

# Agricultural Policies and Trade Paths in Turkey

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## Abstract

In 1959, shortly after the European Economic Community was founded under the 1957 Treaty of Rome, Turkey applied for Associate Membership in the then six-member common market. By 1963, a path for integrating the economies of Turkey and the eventual European Union had been mapped. As with many trade agreements, agriculture posed difficult political hurdles, which were never fully cleared, even as trade barriers to other sectors were eventually removed and a Customs Union formed. This

essay traces the influences the Turkey-European Union economic institutions have had on agricultural policies and the agriculture sector. An applied general equilibrium framework is used to provide estimates of what including agriculture under the Customs Union would mean for the sector and the economy. The paper also discusses the implications of fully aligning Turkey's agricultural policies with the European Union's Common Agricultural Policy, as would be required under full membership.

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# Agricultural Policies and Trade Paths in Turkey

## Introduction

Turkey has been on a decades-long path toward membership in the European Union. At times, advancement of that goal stalled when events intervened or when the prospects for success dimmed. Nevertheless, the path already taken has shaped Turkish institutions fundamentally and, via trade and investment, the Turkish economy. The consequences for the agricultural sector are less direct, due in part to the historical political hurdles that kept primary agriculture out of the original form of the European Union –Turkey Customs Union; important as well were the divergent paths of domestic policies that the Customs Union exclusion permitted.

In this essay, we look at the current institutions and policies of Turkey’s agriculture sector and place them in the context of Turkey’s pursuit of EU membership. We model the economic effects of a set of additional steps that might be taken toward EU membership, namely an expansion of the Customs Union to include all of agriculture, an expansion of Turkey’s bilateral free trade agreements to match the set of agreements reached by the EU, and the economic impact of full membership. Full membership would oblige Turkey to adopt a body of regulatory rules embodied in the *community acquis* and to modify its agricultural policies so that they are consistent with the European Union’s Common Agricultural Policy (CAP). For Turkish agriculture, the primary practical consequence of adopting the *acquis* would be the implementation of a more robust set of mechanisms to ensure food safety, a process that has already begun and one that is likely to continue for reasons separate from EU membership requirements. More significantly, the instruments through which Turkey and the EU support agriculture have diverged in recent years, even though the levels of protection afforded their respective agricultural sectors are broadly comparable. Although modifying agricultural policies in Turkey is not strictly needed prior to EU membership, we argue that steps taken under the CAP to delink farm support from the production of specific crops would serve Turkey well, regardless of decisions taken about more fully integrating its economy with the EU. The reasons, which we also explore in the essay, have to do with fundamental elements of on-going structural change in the Turkish economy.

## Turkey-EU Institutions and Trade Relations

Turkey has deep and long-standing ties to the European Union, which have shaped the agricultural sector in important ways. Turkey was an original member of the Council of Europe, an association established in 1949 to promote European cooperation on human rights, the rule of law, culture and legal standards. In 1952 Turkey joined NATO, also established in 1949. In 1959, shortly after its founding under the 1957 Treaty of Rome, Turkey applied for Associate Membership in the European Economic Community (EEC), the original common market pillar of the European Union.<sup>2</sup> Turkey was also a founding member of the OECD, established in 1961.

From 1957 to 1963, Turkey worked with the then-six members of the EEC, Belgium, France, Italy, Luxembourg, the Netherlands and West Germany, to lay out a pathway for an eventual economic association. Although the envisioned association would fall short of full membership in the EEC, the scope of the planned economic integration was especially deep, given the historic context of the negotiations. To gain perspective, it is worth pointing out that, during this period, the so-called “Outer-Seven” (Austria, Denmark,

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<sup>2</sup> For a good discussion of the institutions and history underlying the EU-Turkey economic relations, see Togan(2004) and the essays in Cakir (2011).

Norway, Portugal, Switzerland, Sweden, and the United Kingdom) had established a rival free-trade area, the European Free Trade Area Association rather than join the EEC in its initial form. What's more, the applications of Denmark, Ireland, Norway and the United Kingdom to join the EEC were suspended in 1963, even as the details of Turkey's association with the EEC were being ironed out (Kreinin 1960; Preston 1997).

The negotiations between Turkey and the EEC resulted in the Ankara Agreement, also known as the Association Agreement, signed in 1963 and put into effect in December 1964.<sup>3</sup> At the heart of the Agreement was the phased creation of a Customs Union, to be established in three stages: i) a preparatory stage, expected to last five years, in which the EEC would provide financial support as Turkey prepared its economy for the Customs Union; ii) a transitional stage, expected to last at most 12 years, in which tariffs and trade restrictions would fall as the Customs Union was progressively established and economic policies between the partners harmonized; and a final stage in which economic policies would be coordinated under a finalized Customs Union.<sup>4</sup> The agreement also established a Council of Association, with representatives from both parties, to guide implementation, along with a mechanism for resolving disputes.

The Agreement is clear that the Customs Union was meant to comprehensively integrate the two economies. The Customs Union would cover trade in all goods, and involve all duties, quantitative restrictions and any other mechanism that protected domestic producers. Further, it obliged Turkey to adopt the EEC's Common Customs Tariff with third countries (Article 10).

The Agreement frequently refers back to the Treaty of Rome and the economic freedoms laid out in that document, seeing these as a source of guidance for the Association. For example, the Agreement calls for the abolishment of restrictions on the freedom to provide services and to establish businesses and to provide workers with the freedom to move between the EEC and Turkey, referring back to the relevant Articles of the Treaty of Rome.<sup>5</sup> The Agreement also calls for the eventual consideration of Turkey as a full member of the EEC (Article 28).

Still, as is often the case, primary agriculture presented a difficult hurdle for negotiators.<sup>6</sup> This is evident in Article 11 of the Agreement, which states that the Association would extend to agriculture, but under special rules. The Protocol also called for the Association Council to develop a subsequent Additional Protocol that would guide the transitional expansion of trade prior to the finalization of the Customs Union. The Additional Protocol was signed in 1970 and implemented in 1973. It called for the immediate reduction of restrictions and tariffs of most Turkish exports into the now nine-member EEC and a phased reduction of Turkish tariffs on EEC imports. Under a Temporary Agreement, the EC abolished restrictions on the import of most industrial goods from Turkey in 1971 ahead of the effective date of the new Protocol. In 1973, Turkey implemented its first round of tariff reductions, followed by a second round in 1976.

As the tariff reductions got underway, an economic crisis in Turkey, featuring high rates of inflation and unemployment, deepened. In response, Turkey suspended its obligations to implement the Customs Union; however, as part of international efforts to bolster Turkey's economy, the Council of Association reached an agreement (Decision 1/80) that phased out the customs duties on agricultural products imported into the EEC in four stages between 1981 and 1987.<sup>7</sup> The Decision, issued in September 1980, also eased constraints

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<sup>3</sup> The relatively brief text of the Agreement is available on-line at: <http://www.abgs.gov.tr/index.php?p=117&l=2>

<sup>4</sup> See Articles 2 through 5 of the Agreement.

<sup>5</sup> See Article 12 through 14.

<sup>6</sup> For a related story of how agriculture is often a problem for reaching broad trade agreements, see Madigan's (1994) account of the problems oilseed policies presented for the successful conclusion of the Uruguay Round of the GATT.

<sup>7</sup> The Council decisions are available on-line at: [http://www.abgs.gov.tr/files/files/okk\\_eng.pdf](http://www.abgs.gov.tr/files/files/okk_eng.pdf).

on Turkish workers residing in EEC member countries and strengthened economic cooperation between Turkey and the EEC. A few days prior to the Decision's release, a military coup d'état ousted the Turkish Government, effectively suspending further work by the Council. Relations between Turkey and the EEC were formally suspended in January 1982 and would not begin again until September 1986. During this crucial period the EEC expanded to include first Greece and then Portugal and Spain.

In September 1986, the Council reconvened and the ambitions of the Ankara Agreement were taken up with renewed vigor. Turkey applied for full EEC membership in April 1987 and submitted a plan to accelerate the implementation of the Customs Union. Changes were also underway in the governance structure of the EEC, resulting in the signing of the Maastricht Treaty in 1992. The Treaty had consequences for the decision process established under the Ankara Agreement, since it required all third-party trade agreements to be approved by the European Parliament. The Treaty also established the European Union (EU), with the EEC converted to a pillar under the EU, named the European Community (EC). This was a significant complication for a decision process that was already growing complex since an expanding EC had brought new members to the Association Council, which requires unanimity to issue its decision.

Nonetheless, in 1995, the same year that Austria, Finland and Sweden joined the EC, the Council announced Decision 1/95, which was approved by the European Parliament. The Decision laid out the implementation phase for the Customs Union with Turkey, which entered into effect on January 1, 1996.<sup>8</sup> In 1999, Turkey was officially recognized as a European Union candidate country, and in 2001 the Association Council adopted an Accession Partnership for Turkey. The Council adopted a Negotiating Framework in 2005 and negotiations began in 2006, nearly 42 years after the Ankara Agreement.

To date, the pathway to full EU membership for Turkey has been well articulated, partly because of Decision 1/95, and also because of the enlargement protocols worked out by the EU since the Maastricht Treaty. Still, obstacles remain. For one, the relationships in a process that began as an economic agreement between Turkey and six other countries are now multifaceted. The trade and economic components at the heart of the EEC have become more fully integrated into a larger set of policy objectives, first with the formation of the European Community in 1992 and again, in 2009 when the institutions and mandates of the EEC were subsumed into the European Union, and as a consequence, more closely integrated with the EU's political and social objectives. What's more, the number of member states, which must reach unanimity for each Association Council decision and for each step taken toward Turkey's membership in the EU, has expanded to 28.<sup>9</sup> In addition, Cyprus, now a member of the EU, remains divided following the failed unification referendum in 2002, with only Turkey recognizing the de facto state of Northern Cyprus, embrangling the Accession process. An important practical component of the membership process involves implementing EU rules and laws, known collectively as the *community acquis* or *acquis communautaire*, which for the purposes of negotiation are broken into 35 policy areas or chapters in EU parlance. By 2014, only the chapter on Science and Research had been completed (closed). EU member countries have blocked the start of some chapter negotiations and frozen negotiations on others, due in part to issues related to Cyprus.

Nevertheless, the institutions established under the Ankara Agreement have proved remarkably resilient. They have provided a permanent basis for negotiation and consultations, even after long periods when they

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<sup>8</sup> The Custom's Union includes Andorra and San Marino, countries that entered into a customs union with the EU in 1991 and 1992.

