

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

Johanes Agbahey<sup>1\*</sup>, Khalid Siddig<sup>1</sup>, Harald Grethe<sup>1</sup>, Jonas Luckmann<sup>1</sup>

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<sup>1</sup> International Agricultural Trade and Development Group, Department of Agricultural Economics, Humboldt-Universität zu Berlin, Unter den Linden 6, 10099 Berlin (Germany)

\* corresponding author: [agbaheyj@hu-berlin.de](mailto:agbaheyj@hu-berlin.de)

## **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. A standard CGE model is modified to consider a multi-trade-partners set-up, a differentiated treatment for large and small trade shares, and tariff rate quotas. 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. Subsequently, 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

The question of what could be an optimal trade regime for a future Palestinian state is one that attracted substantial attention. Most studies used a descriptive analysis to address this question. Arnon and Bamyra (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 benefit from 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.

Besides these descriptive studies, a few estimates of the economy-wide impacts of different trade regimes have been produced for Palestine. Schiff (2002) used a 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 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). A standard model is modified to accommodate the specificities of the Palestinian economy. To calibrate the model, a unique 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, two, provides an overview of the current trade pattern in the West Bank. Section three presents the specifications of the model used and the features of the database that serves as benchmark for the model. Section four describes the trade options that are simulated. In section five are discussed the key results of the study. Finally, section six draws the main conclusions.

## **2. Overview of trade conditions in the West Bank**

The trade regime in the West Bank is governed by the Protocol on Economic Relations signed by the government of Israel and the Palestine Liberation Organization in 1994. The protocol was initially intended to cover a transitory period of five years, after which the Palestinian National Authority (PNA) would gradually be empowered with full control over trade and economic policies and eventually the provision of clear borders for a sovereign Palestinian state. Against its vision to create favourable conditions for the development of the Palestinian economy, the protocol did not entail any structural break. It merely formalized the one-sided customs union prevailing between Israel and the Palestinian territories since 1967. While the protocol recognized that the two parties might have different interests and priorities, it only offered the Palestinians a limited policy space. The “customs union” was not bilaterally coordinated. The trade regime in the Palestinian territories continued to follow the Israeli customs and the PNA could only set tariffs on a few imported goods and within certain limits (Vaggi and Baroud, 2005).

The Protocol provisions grant the PNA the possibility to enter into bilateral trade agreements with third countries. However, 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). Israel accounted in 2011 for 70% of total Palestinian imports and 86% of its exports (PCBS, 2012a). Since the value of the imports is four-fold that of the exports, the Palestinian economy carries a huge trade deficit, which represents 44% of its GDP (PCBS, 2014). The trade deficit with Israel alone makes two-thirds

of the total trade deficit. Due to the one-sided “customs union”, the Palestinian economy evolved into a captive market for Israeli products, as the production for the domestic market was undercut by the economies of scale realized by the advanced Israeli manufacturers (Naqib, 2003). Moreover, the development of a productive capacity in the Palestinian economy was held back by restrictions and regulations imposed on the Palestinian entrepreneurs by the Israeli administration (Botta, 2010).

Besides its inherent flaws, the Protocol also suffered from a selective application of its basic provisions (Elkhafif *et al.*, 2014). Against the presupposed free movement of labour and goods, political and military reality imposed a different path. 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, services 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).

While Israel is the main entry point for most Palestinian imports from the rest of the world, taxes on indirect import from third countries via Israel are often not transferred to the PNA. This results into 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.

## 3. Method

### 3.1. 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, EFTA2, 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.

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 standard CGE 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 3.2).

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<sup>2</sup> 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: West Bank SAM*

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 union, 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 as 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 3.2 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: West Bank SAM.*

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 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.

### 3.2. Model

The model used in this study is an modified version of the standard STAGE-2 model (McDonald and Thierfelder, 2013). 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.

