.4
Industrial products	Mining products	0.0	44.6
	Textile and leather products	0.0	42.5
	Wood products	0.0	40.1
	Paper and publishing products	0.0	36.3
	Coke and petroleum products	52.0	52.3
	Chemical and plastic products	0.0	62.5
	Other manufactured products	0.0	74.5

Appendix 5. Income demand elasticities for household groups

	Quintile 1 households	Quintile 2 households	Quintile 3 households	Quintile 4 households	Quintile 5 households
Olives	0.4	0.3	0.2	0.1	0.05
Cereals, other crops	0.4	0.3	0.2	0.1	0.05
Fruits, nuts and flowers	0.4	0.3	0.2	0.1	0.05
Vegetables	0.4	0.3	0.2	0.1	0.05
Animals	0.6	0.5	0.4	0.3	0.2
Milk	0.6	0.5	0.4	0.3	0.2
Forestry products	0.4	0.3	0.2	0.1	0.05
Fishery products	0.6	0.5	0.4	0.3	0.2
Stone, sand, clay	0.6	0.6	0.6	0.6	0.6
Meat, meat products	0.6	0.6	0.6	0.6	0.6
Fish, fish products	0.6	0.6	0.6	0.6	0.6
Processed fruits, vegetables	0.8	0.65	0.45	0.35	0.25
Oils, fats	0.8	0.65	0.45	0.35	0.25
Other food	0.4	0.3	0.2	0.1	0.05
Beverages	0.8	0.65	0.45	0.35	0.25
Clothing	1.2	1.2	1.2	1.2	1.2
Wood, wood products	1.2	1.2	1.2	1.2	1.2
Paper, paper products	1.2	1.2	1.2	1.2	1.2
Coke, petroleum products	1.2	1.2	1.2	1.2	1.2
Other chemical products	1.4	1.4	1.4	1.4	1.4
Other manufacturing	1.6	1.6	1.6	1.6	1.6
Electricity, gas	2	2	2	2	2
Water	2	2	2	2	2
Construction	1.2	1.2	1.2	1.2	1.2
Wholesale	1.5	1.5	1.5	1.5	1.5
Repair of household goods	1.5	1.5	1.5	1.5	1.5

Retail sale	1.5	1.5	1.5	1.5	1.5
Hotels	1.5	1.5	1.5	1.5	1.5
Restaurants	1.5	1.5	1.5	1.5	1.5
Transport	1.5	1.5	1.5	1.5	1.5
National post activities	1.5	1.5	1.5	1.5	1.5
Communication	1.5	1.5	1.5	1.5	1.5
Finance and auxiliary services	1.5	1.5	1.5	1.5	1.5
Business activities	2.2	2.2	2.2	2.2	2.2
Public administration, defense	2.2	2.2	2.2	2.2	2.2
Education	2.2	2.2	2.2	2.2	2.2
Health, social work	2.2	2.2	2.2	2.2	2.2
Other services	2.2	2.2	2.2	2.2	2.2

Appendix 6. Shares of imports in total supply and export in domestic output (in %)

	Import in total supply	Export in domestic output
Agricultural products	37.9	10.1
Food products	46.4	15.6
Industrial products	82.7	51.3
Services	12.2	3.2
All commodities	36.3	11.1

Source: Agbahey *et al.*, 2016.

Appendix 7. Composition of household income (in %)

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	All households
Labour	77.7	77.1	74.8	63.5	47.8	64.0
Capital	7.2	11.2	15.7	25.6	33.8	22.4
Land	0.0	0.0	0.0	0.0	0.0	0.0
Inter-household transfers	1.3	0.8	0.8	0.7	0.7	0.8
Transfers from non-profit organizations	0.3	0.2	0.1	0.1	0.0	0.1
Government transfers	10.3	7.6	4.3	6.4	8.4	7.3
Remittances	3.3	3.2	4.3	3.8	9.2	5.5
Total	100	100	100	100	100	100

Source: Agbahey *et al.*, 2016.