<sup>9</sup> Member states of the European Union as of 2013 and year of entry: Austria (1995), Belgium (1952), Bulgaria (2007), Croatia (2013), Cyprus (2004), Czech Republic (2004), Denmark (1973), Estonia (2004), Finland (1995), France (1952), Germany (1952), Greece (1981), Hungary (2004), Ireland (1973), Italy (1952), Latvia (2004), Lithuania (2004), Luxembourg (1952), Malta (2004), Netherlands (1952), Poland (2004), Portugal (1986), Romania (2007), Slovakia (2004), Slovenia (2004), Spain (1986), Sweden (1995), United Kingdom (1973).

are little used. The Association Council has also continued to produce effective technical policy decisions, despite significant changes in the composition and governance structure of the EU. In the case of agriculture, the Council has also proved adroit in moving forward when possible and making limited exceptions to free trade principles when needed.

Importantly, the Ankara Agreement put in place a strategy that first integrated Turkey and the EEC economically before uniting the two partners under a shared regulatory and political structure, a structure much more ambitious than the prevailing economically focused EEC governance structure in place when the Agreement was signed in 1963. This integrated trade structure, largely completed in the 1990s, has had a deep and persistent impact on the Turkish economy that would have been hard to imagine at the outset of the Agreement. For one, the growth of Turkey's economy in combination with the growth and expansion of the EU component economies has created a large and competitive common market. Second, as is discussed later in this essay, the relative macroeconomic importance of the exceptions carved out for agriculture has declined and the importance of the sectors covered by the Customs Union have grown, due to a restructuring of the EU and Turkish economies that is characteristic of growing economies.

#### Agricultural trade policies and the Customs Union

As with the Treaty of Rome, negotiators of the Ankara Agreement found it difficult to deal with agricultural policies and trade in a comprehensive way. This was partly because of the inherent political difficulties of negotiating trade concession for agricultural goods, but also because of the complex features of the EEC's Common Agricultural Policy. The approach taken was to signal the intent to eventually include agriculture and an alignment of agricultural policies in the Customs Union, but to treat the sector apart until a comprehensive solution could be found. The EEC had taken a similar approach under the Treaty of Rome, putting off discussion of agricultural policy until the 1958 Stresa Conference (Stead, 2008). As a start, the Agreement strictly defined what was meant by primary agriculture, based on definitions worked out in the Treaty of Rome.<sup>10</sup> In addition, while most trade in primary agriculture remained outside the general terms of the Agreement, a lengthy Provisional Protocol appended to the text provided a set of exemptions to ease Turkish exports of tobacco, dried figs, dried grapes and hazelnuts into the EU. A more general term of the agreement, precluded Turkey from favoring any single member of the EEC in its agricultural trade policies.<sup>11</sup>

The Additional Protocol, issued in 1970, calls for Turkey to align its domestic policies with the CAP to the point where agricultural goods can circulate freely in the Customs Union and requires the EEC to consider Turkey's agricultural sector when it puts CAP policies in place. The Protocol lays out the expectation that agricultural goods will move freely after 22 years, but allowed the Council to change that date.<sup>12</sup> Annex 6 to the Protocol provides selected Turkish agricultural products favored access to the EEC in the form of quotas or reduced tariffs. A brief section of the Annex deals with EEC exports to Turkey and simply calls on Turkey to grant the Community preferential treatment to the extent that imports into Turkey from the EEC increase in a satisfactory way. To maintain momentum, Article 35 of the Protocol calls on the Council to regularly assess progress and look to make improvements.

The reactivation of the Association and the subsequent roadmap to finalizing the Customs Union (Decision 1/95) contained several important agricultural provisions, some aspirational and others practical. Articles 9 and 10 of the Decision call on both parties to eliminate technical barriers to trade, including in food stuffs.

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<sup>10</sup> The Ankara Agreement relies on the definition of primary agriculture given in Annex I of the consolidated version of the Treaty of Rome, published in the Official Journal of the European Communities on December 24, 2002, available on the internet at: [http://frontex.europa.eu/assets/Legal\\_basis/12002E\\_EN.pdf](http://frontex.europa.eu/assets/Legal_basis/12002E_EN.pdf)

<sup>11</sup> Article 9 of Protocol No. 1.

<sup>12</sup> Articles 33-35 of the Additional Protocol.

On the practical side, section V of the Decision and a set of related annexes limited the scope for taxing processed agricultural goods to an articulated list of primary products. It also defined a methodology for taxing the agricultural content of traded products from third parties and also goods traded between Turkey and the EEC. The section also set a time table for rapidly reducing effective tariffs.

Chapter II of the Decision deals exclusively with primary agricultural products. The chapter reaffirms the common objective of Turkey and the EEC to include agriculture in the Customs Union and calls on each to make progress. But it also extends the 22 year implementation period announced in the 1970 Protocol. The Chapter reaffirms the call for Turkey to address any inconsistencies with the EEC CAP that might stand in the way of the free movement of agricultural goods, and calls on the EEC to take Turkey's interest into account when formulating agricultural policies.

The practical aspects of including primary agriculture appeared in the Association Council's Decision 1/98, issued three years later. The Decision itself is brief and deals exclusively with agricultural products. The body of the Decision announces the end of quantitative restrictions and then introduces three protocols. Protocol 1 of Decision 1/98 elaborates the preferential regime applied by the EEC for agricultural products originating in Turkey; Protocol 2 elaborates Turkey's regime for EEC imports; and a third Protocol lists the applicable rules of origin. Protocols 1 and 2 set out tariff reductions for a specified list of agricultural products in associated annexes. Imports of Turkish hazelnuts and processed tomatoes into the EU receive special consideration in Protocol 1. In the case of EEC imports into Turkey, Protocol 2 lays out tariff-rate quotas, based on large reduction or elimination of the within-quota duty. The rules of origin established in Protocol 3 were subsequently amended in December 2006 (Decision 3/2006).

### **Agriculture's place in the Turkish economy**

Elements of the Ankara Agreement were intended to shift economic incentives and opportunities and, by doing so, stimulate economic growth and improve the prosperity of Turkish citizens. Especially in the case of agriculture, the climatic and geographic features of an economy are relatively stable and can be an important source of long-run comparative advantage. However, with time, most features of an economy can shift, as the influence of general and sector-specific policies accumulate in institutions, and in the stocks of physical and human capital available in the economy, leading ultimately to a gradual restructuring.

In Turkey, this dynamic has resulted in an agricultural sector that is large by regional standards and well integrated with domestic and international markets; the composition of what the sector produces has changed as well, moving to higher valued products anchored in the country's natural advantages. At the same time, in an apparent paradox, the sector's significance in trade and for the economy as a whole has diminished considerably.

### **Macroeconomic evidence of structural change**

The agricultural sector of Turkey has grown to become the largest in the region; however other parts of the Turkish economy have grown faster in recent decades, fundamentally changing the sector's place in the general economy. As recently as 1980, agriculture employed most of the work force and produced nearly 27 percent of national income (Figure 1). By 2012, the sector's share of GDP had dropped below 10 percent, although more than 31 percent of the labor force remained in agriculture. The importance of agriculture in trade declined as well; agricultural goods accounted for about 20 percent of merchandise trade in 1980 but only 7 percent in 2012.

In general, this process of structural change has been beneficial. In Turkey, as in all but the wealthiest countries, average incomes outside of agriculture are higher than in agriculture, motivating an outflow of



labor from agriculture to other sectors, a process which often lasts for generations. The restructuring of the labor force is an archetypical element of economic development that spurs growth in nonagricultural sectors and raises incomes in agriculture as average sector incomes converge (Larson and Mundlak 1997; Mundlak, Larson and Crego 1998; Gardner 2000). In the case of Turkey, average value-added per agricultural worker to national income increased by nearly 75 percent between 1980 and 2012, while GDP per capita in Turkey more than doubled. Economic growth brought with it a significant reduction in poverty. Figure 2 reports poverty rates for rural and urban populations from 2002 forward.<sup>13</sup> Poverty rates in urban areas fell from nearly 39 percent in 2002 to 0.6 percent in 2012. Rural poverty rates fell sharply as well, from about 25 percent to 5.9 percent.

Still, despite the dramatic restructuring of the Turkish economy over the last 30 years, there are indications that the process is not yet complete. Figure 3 shows a ratio of the average income per worker in agriculture to economy-wide average income per worker in Turkey and in Brazil, Chile, Italy and Spain – peer countries with robust agricultural sectors. The graph shows that, despite rapid economic growth overall, Turkey has been less successful than its peers at narrowing the difference between agricultural and nonagricultural incomes. Recalling Figure 2, the sector differences are also reflected in the growing disparity in rural and urban poverty rates.

In combination, the changed role for agriculture in the Turkish economy and the remaining gap in average incomes between agriculture and other parts of the economy has subtle implications for policy. To a significant degree, agriculture no longer drives trade and economic growth in Turkey as it has in the past. This means that sector policies are less directly tied to the performance of the economy overall. However, the continued gap in incomes speaks to the need for continued productivity gains in the sector. Productivity gains and sector growth normally go hand in hand; however productivity gains are often also associated with a change in the composition of production, which means that some subsectors shrink as others grow. As discussed next, there is evidence that, in the case of Turkey, change in the composition of traded agricultural goods is well underway.

#### Evidence of structural change in agricultural trade

As agriculture's place in the wider economy changed, so did the composition and direction of Turkey's agricultural trade – changes that are largely rooted in the sector's natural strengths. Turkey benefits from a Mediterranean climate, conducive to producing high-valued horticultural goods of the type grown in Spain and Italy, but has more land and significantly greater water resources than either country (Table 1). Turkey is also strategically located relative to markets in Europe, Central Asia, and the Middle East and North Africa (MENA). In addition to its strong institutional ties to Europe, Turkey also has strong trade and cultural ties to MENA, where population growth rates are high and where food production is limited by water scarcity. As a consequence, the region has turned into significant food importer (Larson et al. 2014). In Europe and some MENA countries, income gains have also driven increased demand for fresh fruit and vegetables and the types of processed food products provided by Turkey's agribusiness community. In response, the composition of exports has shifted to higher-valued products and a second center of gravity for agriculture exports has emerged in MENA in addition to traditional European destinations.