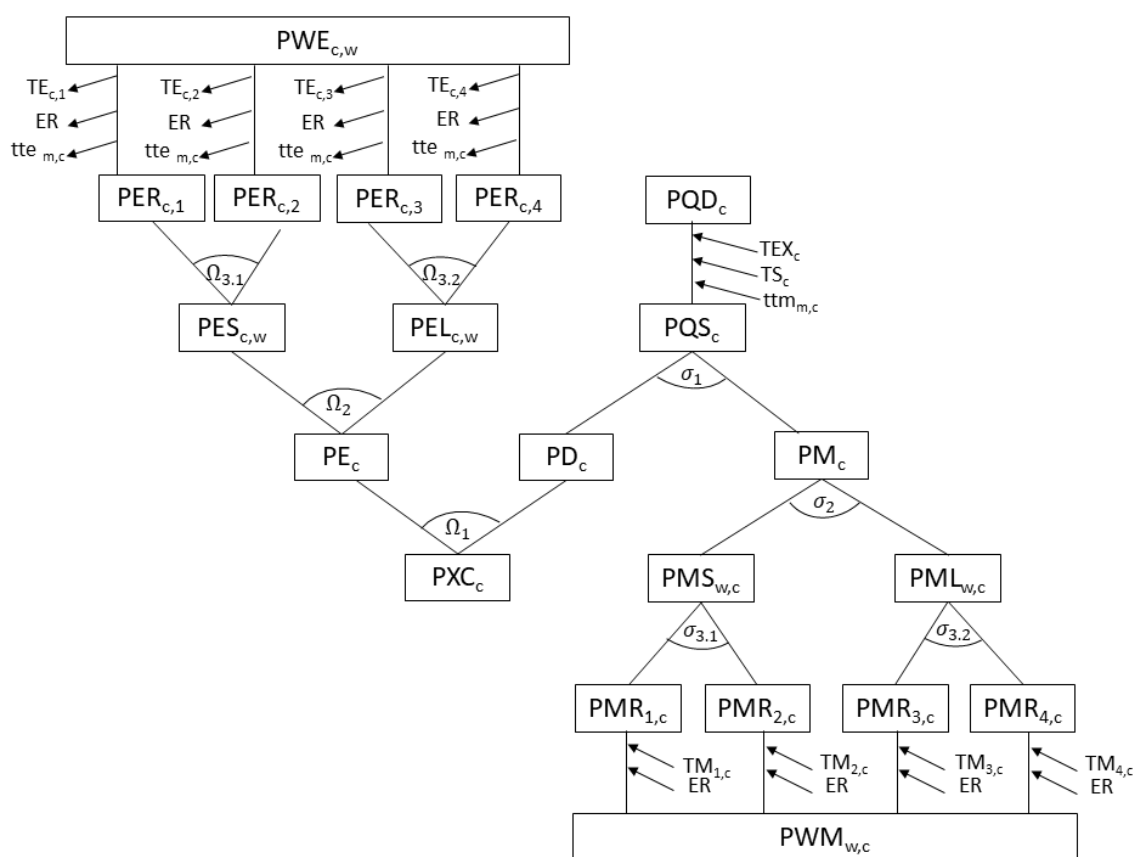
On the import side, if a trade partner  $w$  accounts for more than 10% of the Palestinian import for a commodity  $c$ , then for that commodity this trade partner falls in the sub-nest of large partners. If the import share of a trade partner is less than 10% of the total import of a commodity, that 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 1.

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. Own illustration.

To model the tariff rate quotas (TRQ) on food and agricultural products, a revised form of the mixed complementary problem used by Flaig *et al.* (2013) 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 ( $\tau^p$ ) is zero. If the imported quantity surpasses the quota,  $\tau^p$  is exactly the difference between the out-of-quota tariff rate ( $\tau^o$ ) and the in-quota rate ( $\tau^i$ ). With a binding quota, i.e. when the imported quantity equals the quota,  $\tau^p$  lies between zero and the difference between the in and the out-of-quota tariff rates (Equation [1]).

$$0 \leq \tau_{w,c}^p \leq \tau_{w,c}^o - \tau_{w,c}^i \quad \text{with} \quad QMO_{w,c} \geq 0 \quad [1]$$

For agricultural and food products, the tariff rate (TM) is composed of the in-quota tariff ( $\tau^i$ ) that is levied on the total import (QMR) and the quota premium ( $\tau^p$ ) that applies only to the over-quota imports (QMO) (see Equation [2]).

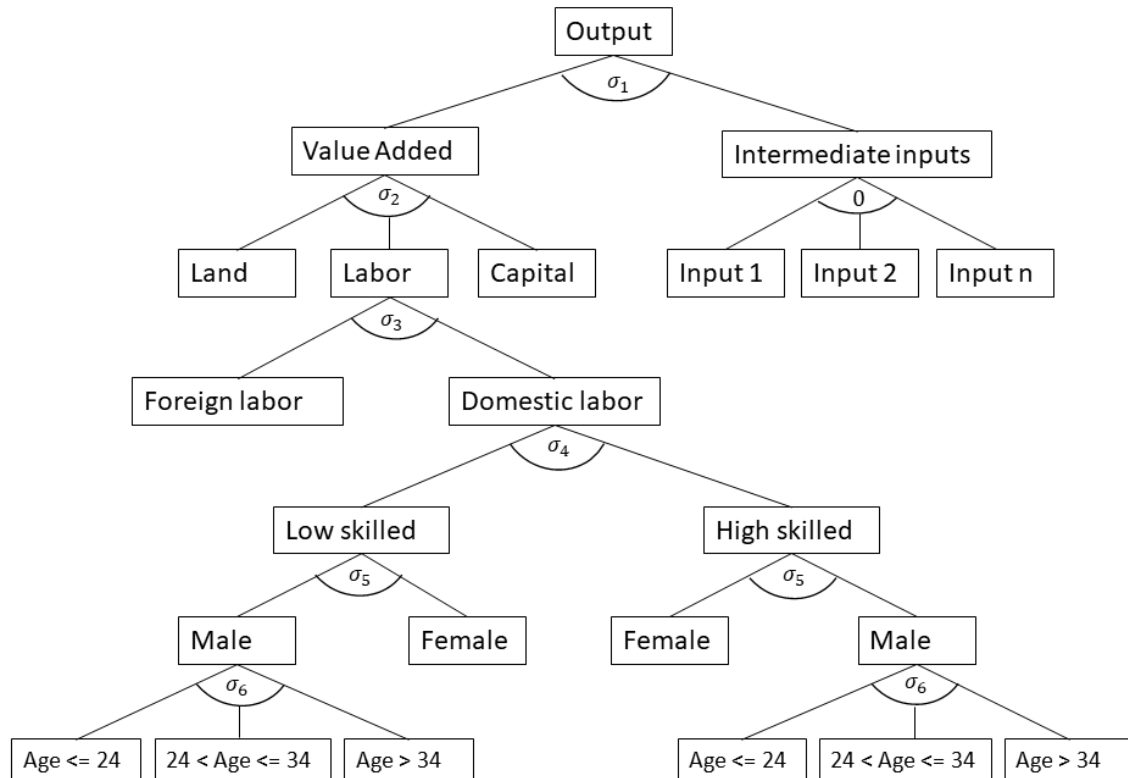
$$TM_{w,c} = \frac{(\tau_{w,c}^i * QMR_{w,c}) + (\tau_{w,c}^p * QMO_{w,c})}{QMR_{w,c}} \quad [2]$$

As import licenses are distributed to Palestinian importers free of charge, the quota rent then accrues to the Palestinian enterprises as shown in Equation [3], where YENT is the enterprise basic income and YE the final income including the quota rent.