Figure 4 shows the composition of Turkish agricultural exports by level of processing. In all cases, the goods are included in what the United Nation's Food and Agriculture Organization (FAO) classifies as primary agricultural goods. For our purposes, we subdivide this set of commodities into subgroups, based on notional

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<sup>13</sup> Corresponding data is not available for prior years.

ideas of value added.<sup>14</sup> In the late 1980s, about a third of Turkish exports consisted of unprocessed or lightly processed goods, like cotton, olive oil, or animal hides. With time, the share of this category of exports fell and the share of goods with a higher value-added content, such as wheat flour, cheese, tomato paste, and prepared juices, increased. The share of trade in highly perishables (mostly fresh fruit and vegetables) also grew, crops which are high-valued because the places with the agro-climatic conditions required to produce them are limited, and because of the costs associated with maintaining the quality of perishables and managing associated food hazards. The composition of trade by destination has changed as well. Figure 5 shows that the share of value has Turkey's agricultural exports from one that was strictly focused on the EU, to one in which MENA has become a secondary center of trade.<sup>15</sup>

The next figure reports data on trade in agricultural manufactured goods using data from Turkish exporting firms. The left panel of Figure 6 shows firm activity by product type to Europe, while the right side of the figure shows comparable data on to MENA.<sup>16</sup> The numbers in the table were constructed using information from firm censuses, matched with customs data, to count the number of firms exporting a particular type of agricultural good. The term "firm activity" is used in the table to indicate that the reported categories are not mutually exclusive and that there is double counting; for example, firms that ship to the EU might also ship to MENA and firms that ship fresh fruit might also ship prepared fruit.

As with the data on export shares, the data point to the relative stability of firm activity centered on Europe and the rise of new trade activity with firms and governments in MENA. The composition of the trading activity includes both primary agriculture of the kind excluded from the Customs Union and "manufactured" food items. Although it is hard to discern from the graphs, the value of exports for the representative firm exporting to the EU is higher than for other firms. Overall, the graphs indicate that the growth in export activities is focused on high-valued fruits and vegetables and on processed agricultural goods.

### **What would closer alignment of Turkish and EU policies entail?**

As discussed, the Ankara Agreement institutions provided an ongoing mechanism that prompted Turkey and the EU to align their agricultural trade policies, and the Association Committee frequently exhorted both sides to align domestic agricultural policies as well. As the Agreement institutions give way to the Accession institutions, the remaining differences in domestic policies take on greater importance. As an EU member state, Turkey would be obliged to fully align its tariffs for agricultural goods with those of the EU, a task made more complex due to the recent proliferation of bilateral agreements. As a practical matter, this obligation is equivalent to bringing agriculture into the Customs Union. More significantly, under EU membership, Turkey would adopt the EU's Common Agricultural Policy (CAP), implying changes to current domestic policies that would not be required under an expanded Customs Union.

#### *Agricultural policies in Turkey*

During the closing decades of the 20th century, the Government of Turkey intervened to manage the prices for key commodities through government purchases and sales. Farm inputs, including credit, were subsidized, and the government invested heavily in irrigation and other types of infrastructure. Institutions created to administer this complex set of instruments included State Economic Enterprises (SEEs); the Agricultural Sales Cooperative Unions (ASCUs); and the state-owned banks. An OECD evaluation concluded that "financial losses due to intervention purchasing by ASCUs, the Turkish Grain Board, the State-owned Tobacco Enterprise and the state-owned Sugar Enterprise, coupled with borrowing by the SEE from

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<sup>14</sup> The full taxonomy used to generate the table is given in Annex Table 1.

<sup>15</sup> The increased importance of the MENA region for Turkish exports is reflected in other sectors as well. See World Bank (2014b).

<sup>16</sup> The original data is classified HS2002, sectors 01-24.

commercial banks at relatively high interest rates, were key factors in the country's overall economic turbulence in the 1980s and 1990s." (OECD 2011b, p. 10)

Agricultural policies began to rely more heavily on markets starting in 2001 under the Agricultural Reform Implementation Project (ARIP). Under the ARIP, between 2001 and 2008, state-owned enterprises and the ASCUs were restructured, and the practice of administering commodity prices abolished. To ease the transition and to help prepare for EU accession, the government established a National Farmers' Registry System (NFRS) that allowed farming households to receive direct income support de-coupled from production. The rationale for the policy change was to allow farmers to respond to price signals when deciding what to produce, while continuing to provide levels of income support similar to that received under the system of commodity price supports. Still, as a practical matter, the portion of total producer support that was de-coupled was never large and has dwindled since 2006.

As discussed, many producers in Turkey are shielded from international competition by an array of import tariffs, especially livestock, dairy and sugar beet producers.<sup>17</sup> In addition, floor prices for cereals, sugar and tobacco are supported through direct purchases. Production quotas are in place for sugar beet. Fresh and processed fruit and vegetables, derived food products, poultry meat and eggs receive export subsidies. Tobacco and hazelnut farmers benefit from a program to help them transition to other crops. Crops that are deemed in short supply qualify for premium payments, sometimes referred to as deficiency payments; oilseeds, olive oil, cotton, cereals, tea and pulses have benefited from the program in recent years. Interest rate concessions and direct payments encourage the improvement of livestock breeds and land improvements that protect soils and allow the consolidation of small tracts. De-coupled income support, instituted under ARIP, has been phased out, but farmers registered under the NFRS, receive so-called "diesel payments" and "fertilizer payments," which totaled nearly \$US 45 per hectare in 2011, are in practice de-coupled.<sup>18</sup> The livestock sector benefits from a variety of animal husbandry supports. The government also reimburses 50 percent of the premiums on an insurance scheme available to all producers, which covers field crops, orchards, greenhouses, cattle, poultry and bees against hail, frost and animal life. Most farmers are exempt from income taxes

Taken together, these policies provide a level of support for producers greater than that provided by most OECD countries. Table 2 shows the average level of support between 1996 and 2011. The units in the table, known as Percentage Producer Support Estimates (percentage PSEs), are based on an OECD methodology that combines various types of interventions into an estimated average value for producers, relative to the farm-gate value (inclusive of support) of what they produce.<sup>19</sup> Because the methodology converts disparate interventions, like trade barriers and subsidized insurance, into value equivalents, the methodology is used to show the aggregate effects of those policies. Calculations based on the approach are often the basis for treaty negotiations. As the table reveals, all told, producers in Turkey receive greater support than do farmers in the EU. Among OECD countries, only Iceland, the Republic of Korea, Japan, Switzerland and Norway had higher percentage PSEs than Turkey in 2011.

As the table shows, this has not always been the case. Although farmers in Turkey have received greater levels of support than Chile or the United States, levels were lower than in the EU until recently. Support to farmers

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<sup>17</sup> This section relies heavily on the policy descriptions for Turkey in OECD (2011a), OECD(2011b) and OECD (2012).

<sup>18</sup> Despite their name, these payments are de-coupled and are paid regardless of whether fertilizer or fuel are purchased.

<sup>19</sup> The OECD defines the measurement thus: "The Producer Support Estimate (PSE) is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to support agricultural producers, measured at farm gate level, arising from policy measures, regardless of their nature, objectives or impacts on farm production or income....The percentage PSE is the ratio of the PSE to the value of total gross farm receipts, measured by the value of total farm production (at farm gate prices), plus budgetary support." Available on the Web at: <http://stats.oecd.org/glossary/detail.asp?ID=2150> (downloaded Jan 27, 2013).

dropped sharply in 2001, in response to budgetary constraints at the start of ARIP, then continued to climb until 2006. As the EU successfully lowered and de-coupled support to rural areas, EU percentage PSEs fell below those of Turkey. Since 2006, rates have fallen in both Turkey and the EU, but remain high relative to comparable agricultural sectors.

Figure 7 gives a breakdown of the percentage PSEs by type of policy instrument employed for Turkey and the EU. Focusing first on the right-hand side panel, the figure shows that, although the list of interventions discussed at the start of this section is long, the agricultural sector in Turkey is largely supported through higher prices, in particular through the protection provided by import tariffs and export subsidies and, to a lesser extent, premium payments given to particular crops. Under the terms of its WTO commitments, Turkey also has the right to extend a limited level of support to its agricultural sector through export subsidies; export subsidies are allowed on 44 product groups, with 16 of these receiving export subsidies of 10-to 20% in 2011 (OECD 2012, p. 216). As the figure shows, the average ratio of producer prices to border prices (NPC) in Turkey fell from 1.25 in 1995-97 to 1.19 in 2009-11, largely due to rising world prices (OECD, 2012).

An important practical consequence of delivering support linked to specific crops is that it requires farmers to produce particular products to receive support. Conversely, switching from one crop to another can affect the level of support farmers received. In addition, the amount of support a farmer receives increases along with production levels, so that crop-linked support mechanisms usually result in greater aggregate production levels. In turn, this can lead farmers to use marginal land and water resources, or perpetuate the use of outdated production methods that would not be profitable absent subsidies.

#### *Agricultural policies in the European Union*

EU agricultural policy instruments and objects have shifted significantly during the last decade, moving away from a system that relied heavily on commodity-linked payments and on border measures, such as variable tariff protection and export subsidies, to one that supports rural communities in a de-linked fashion. However, Agricultural policies for EU members are made up of a mix of common and national policies that are supported in part by EU funds and in part through national budgets. As with policies in Turkey, legacies of past policies are still present in the current mix of instruments, despite efforts to detach support from production incentives.

Two pillars comprise the EU's Common Agricultural Policy (CAP). The first pillar is made up of common instruments, including Single Payment Scheme (SPS) and Single Area Payments Scheme (SAPS), and a mixture of instruments, including tariffs, tariff rate quotas (TRQs), export subsidies, price supports and, in the case of sugar, private storage incentive (OECD 2012). Pillar II programs are organized according to National or Regional Development Programs and, in contrast to Pillar I programs, are partly funded and directed by individual member states. The stated goals of the CAP are to: i) improve competitiveness; ii) improve the environment and maintain the countryside; and iii) improve the quality of life in rural areas and diversify local rural economies. In 2010, the EU budget on agriculture and rural areas amounted to EUR 58.8 billion (USD 75.2). Most of the budget went to Pillar I payments (70%). Pillar II payments made up 24%, with most of the remainder going to market price supports. Of the Pillar I payments, most went to de-coupled payment schemes, based on historical production patterns. However, cereals and sugar are protected through tariffs, tariff-rate quotas and export subsidies. Sugar prices are also supported through production quotas and storage regimes; for some cereals floor prices are protected through public interventions. Eggs, poultry and sugar benefit from price-triggered "special safeguards." What's more, EU members can spend 10 percent of the funds they receive under Pillar I for specific purposes, including providing price support.

Historically, the EU provided a considerable amount of support through export subsidies. Reliance on these measures has dropped dramatically and the EU has offered to eliminate these measures in the context of a successful Doha Agenda. In 2011, spending on these measures declined from \$US 5 billion in 2004 to \$US 270 million in 2011 (OECD 2012, p. 144).