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

The production module of the STAGE-2 model is modified to accommodate a 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 this nesting structure are reported in Appendix 2.

Figure 2. Production module



Source. Authors' own illustration.

### 3.3. Model closures

The model is investment-driven as investments in the Palestinian economy are largely exogenous. The level of investment is defined in terms of final demand because economic growth in the West Bank is likely to be correlated with a lower tension with Israel providing 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 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.

All factors are fully mobile across activities. Capital and land are fully employed, as there is no evidence of a spare capacity for these factors in the West Bank economy. By contrast, the official statistics report a substantial unemployment rate of labour, caused by the volatility of Palestinian employment in Israel and the low capacity of the domestic market. Moreover, the higher wages paid to Palestinian workers in Israel drives wages in the domestic market above equilibrium. To replicate this empirical evidence, the surplus labour assumption is used. This assumption corresponds to a horizontal labour supply curve, implying that additional labour can be drawn into employment at no marginal cost. In other words, the unemployed labour is assumed to take employment at the current real wage rates if there were employment opportunities.

In this model, a regime switching formulation of the surplus labour assumption is adopted. As long as there is unemployed labour, the supply curve is perfectly elastic, i.e. horizontal, and real wages are fixed. Once the pool of unemployed labour is emptied, the supply curve becomes perfectly inelastic, i.e. vertical, and any further labour demand is translated into wage increases. This formulation avoids an infinite supply of labour by restricting the size of the unemployed labour. The number of unemployed persons in the West Bank is determined based on official statistics for 2011 (PCBS, 2012b).

Regarding international trade and foreign market closures, two alternatives to fixed current account balance and floating exchange rate are explored and the results are 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 currencies<sup>3</sup> is implemented. This alternative closure is implemented by fixing the real exchange rate. The producer price index 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 current account balance are fixed. The exchange rate serves as numeraire.

### 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 union 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 West Bank 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 unchanged<sup>4</sup>.

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<sup>3</sup> 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)

<sup>4</sup> 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 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 are reported in Appendix 3.

*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 <sup>5</sup>
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: 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 real wages until the pool of 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<sup>6</sup>.

### 4.1. Effects on trade performance

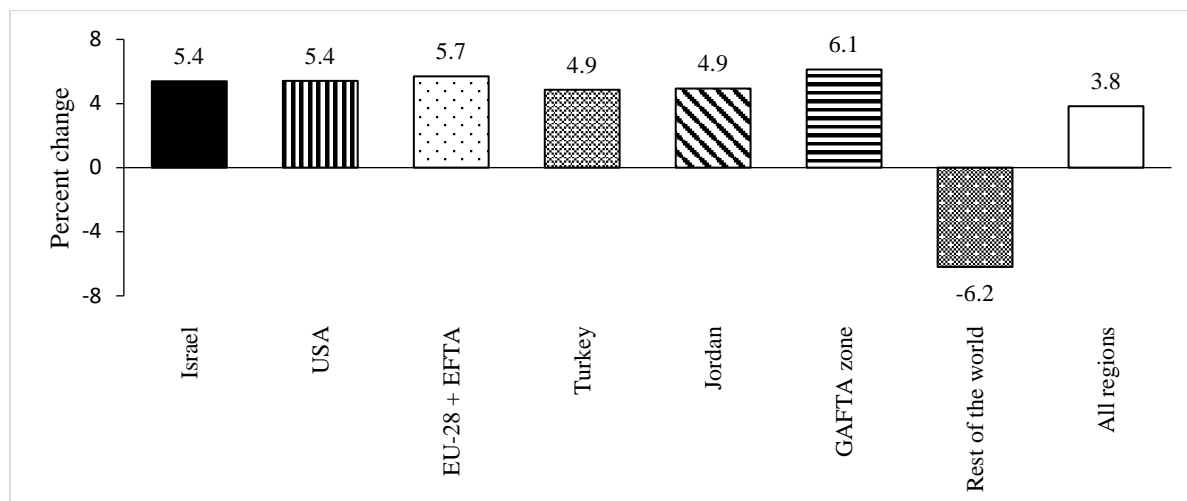
In the *Full Lib* scenario, the elimination of tariffs causes the domestic prices of imports to decrease, which raises demand for imported commodities. Due to the rising import demand, the exchange rate adjusts with a currency depreciation of 7%. Because of the currency depreciation, domestic prices 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

<sup>5</sup> 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.

<sup>6</sup> More detailed results can be provided upon request.

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 3.8%. In other words, the price drop for imports from the “rest 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

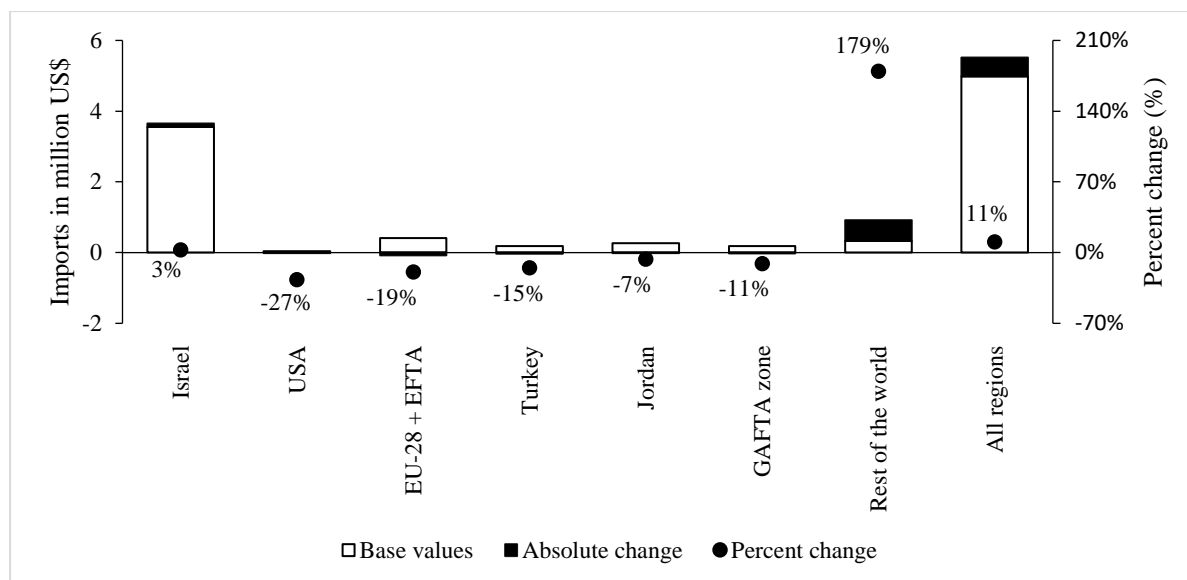


The net effect of removing the tariffs is an increase in the West Bank’s total imports by 10.7%. However, the change in the imported quantities differs across the trade partners. Because of the price drop, imports from the “rest of the world” region more than double (Figure 4). The import share for the “rest of the world” region jumps from 6.6% to 16.7%. Imports from Israel experience a 2.7% 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

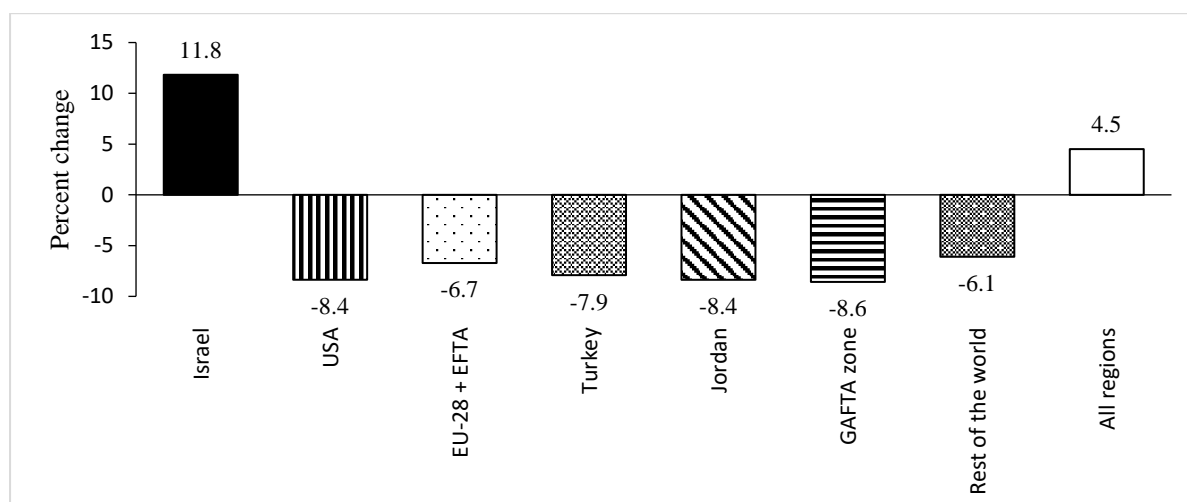
diversion caused by the customs union and the existing trade agreements. Nevertheless, Israel will remain West Bank's main trade partner. This finding confirms the prediction of Arnon and Weinblatt (2001) that Israel, being the largest economy in the region and the most natural outlet for Palestinian 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)