Another feature of current EU agricultural policy is an emphasis on boosting spending on agricultural research (OECD 2012). The EU will spend USD 970 million on three pan-European research facilities that will in the areas of i) environment and land-use changes; ii) systems biology in agricultural, healthcare and pharmacology; and iii) providing access to viruses, bacteria and fungi need for research on, among other areas, agricultural pests and diseases. Plans are also underway to promote agriculture as part of a European Innovation Partnership initiative.

On the whole, despite the EU's large array of support instruments, the support given to agriculture in the EU has declined as a percentage of farm-gate value (Figure 7). Rising commodity prices play a role, but budget constraints have as well. Still, the level of EU support hovers near the OECD mean, and remains above the support given to more competitive agricultural sectors (Table 2).

The left panel of Figure 7 illustrates how the relative importance of particular support instruments has changed as the level of support given to producers declined in the EU. The graph shows, that despite ample opportunities for commodity-specific interventions, commodity-specific program expenditures have declined significantly as a share of farm-gate value, and given way to de-coupled payments as the primary support mechanism.

This allows farmers in the EU to worry less about government programs when deciding what to produce and, as a consequence, gives them greater flexibility to adjust to changing circumstances. However, the shift in instruments has tended to shift the costs from consumers, who faced higher prices via tariff protections, to government budgets. This is reflected in the average ratio of producer prices to border prices (NPC), which has fallen from 1.33 in 1995-97 to 1.05 in 2009-11 (OECD 2012, p. 138).

### **Pathways for deepening the economic ties between Turkey and the European Union**

In the next section, we report modeling results on a series of additional steps that might be taken toward EU membership: an expansion of the Customs Union to include all of agriculture; an expansion of Turkey's bilateral free trade agreements to match the set of agreements reached by the EU; as well as the economic impact of full membership. Before doing so, we briefly explain what each step would entail. Under the general equilibrium modeling framework, we assume that food safety requirements will not unduly impede trade flows. There have been conflicts between Turkey and the EU over food safety issues in recent years; however, under the Accession institutions, steps have been taken to align standards in the two economies, which we discuss in this section as well.

#### Bringing agriculture fully into the Customs Union

The decades-long process of willowing down agricultural trade barriers has brought about a *de facto* free trade agreement between the EU and Turkey. Processed food items fall within the Custom's Union and the barriers that do remain on primary agricultural goods have been hollowed out by tariff reductions and special exceptions. A recent OECD report (2011b) concludes that about 70 percent of Turkish exports to the EU enter duty free.

In general, Turkey's tariffs for agriculture are based on value; Turkey applies ad valorem rates to nearly 98 percent of all tariff lines, and compound duties to 113 lines (mainly processed agricultural products such as

yoghurt and pasta). Variable duties apply to 84 tariff lines, such as butter, sugar confectionary, chocolate, malt, and prepared potatoes. Tariff preferences on agricultural products, granted under Turkey's trade agreements, are generally subject to quotas.

On average, trade policy provides greater protection for agriculture than other sectors. In 2011, Turkey's simple average applied most-favored-nation (MFN) tariffs for agriculture was over 41 percent, in contrast to about 5 percent average for non-agricultural goods.<sup>20</sup> Tariff rates on some processed meat products are especially high, ranging up to 225 percent; some dairy product tariffs, like those on buttermilk and cream, are set at 180 percent; duties in excess of 146 percent are applied to some fruit and vegetable products. Still, all tariff lines for agricultural products are bound, albeit at high rates. Tariff escalation, the practice of setting lower tariffs on raw materials and higher tariffs on processed agricultural products so as to protect domestic processing industries is most common for food, beverages and tobacco products. Turkey also maintains a statutory tariff, which can be used to boost applied tariff rates to 150 percent of the scheduled rate when deemed necessary, although overall rates cannot exceed those bound under the WTO.

As with Turkey, all agricultural duties for the EU are bound and, in contrast with Turkey, all non-agricultural tariffs are bound as well. In general, bound maximum tariff rates are lower in the EU. Because of the Customs Union, average applied tariffs on non-agricultural products are equal in the EU and Turkey.

Still, as Figure 8 shows, even though tariff protection accounts for a larger share of producer support in Turkey than in the EU, there are few practical differences when comparing applied rates. On average, tariff rates were much higher for dairy and animal products than in the EU. Smaller differences occur for horticultural goods, which both Turkey and the EU produce. In contrast to the EU, Turkey has a domestic tea subsector, which receives protection from imports.<sup>21</sup>

Said differently, despite philosophical differences about the role of tariff protection as an instrument of agricultural policy, the EU and Turkey have very similar tariff profiles, and the apparent differences in trade policies are largely due to differences in applied rates for horticulture, dairy and the livestock subsectors.

#### *Do food safety requirements serve as non-tariff barriers?*

Historically, sanitary and phyto-sanitary standards (SPS) are viewed with suspicion by trade policy makers as potential vehicles for technical barriers to trade. And SPS related interventions have been a long-standing source of irritation in Turkey-EU trade relations. A significant flare up occurred following the 1996 discovery of Mad Cow Disease in some EU states with Turkey, among other countries, halting imports (Engel 2000). In response, the EU reintroduced duties on imports of Turkish tomato paste and watermelon. Although Turkey did offer compensation for the ban in 2005, Turkey's restrictions on beef stayed in place until 2010 when Turkey issued authorizations to 14 qualified member states (Stivachtis 2011). Although the EU is a unified customs territory importers are permitted to distinguish between areas within a customs territory on the basis of criteria like the disease-free status of those areas, the status of the remaining states remains contentious (World Bank 2014a).<sup>22</sup>

On the Turkish side, EU unwillingness to accept animal product exports from Turkey is a long-standing irritant that has been only partially addressed. In 2009, seven Turkish companies were approved to export process poultry to the EU (USDA 2010). And in 2013 after an absence of 13 years, dairy exporters from

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<sup>20</sup> Tariff details for Turkey are given in Annex Table 2. Annex Table 3 reports the equivalent tariff information for the EU.

<sup>21</sup> Turkey accounted for just under around 5 percent of world production in 2011, according to FAO (2013).

<sup>22</sup> See GATT (1994, p74) for the relevant area rules.

Turkey regained access to the EU market when six firms were approved by EU regulators. (Anatolia News Agency April 2, 2013).

Because food safety concerns have stymied some types of agricultural trade, it is easy to view recent steps to improve Turkey's food safety as driven by its bilateral commitments to the EU. The Ankara Agreement and the body of related protocols and Council decisions call for an alignment of Turkish and EU policies that facilitate the free flow of goods, which among other things, requires an alignment of food safety standards. In addition, EU Accession requires that Turkey adopt the *community acquis*, including EU standards on food and animal safety.

Still, the technical standards required by the Customs Union and EU membership may matter less for Turkey than a growing need for agricultural exporters to meet stringent quality and food safety standards in order to compete globally. Firms keenly aware of the legal and reputational risks of serving or selling contaminated food have instituted their own hazard management systems that trace a product from field to fork., whether the product is sourced locally or imported.<sup>23</sup> Increasingly, public standards have presented a lower hurdle to trade than private standards for high-valued agricultural goods, which has in turn driven an updating of public standards (Hobbs 2010). Recent legislation in the US will bring standards there into better alignment with more stringent private and EU standards, part of a global trend toward stricter quality and safety requirements (Humphrey 2012; ). In addition, there is emerging evidence that countries like Chile are advantaged by strict quality and safety standards (Melo et al. 2014). The salient point is that as consumers increasingly purchase their food from grocery stores and restaurants, strict food safety and quality standards based on managed product streams, rather than ex post tests, have become an increasingly important and intrinsic component of agricultural trade.

In the case of Turkey, the requirement to align its food safety requirements with the *community acquis* dovetails with the ambitions of its agribusiness sector to penetrate high-value markets, and the Government has taken recent steps to upgrade domestic regulation. At the center of this effort is the Production, Consumption and Inspection of Food Law, implemented in 2004, an umbrella legislation designed to protect public health and lay out standards for the food industry. Another key piece of legislation is Turkey's 2006 Food Law (No. 5996), which requires all food processing firms to eventually conform to EU food safety standards. The Government has also taken significant action to improve food safety in the livestock subsector. An identification system for bovine diseases was introduced in 2004 and a similar system for sheep and goats in 2009. The Veterinary Services, Phytosanitary, Food and Feed Law, enacted in 2010, moves the regulatory framework for the livestock sector in line with that in the EU.

Nevertheless, a study by the World Bank (2010) identified shortcomings in current livestock practices that leave the food processing chain vulnerable to food safety hazards and gaps in compliance with EU food safety requirements. Efforts to close the identified gaps have been supported by the EU's Instrument for Pre-Accession Assistance Program (IPARD) for Turkey, which was approved in December 2007. The program targets key subsectors, including dairy, meat, fruit, vegetables and fish and has a total budget of EUR 1.165 billion. Under current plans the EU will fund half of the project, with the remaining half funded by the Government of Turkey and program beneficiaries in equal measure. Of the total budget, roughly 68 percent will go to helping farms (40 percent) and food processors (28 percent) conform to EU standards.<sup>24</sup>

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<sup>23</sup> See Hearath and Henson (2006) and the references therein about the voluntary adoption of hazard analysis and critical control point (HACCP) systems. Rouvière and Latouche (2014) discuss the liability incentives under EU law.

<sup>24</sup> Turkey's Ministry of Agriculture and Rural Affairs provides additional information on IPARD in a report available on-line at: [http://ec.europa.eu/enlargement/pdf/turkey/ipa/tk5\\_tk\\_ipard\\_programme\\_2007\\_en.pdf](http://ec.europa.eu/enlargement/pdf/turkey/ipa/tk5_tk_ipard_programme_2007_en.pdf).

### Third-party trade relationships

The Ankara Agreement and the subsequent work of the Association Council understandably focused on the bilateral trade relations between Turkey and the EU. The trade relationships with third-party countries were to be coordinated in the form of a common external tariff, a process that moved methodically and in a predictable way for nearly four decades. During this time, Turkey's trade relationships with other countries changed, for the most part, either through EU enlargement, or because of tariff concessions negotiated through a multilateral process under the General Agreement on Tariffs and Trade (GATT). Turkey became a GATT participant in 1951 and, together with the EU, participated in five successful rounds of tariff reductions from 1955 to 1994 (Togan 2005).<sup>25</sup>

With the Doha Round stalled, many countries turned to bilateral and regional free trade agreements, including the EU and Turkey. However, where the Customs Union and EU expansion institutions were robust, the rules for coordinating bilateral agreements are not. Under the Customs Union, the EU and Turkey are obligated, in general, to jointly impose a common tariff regime. However, as discussed, this obligation does not fully extend to agriculture. And, as a practical matter, some primary agricultural goods do not circulate freely due to unresolved SPS barriers. The effects of these omissions to the Customs Union had minimal consequences in a world where third-party tariffs are mutually set in a multilateral setting; however, the consequences become harder to track when they occur bilaterally. Even though Turkey is obligated under Decision 1/95 to align its commercial policies with that of the EU, third-party countries that have reached an agreement with one Customs Union partner are not obligated to reach an agreement with the remaining partner. What's more, even when both Turkey and the EU have successfully concluded a FTA with a common third-party, the terms of the respective FTAs can be different. This introduces the potential for trade diversion and a new set of trade irritants related to rules of origin.