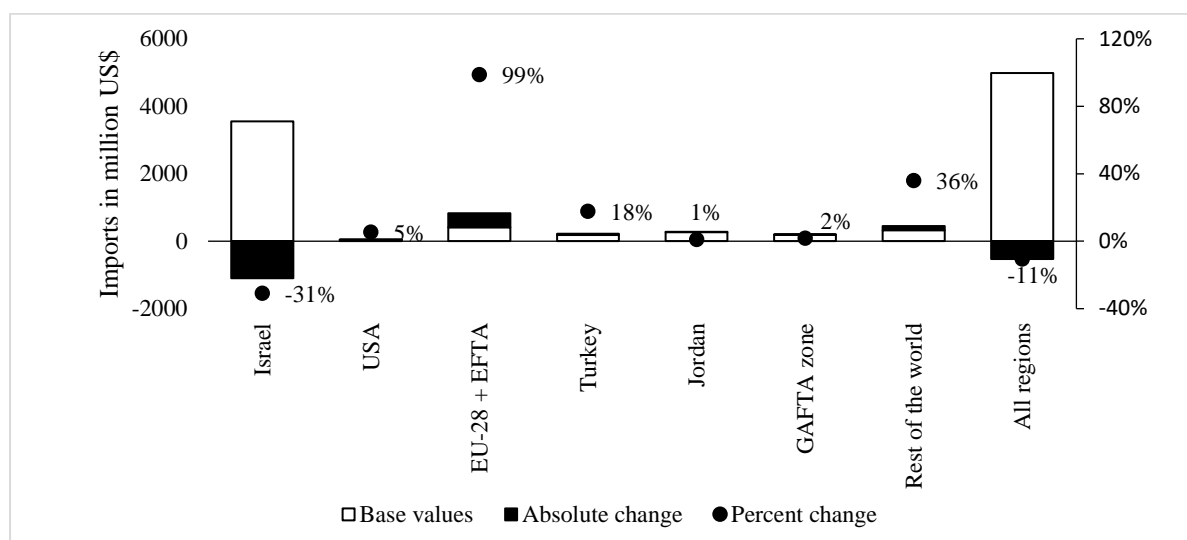
In the MFN scenario, the most favoured nation tariffs are applied to imports from Israel and they trigger a 11.8% increase in the domestic price of imports from Israel (Figure 5). For the other regions, whose tariff rates remained unchanged, the decrease in the domestic price of imports stems from the appreciation of the local currency by 10%. The net increase in the price of composite import by 4.5% 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 10.5% (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 98.8% and 35.9%. Whereas the import share for Israel diminishes strongly from 71.3% to 55.1%, the regions “EU-28 + EFTA” and “rest of the world” increase their import shares respectively from 8.3% to 18.5% and from 6.6% to 10.1%. 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)



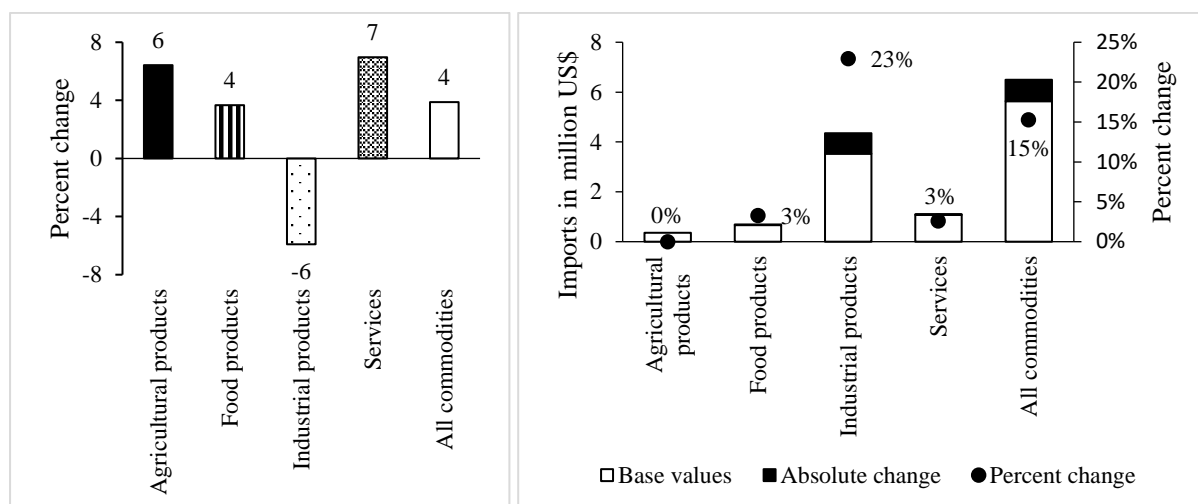
The change in domestic price of composite imports, which is the volume-weighted aggregate of the imports from individual region, varies according to the commodity group (Figure 7a). In the *Full Lib* scenario, it increases for all commodity groups, except for industrial products. The increase in the domestic price of composite imports for services by 6.9% 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 6.0% for imported composite industrial products. As their prices drop, the volume of imported industrial products increases by 23.0%.

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

a. Domestic prices of composite imports      b. Volume of imports by commodity group

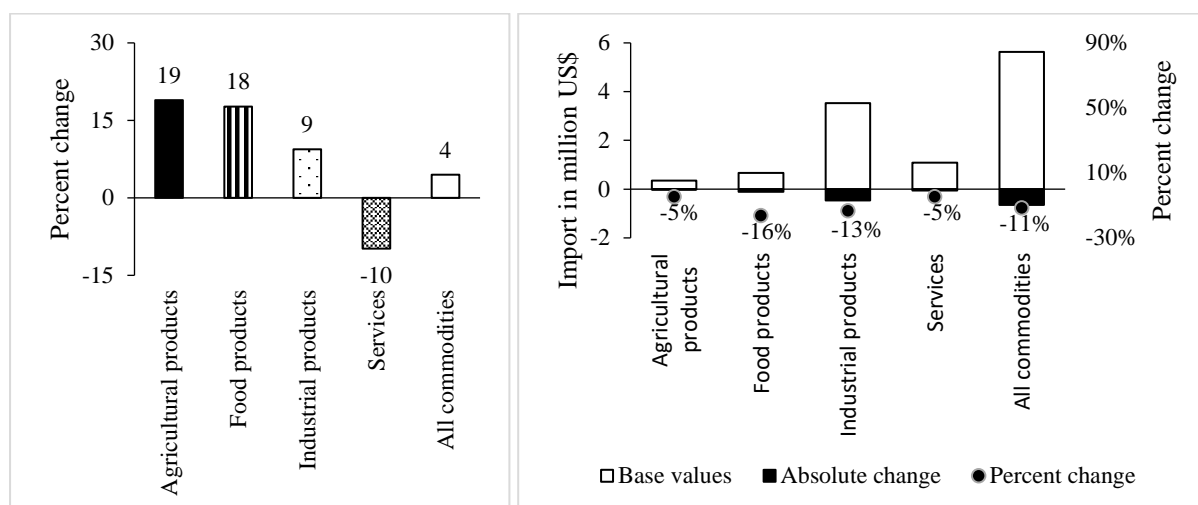


In the *MFN* scenario, the domestic prices of composite imports increase for goods (agricultural, food and manufactured products), because in this scenario the additional tariffs on imports from Israel are only introduced on goods and not on services. Therefore, while the price of composite imports decreases for services by 9.8% 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 (18.9% and 17.8% respectively), and moderately for industrial products (9.4%). 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 4.7% because overall demand in the economy falls as will be discussed in detail in section 4.3.

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

a. Domestic prices of composite imports

b. Volume of imports by commodity group



On the export side, the price of composite export increases on average by 5.3% in the *Full Lib* scenario, and it decreases on average by 8.5% 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 36.7% 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 33.5% 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 (see 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 9.2%. In the *MFN* scenario, both real import and export values decrease and the net trade effect is a reduction in the trade deficit by 5.2%.

## 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 17.3% to 5.9% (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 the highest unemployment rates in the base period.

By contrast, in the *MFN* scenario, the domestic production shrinks and activities demand less labour. Workers are laid-off and the unemployment rate increases. The 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 %)*

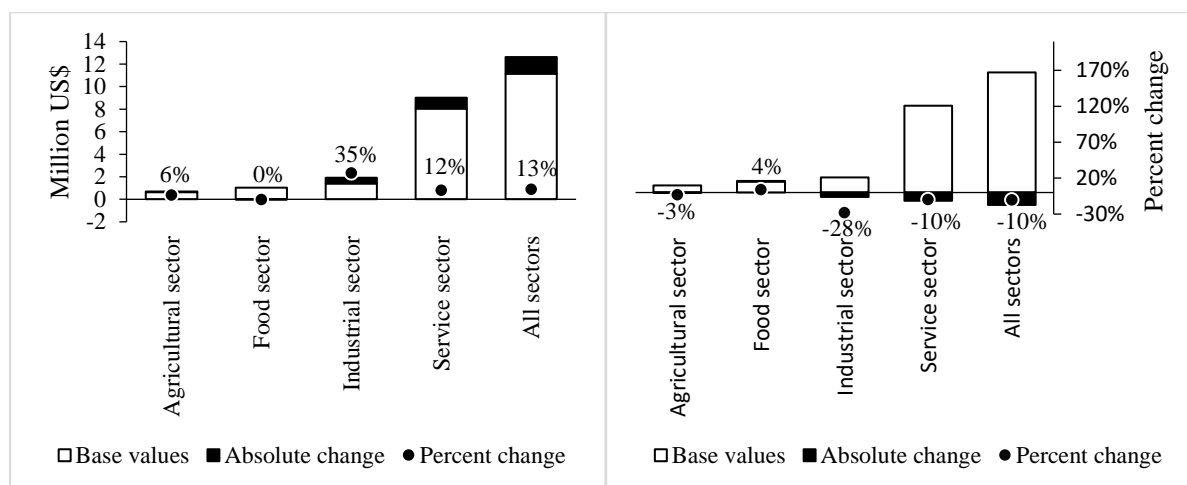
	<i>Base scenario</i>	<i>Full Lib scenario</i>	<i>MFN scenario</i>
Low-skilled male	17.4	5.2	27.3
Low-skilled female	8.8	0.0	17.3
High-skilled male	11.2	0.0	22.4
High-skilled female	32.6	22.4	40.4
Total labour	17.3	5.9	27.0

In the *Full Lib* scenario, wages increase for the labour categories, for which full employment is reached. On average wages increase by 0.9%. For capital and land that are assumed fully employed, factor price increases substantially more (by 21.5% and 9.1%, respectively). The increase in factor prices ultimately leads to increasing production cost by 2.3% on average across domestic sectors. Despite the increased production cost, increase in domestic demand leads to a domestic output increasing on average by 13.3%. 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 4) 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