Table 3 shows the third-party free trade agreements concluded or under consideration at the close of 2013. The list shows that Turkey is largely in a state of catching up with agreements already concluded by the EU, leaving Turkish exporters at a disadvantage to competitors from the EU. In addition, exporters that have concluded a FTA with the EU but not Turkey have an incentive to transship goods via the EU to avoid Turkish import duties. In the case of cars, Turkey uses protective measures based on rules of origin to counter trade deflection but this comes at a cost, since it reintroduces costly inspection processes that are generally avoided in a Customs Union.

In the near term, the FTA gap may widen before it closes, as new agreements under consideration include the large economies of Canada, Japan, India and the United States and important trading blocs like Mercosur, and the ASEAN countries are proceeding in an uncoordinated fashion. This is significant since the combination of rules that permit the free circulation of goods within the Customs Union together with a de facto non-common tariff schedule for third-party countries sets the stage for unintentional diversions in trade flows and additional confrontations over rules of origin. How this will play out for the Customs Union absent Turkey's accession to the EU is unclear, but we explore some of the welfare implications in a modeling exercise laid out in a latter section.

### **Policy Scenarios<sup>26</sup>**

In this section we report on an analysis of several potential pathways for agricultural trade policy for the EU and Turkey. Three policy scenarios are considered. The first scenario estimates the gradual alignment of

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<sup>25</sup> Turkey joined the World Trade Organization when the new organization subsumed the GATT in 1994.

<sup>26</sup> This section is based on Tsigas and Sahin (2013)



Turkey's agricultural policies with those of the EU, ending in Turkey's adoption of the EU's Common Agricultural Policy. The remaining scenarios examine the outcomes for an alternative policy trajectory, in which EU-Turkey agricultural trade remains outside the Customs Union, but FTAs are concluded for non-agricultural goods. The second scenario looks at the consequences of fully including Turkey in a set of EU Free Trade Agreement (EU FTA) agreements. The third looks at the consequences for Turkey as the EU reaches FTAs with Korea and the United States.

The analysis uses the multiregional, multi-sector GTAP model, a computable general equilibrium model (CGE) hosted at Purdue University. The GTAP CGE model is used in this study based on GTAP data V8.1 with a reference year of 2007. Model regions differ between the agricultural policy simulations under Scenario 1, and the remaining two scenarios. In the first, the world economy is aggregated into 21 regions (Annex Table 4). A different regional specification (15 regions), which identified individual trade partners, was used for the rest of the experiments (Annex Table 5). Documentation about the model and database is available at the GTAP website.<sup>27</sup>

### Baseline description

As of 2007, the calibration year for the modeling exercise, Turkey's average tariff on imports from the EU (0.47%) is below its corresponding average tariff on imports from the rest of the world (2.42%). On average, Turkey also applies lower tariffs on its agricultural and food imports from the EU (15.52%) than from the rest of the world (22.60%). Sugar and meat are exceptions where Turkey's tariffs on EU products are higher than their equivalent from the rest of the world. Turkey's average trade-weighted (AVEs) for food and agricultural are on average (i) 15.5% for imports from the European Union; and (ii) 22.6% for imports from the Rest of the World.

Turkey's exports to EU in food and agricultural products are mostly concentrated in processed foods and fruits, vegetables, and nuts. Turkey imports 30% of its food and agricultural imports from the EU. The EU as a whole imports 4% of its food and agricultural imports from Turkey (excluding intra-EU trade). EU imports from Turkey are 38% in "other foods" category which includes processed foods excluding dairy and 45% in "fruits, vegetables, and nuts."

Under the 2007 baseline, the EU-Turkey Customs Union covers trade in industrial products (excluding iron and steel). Under this arrangement: i) EU-Turkey trade in non-agricultural products is duty-free; ii) Turkey has adopted EU tariffs on non-agricultural imports from the rest of the world (the common external tariff); and iii) Turkey has adopted the non-agricultural components of EU free trade agreements with Albania, Bosnia-Herzegovina, Chile, Croatia, Egypt, Iceland, Israel, Jordan, Liechtenstein, Macedonia, Montenegro, Morocco, Norway, Palestinian Authority, Serbia, Switzerland, Syria, and Tunisia.

Turkey also has a Generalized System of Preferences (GSP) aligned with the EU's GSP, which grants preferences to developing countries. Under the GSP, tariff preferences are provided for selected non-agricultural goods depending on the level of sensitivity. Duties have been eliminated for imports of non-sensitive goods and have been reduced for sensitive products. Non-agricultural imports from LDCs are duty-free and quota-free in line with the EU's Everything-But-Arms amendment to its GSP. Outside of the CU, there are tariff preferences for exports of Turkish primary agricultural products to the EU market, limited by quota and a free trade agreement covering trade in iron and steel (ECSC) products.

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<sup>27</sup> Available on the internet at [www.gtap.com](http://www.gtap.com).

### Scenario 1: Aligning Turkey's agricultural policies with the EU's trade policies and the CAP

With this as background, scenario 1 contains four component policy changes that are implemented sequentially to bring Turkey's agricultural trade and domestic policies in line with EU policies: i) EU-Turkey trade in agricultural products becomes duty- and quota-free; ii) Turkey adopts EU tariffs and tariff-rate quotas on agricultural imports from the rest of the world (the EU common external tariff); iii) Turkey adopts the agricultural components of EU free trade agreements and the GSP; and iv) Turkey adopts the Common Agricultural Policy. The key findings from the simulation, given in Table 4, are as follows.

Impacts of widening the EU-Turkey Customs Union to cover food and agricultural trade have positive welfare impacts for Turkey. In all scenarios, real income (economic welfare) increases in Turkey. Welfare gains are highest (\$US 843 million) at stage iii, when agriculture is fully included in the Customs Union and Turkey has adopted the agricultural components of EU free trade agreements.

Turkey's adoption of the CAP reduces the welfare gains of trade policy reform because it diverts resources from manufacturing sector to agriculture. Turkish production and exports of agricultural and food products increase at the expense of manufactured goods.<sup>28</sup> Overall, a trade deficit of \$US 281 million occurs. Because efficiency gains are lower than those obtained under the trade liberalizing simulations, the overall welfare gains, defined as the sum terms of trade and efficiency gains, decline to \$US 500 million.

On average, consumer prices decline since Turkish markets are opened to competition. Prices decline further when Turkey adopts EU free trade and GSP policies. Prices decline the most in the case where CAP-like subsidies are adopted in Turkey since some tariffs are lowered but producers are compensated through alternative instruments that provide equivalent levels of support.

Under all scenarios, average wages for skilled and unskilled labor increase. This, combined with falling consumer prices, means that the further elimination of trade barriers will benefit lower income groups for whom wages comprise a larger share of their income. This effect is largest under the full integration scenario when Turkey domestic agricultural policies are brought in line with the CAP. The returns to capital and natural endowments also increase under all of stages of "deepening". Under the first three liberalization scenarios, land prices fall as protected crops face new competition. However, land rents increase significantly when CAP policies, which target agricultural producers rather than production, are implemented.

### Scenario 2: Finalizing non-compliant FTAs

Under the existing customs union, Turkey's imports of industrial products from EU FTA partners are duty free. In some cases, Turkey's exports of non-agricultural products to these same markets are also duty free. However, for a number of EU FTA partners asymmetries in the tariff schedules create opportunities for trade diversion. This is because industrial goods imported into Turkey from these sources trans-shipped via the EU may enter Turkey duty-free, while Turkey's industrial goods exported to directly to the same set of countries may not.<sup>29</sup>

In this analysis, the CGE model is used to quantify the impacts of these countries extending duty-free access to imports of industrial products from Turkey. The simulations focus on the following ten economies (which are identified in the GTAP database): Mexico, South Africa, Colombia, Peru, Panama, Costa Rica, Guatemala, El Salvador, Honduras, and Nicaragua. Ten different simulations are run (one for each economy) for the analysis.

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<sup>28</sup> Detailed product results are given in Annex Tables 6 and 7.

<sup>29</sup> Annex Table 8 shows the disparity of applied rates resulting from the set of piecemeal negotiations.

The results are summarized in Table 5. It shows that Turkey's real income would increase as a result of finalizing each of the outstanding FTAs in manufacturing trade. The highest gains would be obtained from Mexico (\$111 million), South Africa (\$115 million), and Colombia (\$41 million) because all Turkish exports would receive higher prices. In the aggregate, increases in imports would slightly exceed exports; however the Turkish exports which would experience an increase are textiles (to Mexico); wearing apparel (to Mexico and South Africa); paper products (to South Africa); petroleum and coal products (to Mexico); and motor vehicles and parts (to Mexico, South Africa, and Colombia).<sup>30</sup>

Turkey's overall exports to Mexico, South Africa, Colombia, Peru, Panama, Costa Rica, Guatemala, El Salvador and Honduras would increase as a result of finalizing the FTAs in manufacturing, but imports would increase more. Still, keeping in mind that the starting points for the model are \$US 123 billion in exports and \$US 170 billion in imports, the simulated net impacts of finalizing the trade agreements are negligible.

#### A summary of the policy scenarios

The simulated welfare gains for key trade policy changes are summarized in Table 6. As the last column reveals, the economy-wide welfare gains are small under any of the alternative policies when measured against the backdrop of the Turkish economy. In other words, even though agriculture has been nominally excluded from the Customs Union, events and accords reached since the Ankara Agreement have worked to minimize the economic consequences of that exclusion. Still, the analysis shows that bringing agriculture fully into the Customs Union does benefit Turkey, especially Turkey's consumers and wage earners. As discussed, the external tariffs for both economies are already nearly aligned, with the key differences in horticulture, dairy and livestock. These products are also the ones where food safety hazards are more likely. Consequently, the full benefits from extending the Customs Union to include agriculture depend on resolving safety standards, a process that has already begun under IPARD. It is worth noting as well, that the gains to land and labor, key assets for most farming households, are highest under scenario iv in which agriculture is fully included in the Customs Union and the EU's Common Agricultural Policy is adopted as well.