a. Full Lib scenario

b. MFN scenario

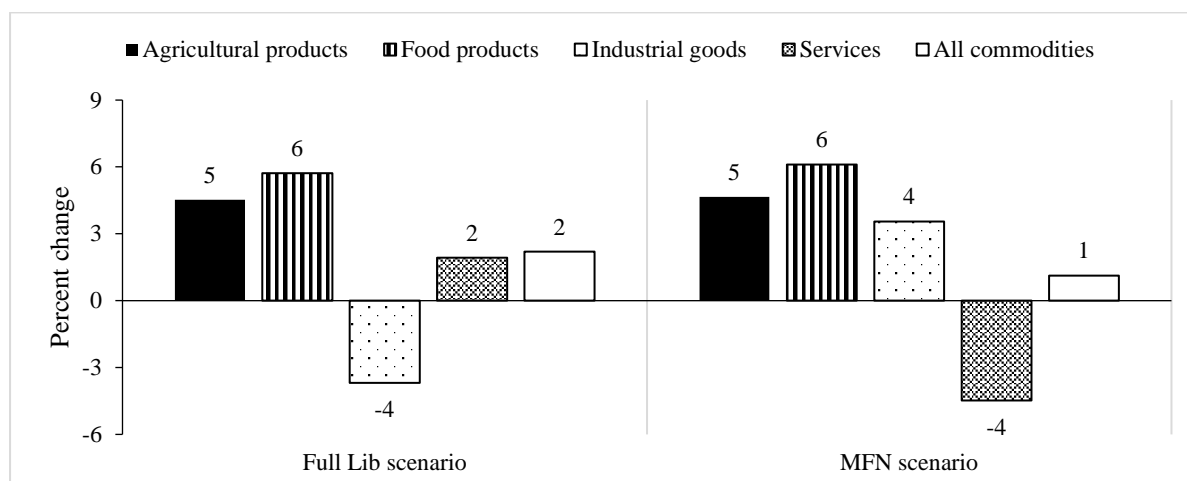


### 4.3. Effects on final consumption

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 2.1%, the production costs increase across all sectors by 2.3% 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 82.7% of the total supply (see Appendix 5). 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 2.7% in all sectors, and the margins decrease by 8.2%. 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 5). These shares are on average high for goods (68.6%) and low for services (12.2%).

Figure 10. Change in consumer prices by commodity group

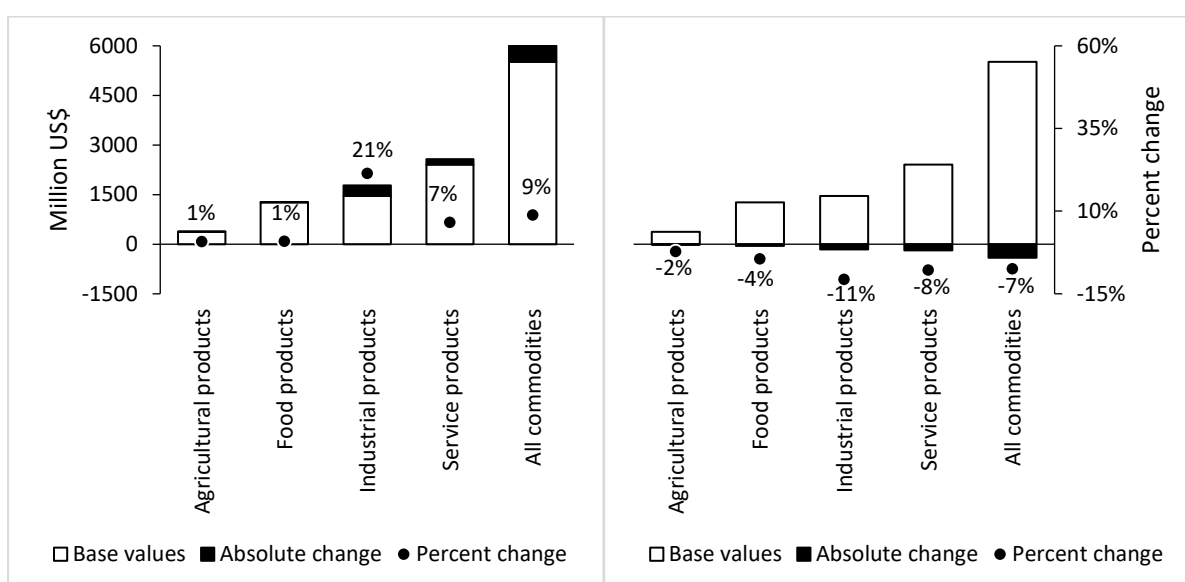


Changes in final consumption are mostly determined by household consumption. In the *Full Lib* scenario, household consumption increases for almost all commodities (Figure 11a), because households enjoy a higher income through the production factors they own. Consumption increases the most for services 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

a. *Full Lib* scenario

b. *MFN* scenario



#### **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 6). In the *Full Lib* scenario, total labour income increases by 14.5%, driven by both the increased employment and the increased wages. Total capital return increases by 21.0% due to a higher capital rent. Subsequently, income increases for all household quintiles by 15.3% 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 7.5%. The difference between the change in household income and expenditure is set aside as savings or spent on transfers.

In the *MFN* scenario, the reduced employment drives income from labour down by 13.2%. As demand for capital decreases, capital rent also decreases and ultimately total capital return declines by 19.1%. Consequently, income decreases for all household quintiles by 13.3% 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 8.4% on average. Household expenditure declines less than household income, because households reduce savings and transfers.

#### **4.5. Change in Government revenue**

The changes in tariff rates affect the tax revenue and hence total government revenue. Tariff revenue initially accounted for 29.3% of the government revenue. In the *Full Lib* scenario, government revenue increases by 6.4%, 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 (see 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 0.9% in the baseline to 8.9%. 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 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 55.1% of the West Bank imports, together with increasing imports from the other trade partners (see Figure 6) generate a 66.8% 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 7.2%. 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.