#### **Conclusion**

Turkey and the EU have been on a long path toward integrating their economies, guided by a remarkable set of institutions established under the Ankara Agreement. The institutions provided steady technical support and moved quickly to advance the long-standing goals of the Agreement when opportunities presented themselves, even after long periods of disuse. The institutions also proved agile at limiting the consequences of agriculture's exclusion from the original blueprint for the Customs Union.

Economic theory suggests that lowering trade barriers should result eventually to shifts in production and trade that leverage a country's comparative advantage, and there is casual evidence that this is the case for the agricultural sector in Turkey. Differences in the agricultural-trade regimes of Turkey and the EU remain but, over time, agreements brokered by the Association Council have whittled them down. Consistent with this, our simulations suggests that further integrating the economies of Turkey and the EU would generate wage benefits for Turkish workers and welfare gains for Turkish consumers; however the simulations also suggest that the gains would not be substantive when measured against national income.

Since the signing of the Ankara Agreement, economic growth and a restructuring of the Turkish economy have changed agriculture's role in the economy at large. A decades-long shifting of labor from agriculture to other sectors has facilitated overall growth and lifted average incomes both in both sectors. Poverty rates in

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<sup>30</sup> See Annex Table 9 for detailed results.

rural and urban areas have fallen as well. But there are indications that structural adjustment is not complete, as average incomes are lower and poverty rates higher in agriculture than for the economy as a whole.

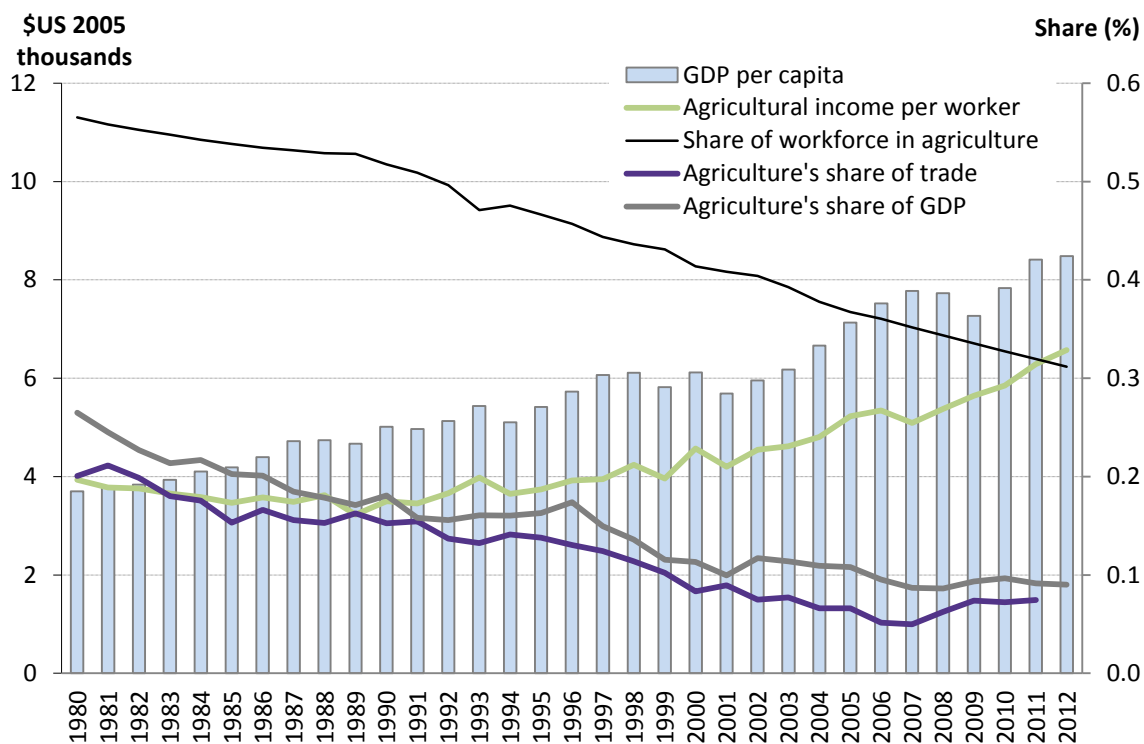
In its new role, agriculture is less important as a driver of economic growth and trade, but it remains crucial to the prosperity of rural areas. Full membership in the EU would compel Turkey to implement food safety standards consistent with the *community acquis* and to adopt the EU's Common Agricultural Policy. As a practical matter, Turkey has already taken steps to bring domestic food safety standards in line with the EU's, in part because meeting such standards is needed to participate fully in the markets that supply supermarkets, restaurants and agribusinesses worldwide. Consequently, for policy makers, the remaining question is whether taking the additional step of adopting domestic policy measures similar to the CAP would benefit Turkey. Based on first principles and backed by simulation results, we believe there are elements of the EU CAP that might serve Turkey well, even if progress toward EU membership stalls. In particular, it seems likely that a policy shift in Turkey away from the practice of tying assistance to the production of historically important crops in favor of the emerging EU practice of supporting farms and farmers would speed a structural adjustment process, already underway in Turkey, that works to bring average incomes in agriculture in line with the higher average incomes earned in other sectors.

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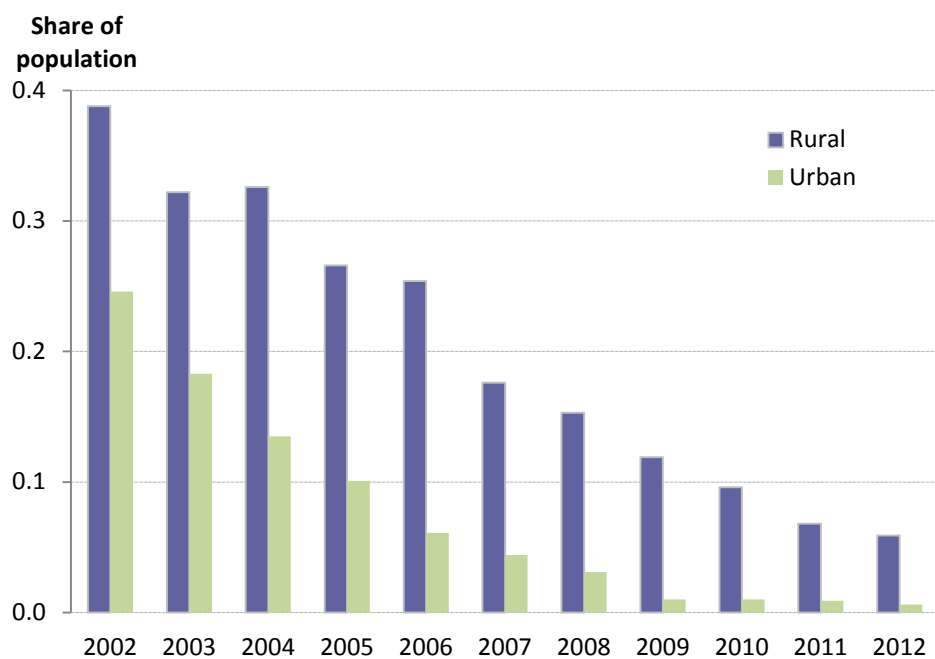
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Figure 1: Structural change and agriculture in the Turkish economy, 1980-2012



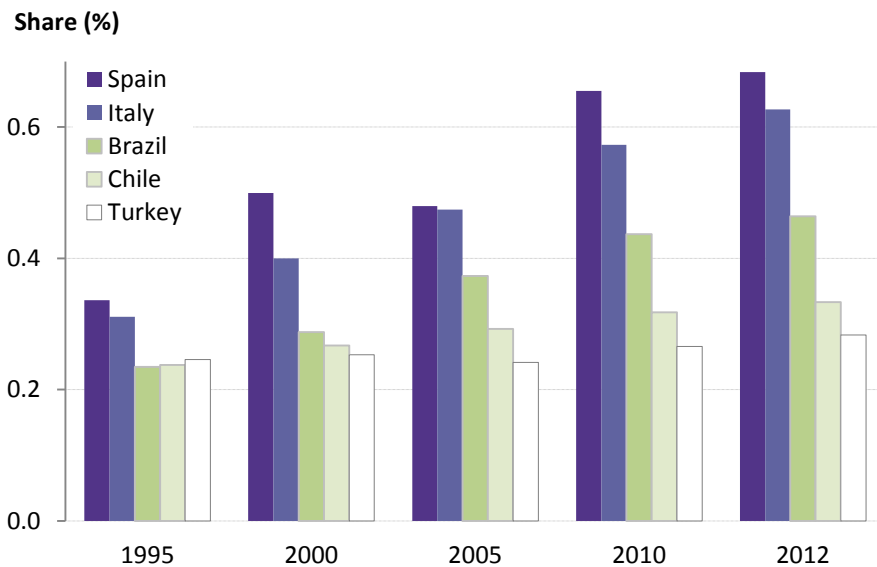
Source: FAO (2014); World Bank (2014).

Figure 2: Shares of rural, urban and national populations below national poverty line, 2002-2012



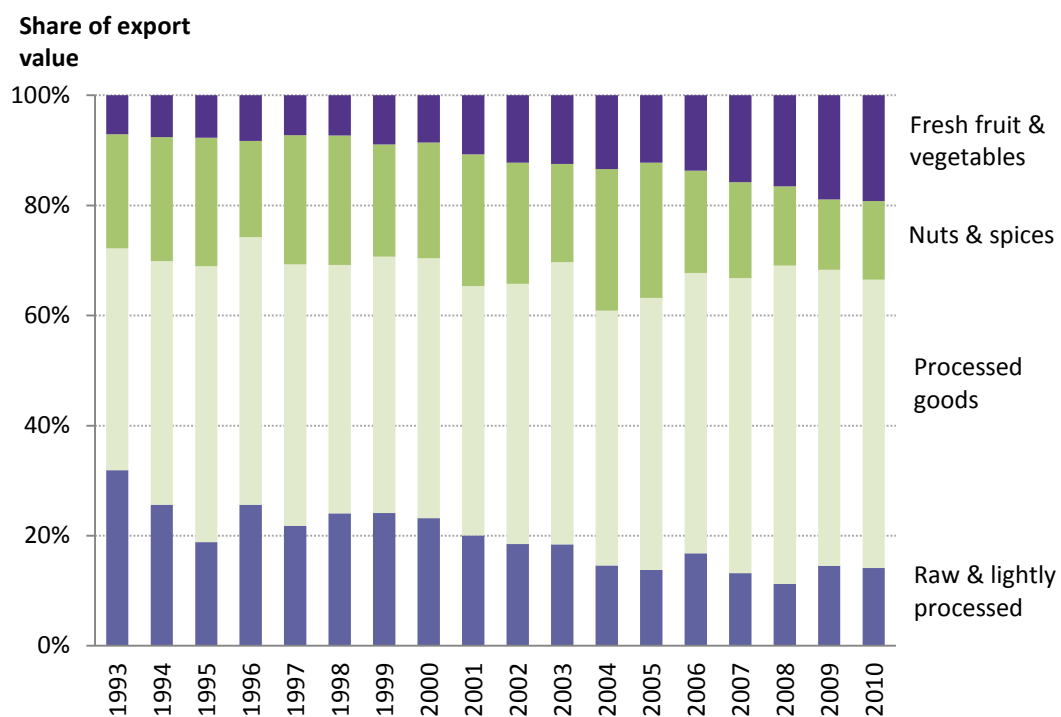
Source: World Bank Development Indicators (2014)

Figure 3: Agricultural income per worker relative to economy average in Turkey and selected peers, 1995 to 2012.



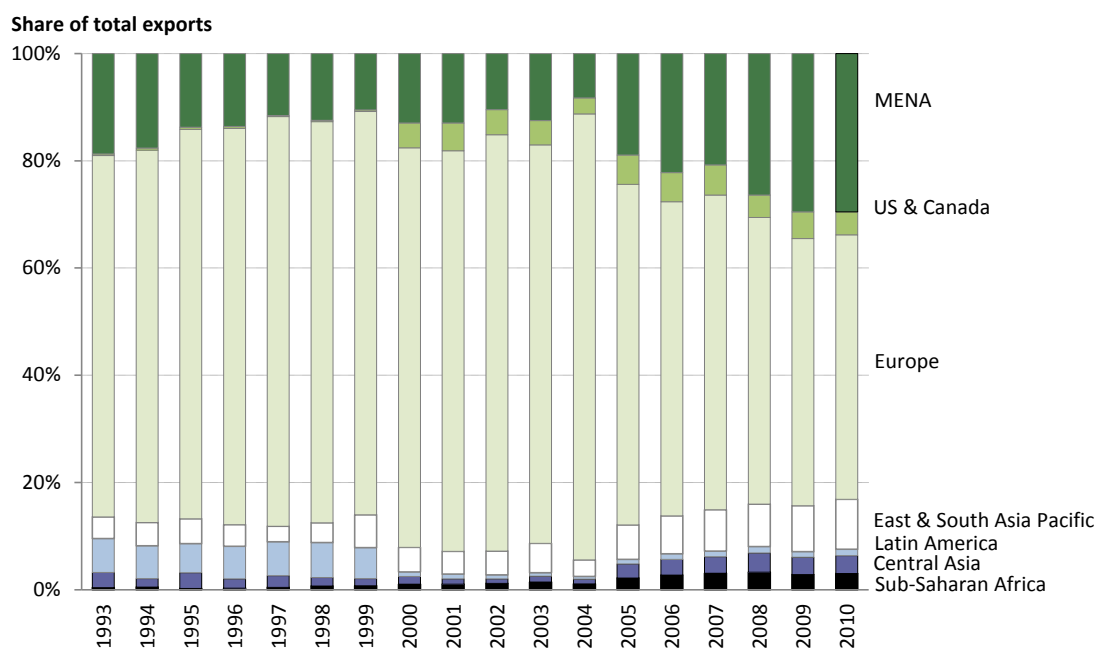
Source: FAO (2014); World Bank (2014).

Figure 4: Composition of agricultural exports by processing category, 1993-2010



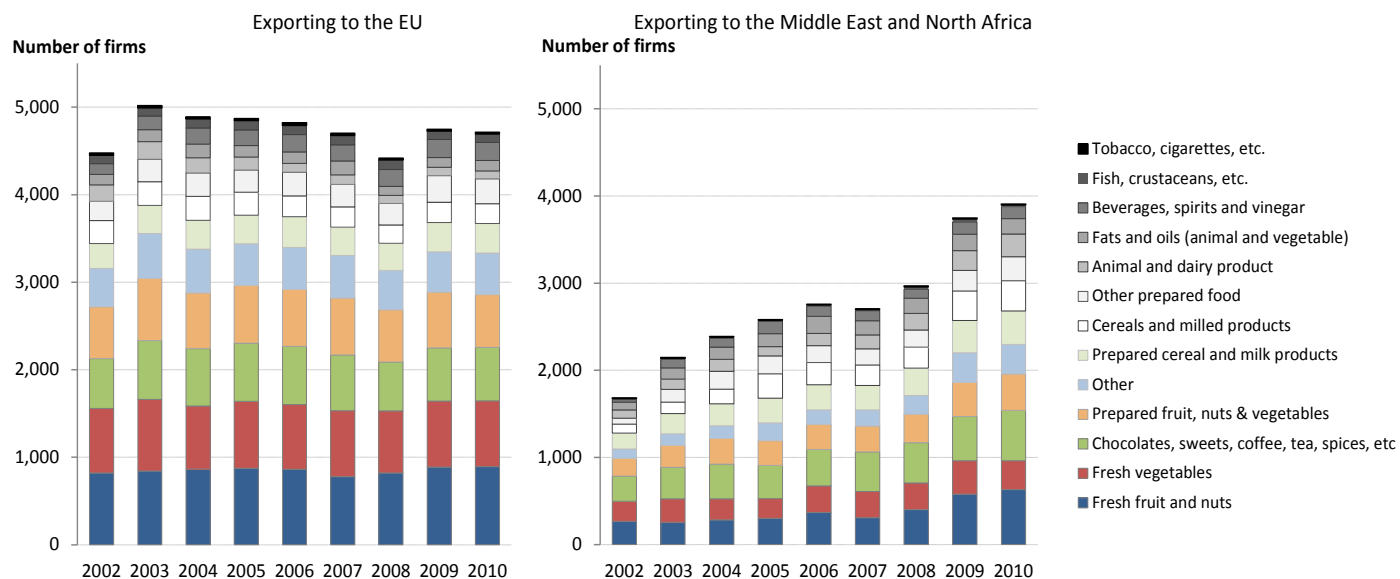
Source: FAO (2012) and World Bank staff calculations

Figure 5: Composition of Turkish agricultural exports by destination region, 1993-2010



Source: FAO (2012) and World Bank staff calculations.

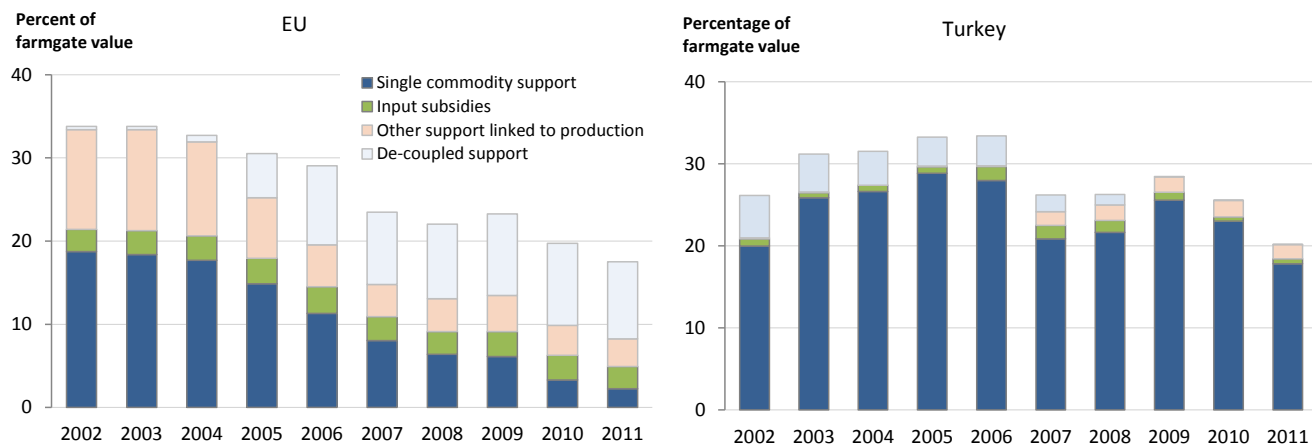
Figure 6: Activity of firms exporting to the EU and to MENA by product type and level of processing, 2002-2010



Source: World Bank staff calculations based on Enterprise Survey data from TurkStat.

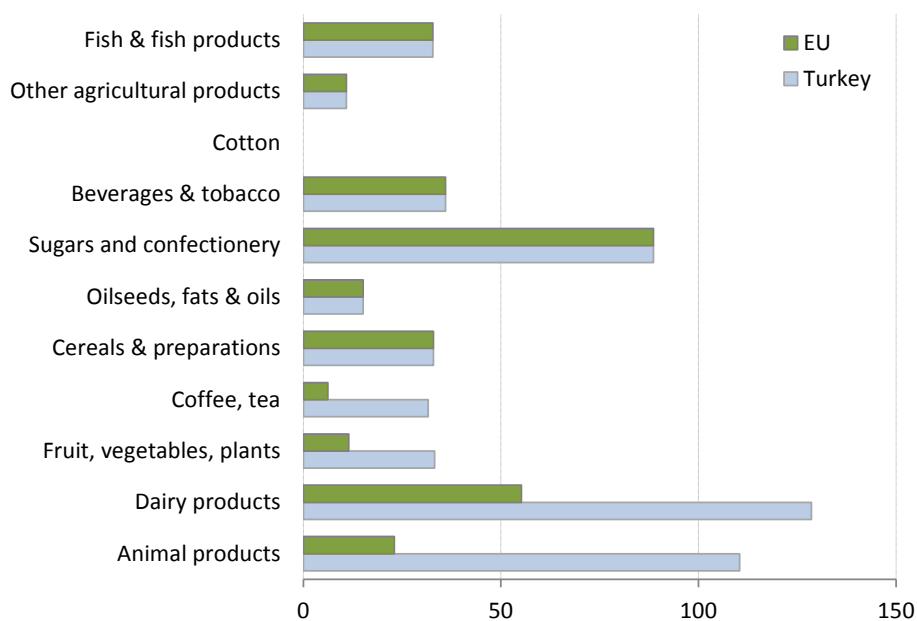


Figure 7: Producer support by type in the EU and in Turkey, 2002-2011



Source: OECD (2012)

Figure 8: Simple average applied MFN duties for Turkey and the EU, 2011



Source: WTO (2012)

**Table 1:** Regional comparisons

Agricultural GDP (\$US 2000 billion)		Agricultural area (million hectares)		Annual renewable water resources (billion cubic meters)	
Turkey	88.81	Russian Federation	215.5	Turkey	227.0
Italy	79.32	Algeria	41.3	France	200.0
France	68.55	Ukraine	41.3	Italy	182.5
Spain	67.45	Turkey	39.2	Spain	111.2
Germany	63.57	Morocco	30.0	Georgia	58.13
Egypt	62.75	France	29.3	Greece	58.0
Russian Federation	55.32	Spain	27.9	Morocco	29.0
Netherlands	30.05	Yemen	23.5	Uzbekistan	16.3
Morocco	27.98	United Kingdom	17.6	Algeria	11.3
Poland	26.08	Germany	16.9	Tunisia	4.2
Romania	24.31	Poland	16.2	Saudi Arabia	2.4
Uzbekistan	21.33	Libya	15.6	Jordan	0.7
Algeria	20.83	Italy	14.2	Qatar	0.1

Source: FAO (2013). Note: Agricultural GDP is average for 2008-10; land area is an average for 2007-09; water resources reported for 2011.