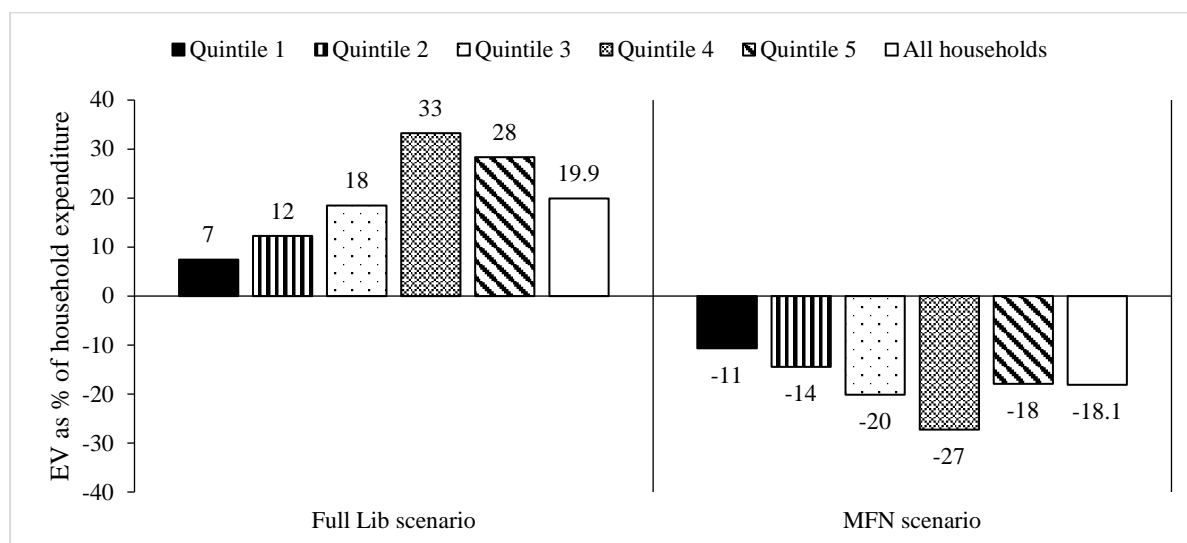
#### **4.6. Welfare effects and macroeconomic effects**

A welfare indicator used to summarize the effects from changing prices and income on households is the equivalent variation<sup>7</sup> 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, 62.1% 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 welfare loss for households in quintile 5 is less than that of households in quintile 4 due to reduced inter-household transfers, dampening the welfare loss of households in quintile 5.

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<sup>7</sup> 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

Figure 12. Change in household welfare by household quintile



Summarizing 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 8.4%. By contrast, a more restrictive trade policy, imposing new tariffs on trade with Israel (*MFN* scenario) leads the economy to shrink by 8.4%. 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

Two alternatives to the initial closure of floating exchange rate regime and flexible current account balance are simulated as described in section 3.3. 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 that are introduced 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 61.8%. 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 54.8%. 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
<b>Full Lib scenario</b>						
Israel	5.4	-1.4	-1.4	97	338	-60
USA	5.4	-1.1	-1.5	-11	-9	-12
EU-28+EFTA	5.7	-0.9	-1.2	-79	-61	-95
Turkey	4.9	-1.4	-2.0	-28	-18	-34
Jordan	4.9	-1.5	-2.0	-18	14	-27
GAFTA zone	61	-0.7	-0.8	-21	0	-27
Rest of the world	-6.2	-11.7	-12.5	592	646	549
All regions	3.8	-2.8	-2.9	533	911	296
<b>MFN scenario</b>						
Israel	11.8	24.0	24.0	-1094	-1321	-981
USA	-8.4	1.4	1.8	2	-1	4
EU-28+EFTA	-6.7	3.1	3.5	410	347	454
Turkey	-7.9	1.8	2.3	33	14	42
Jordan	-8.4	1.3	1.8	3	-37	12
GAFTA zone	-8.6	1.2	1.6	3	-22	9
Rest of the world	-6.1	3.8	4.3	119	79	139
All regions	4.5	15.7	15.9	-524	-940	-320

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 8.4% 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 10.0% as compared to 8.4% 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 2.0%, while in the *MFN* scenario it declines by only 0.9%. 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 and policy implications**

The Paris Protocol, which governs the economic relations between Israel and the Palestinian territories, formalized the customs union between the two economies. This customs union 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 to 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 union 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).

Among 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. 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.

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 23.5% 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 8.4% when quotas are not increased. In the *MFN* scenario, real GDP decreases by 8.1%, while it decreases by 8.4% 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 to protect domestic producers and ensue the domestic supply of food (food sovereignty) or enhance the overall economic benefits of trade. 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 17.3% to 5.9%. 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 19.9% 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.

It is pertinent to note that the surplus labour assumption used in the model is likely to overstate the changes in employment, absorption, and in welfare gains in the *Full Lib* scenario as the shock implemented increases wages, while it might understate the outcomes of the *MFN* scenario, as the shock implemented there reduces wages. These biases are due to the implicit assumption that employment within the System of National Accounts (SNA) boundary, i.e. the market activities, can be increased at no marginal costs and the opportunity cost of labour outwith the SNA boundary, i.e. the “unemployed” labour, is zero.

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 3.0% and a reduction of the domestic prices for exports to Israel by 3.0%. 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 8.4% 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.

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## Appendices

### *Appendix 1. Elasticities used in the price systems (Armington and CET elasticities)*

Commodity groups in the SAM	$\sigma_1$	$\sigma_2$	$\sigma_{3.1}$	$\sigma_{3.2}$	$\Omega_1$	$\Omega_2$	$\Omega_{3.1}$	$\Omega_{3.2}$
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, defence	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 2. Elasticities used in the production module*

Elasticities in the production system	
$\sigma_1$ CES for Output	0.5
$\sigma_2$ CES for Value added	0.8
$\sigma_3$ CES for Labour	1.1
$\sigma_4$ CES for Domestic Labour	1.3
$\sigma_5$ CES for Low and High Skilled Labour	1.5
$\sigma_6$ CES for Male Labour	1.8

*Appendix 3: 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 4. 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, defence	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 5. 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 6. 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.