**Table 2:** Producer subsidy equivalent for OECD and member economies, selected years 1996-2011.

	1996	2001	2006	2011
OECD average	29.61	28.78	26.43	18.83
New Zealand	0.78	0.58	0.89	0.79
Australia	6.33	3.26	4.51	2.98
Chile	7.34	6.18	4.23	3.51
United States	13.25	22.10	11.23	7.66
Mexico	5.66	18.23	13.22	11.56
Israel	18.93	20.46	7.91	14.03
Canada	15.82	15.47	20.86	14.20
European Union	33.83	30.18	28.97	17.54
Turkey	23.11	14.29	33.39	20.16
Iceland	58.24	62.58	64.49	43.68
Japan	57.95	56.33	51.56	51.63
Korea, Rep.	64.83	57.71	58.62	53.26
Switzerland	68.60	67.31	65.28	54.43
Norway	66.25	65.31	64.10	57.69

Source: OECD (2012)

**Table 3: Free Trade Agreements reached by the EU and Turkey and new agreements under consideration**

Existing Free Trade Agreements Reached by both Turkey and EU	Third Parties Albania, Bosnia-Herzegovina, Chile, Egypt, Iceland, Israel, Jordan, the Republic of Korea, Liechtenstein, Macedonia, Mauritius, Montenegro, Morocco, Norway, Palestinian Authority, Serbia, Switzerland, Syria, and Tunisia
Reached by EU, under consideration by Turkey	Algeria, Colombia, Costa Rica, El Salvador, Faroe Islands, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Seychelles, and South Africa
Reached by Turkey, under consideration by EU	Georgia
New Free Trade Agreements Under consideration by the EU and Turkey	African Caribbean and Pacific Group of States, Canada, Gulf Cooperation Council countries, India, Japan, Malaysia, Mercosur, Moldova, Thailand, Ukraine, and Vietnam
Under consideration by the EU alone	Armenia, Association of Southeast Asian Nations, Singapore, and the United States
Under consideration by Turkey alone	Cameroon, Democratic Republic of the Congo, Ecuador, Ghana, Indonesia, and Libya

Sources: European Commission (2013); World Bank (2014a)

**Table 4: Simulation results from four steps that bring Turkey’s agricultural policies in line with the EU**

		<b>“Deepening” Stages</b>			
		Agricultural goods free of duties and quotas (i)	Agriculture included in the Customs Union (ii)	plus third-party FTAs aligned (iii)	plus Common Agricultural Policy adopted (iv)
<b>Economic welfare</b>					
Overall welfare	million USD	72.26	292.18	842.79	499.89
Efficiency gains	million USD	339.08	754.14	1658.91	1208.69
Terms of trade	million USD	-266.82	-461.95	-816.13	-708.8
<b>Gross domestic product</b>					
Volume <sup>a</sup>	percent	0.05	0.12	0.26	0.19
Dollar value	percent	-0.28	-0.46	-0.72	-0.88
<b>Agricultural product<sup>1</sup></b>					
Volume	percent	-0.42	-1.46	-2.95	1.28
Dollar value	percent	-0.93	-2.82	-5.23	4.03
<b>Trade balance (X-M)</b>					
Total Exports	million USD	126.92	122.39	222	-281.18
Volume	percent	1.61	2.23	3.37	2.96
Dollar value, fob	percent	1.45	1.94	2.86	2.42
Total imports	million USD				
Volume	percent	1.00	1.36	1.99	1.96
Dollar value, cif	percent	1.00	1.36	1.99	1.96
<b>Private household prices</b>	Percent	-0.34	-0.59	-0.98	-1.26
<b>Primary factor rents, real<sup>2</sup></b>					
Overall rents and wages	Market prices percent	0.13	0.21	0.33	1.41
Land	percent	-2.35	-8.20	-13.75	21.69
Unskilled labor	percent	0.11	0.16	0.23	1.21
Skilled Labor	percent	0.15	0.31	0.54	1.06
Capital	percent	0.17	0.35	0.57	1.29
Other natural resources	percent	0.67	1.22	2.22	1.59
<b>Terms of trade</b>					
Overall terms of trade	percent	-0.16	-0.29	-0.5	-0.53
Prices received	percent	-0.16	-0.28	-0.49	-0.53
Prices paid	percent	0.00	0.00	0.00	0.00

<sup>a</sup> Deflated by a GDP price index.;<sup>1</sup> In value-added terms; <sup>2</sup> Deflated by private consumption prices.

Source: Tsigas and Sahin (2013).

**Table 5:** The simulated effects of finalizing Turkey's non-compliant Free Trade Agreements

		Mexico	South Africa	Colombia	Peru	Panama	Costa Rica	Guatemala	El Salvador	Honduras	Nicaragua
<b>Economic Welfare</b>											
Overall economic welfare	million USD	111.06	114.87	41.34	3.99	0.42	2.16	1.56	0.37	0.64	0.10
Efficiency gains	million USD	9.38	10.09	5.43	0.26	-0.03	0.07	0.04	0.04	0.03	0.01
Terms of trade (traded)	million USD	77.13	79.65	27.29	2.84	0.34	1.59	1.15	0.26	0.46	0.07
Terms of trade (I-S)	million USD	24.56	25.13	8.62	0.90	0.11	0.50	0.37	0.08	0.15	0.02
<b>Gross domestic product</b>											
Volume <sup>a</sup>	percent	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dollar value	percent	0.081	0.083	0.029	0.003	0.000	0.002	0.001	0.000	0.000	0.000
<b>Trade balance (X-M)</b>	million USD	-87.22	-90.26	-31.74	-3.22	-0.39	-1.89	-1.32	-0.30	-0.53	-0.08
Total exports											
Volume	percent	0.010	0.006	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dollar value, fob	percent	0.070	0.068	0.024	0.003	0.000	0.001	0.001	0.000	0.000	0.000
Total imports											
Volume	percent	0.104	0.105	0.036	0.004	0.000	0.002	0.001	0.000	0.001	0.000
Dollar value, cif	percent	0.104	0.104	0.036	0.004	0.000	0.002	0.001	0.000	0.001	0.000
<b>Primary factor rents, real<sup>1</sup></b>											
Overall rents, wages	percent	0.085	0.087	0.030	0.003	0.000	0.002	0.001	0.000	0.001	0.000
Land	percent	-0.035	-0.040	-0.016	-0.001	0.000	-0.001	-0.001	0.000	0.000	0.000
Unskilled labor	percent	0.089	0.090	0.031	0.003	0.000	0.002	0.001	0.000	0.001	0.000
Skilled Labor	percent	0.087	0.089	0.031	0.003	0.000	0.002	0.001	0.000	0.001	0.000
Capital	percent	0.085	0.088	0.030	0.003	0.000	0.002	0.001	0.000	0.001	0.000
Other natural resources	percent	-0.046	-0.034	-0.022	-0.002	0.001	0.000	0.000	0.000	0.000	0.000
<b>Terms of Trade</b>											
Overall terms of trade	percent	0.061	0.063	0.022	0.002	0.000	0.001	0.001	0.000	0.000	0.000
Prices received	percent	0.061	0.062	0.021	0.002	0.000	0.001	0.001	0.000	0.000	0.000
Prices paid	percent	0.000	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

<sup>a</sup> Deflated by a GDP price index.;<sup>1</sup> Deflated by private consumption prices.

Source: Tsigas and Sahin (2013).

**Table 6: Summary of simulated welfare gains for adopting key trade policies**

Scenario	Welfare gain (US millions)	Share of 2007 GDP (percent)
Expand the EU-Turkey Customs Union	853	0.14%
FTA with Mexico	111	0.02%
FTA with South Africa	115	0.02%
FTA with Colombia	41	0.01%

See Annex tables for simulation details.

## Annex tables

Annex table 1: List of items by processing category

<b>Fresh agricultural goods</b>	<b>Fresh agricultural goods continued)</b>	<b>Nuts and spices</b>	<b>Lightly processed (continued)</b>	<b>Lightly processed (continued)</b>
Apples	Mangoes, guavas	Cinnamon (canella)	Cereals, nes	Goats
Apricots	Okra	Cloves	Chick peas	Hair Coarse, nes
Artichokes	Oranges	Ginger	Chicken meat	Hair Fine
Asparagus	Other melons.cantalps	Groundnuts Shelled	Chickens	Hair of Horses
Avocados	Papayas	Groundnuts, with shell	Coarse goat hair	Hemp Tow Waste
Bananas	Peaches and nectarines	Hazelnuts Shelled	Cocoa beans	Hempseed
Beans, green	Pears	Hazelnuts, with shell	Coconuts	Hides Dry Slt Nes
Berries, nes	Peas, green	Karite Nuts (Sheanuts)	Cocoon Unr.&Waste	Hides, nes
Cabbage & other brassicas	Pineapples	Nutmeg mace cardamoms	Coffee Husks and Skins	Hides Wet Salted, nes
Carrots and turnips	Plums and sloes	Nuts, nes	Coffee, green	Hops
Cauliflowers and broccoli	Pumpkins squash gourds	Pepper (Piper spp.)	Coir	Horse meat
Cherries	Quinces	Pistachios	Cotton Carded,Combed	Horses
Chilies, peppers, green	Raspberries	Preprd Nuts, Exc.Grndnts)	Cotton lint	Jute
Citrus fruit, nes	Sour cherries	Spices, nes	Cotton Waste	Lard
Cow milk, whole, fresh	Spinach	Vanilla	Cottonseed	Lard Stearine Oil
Cranberries	Stone fruit, nes	Walnuts Shelled	Crude Materials	Lentils
Cream Fresh	Strawberries	Walnuts, with shell	Degras	Linseed
Cucumbers and gherkins	String beans		Dregs From Brewing and Dist.	Maize
Currants	Tangerines, mand. clem.	<b>Lightly processed</b>	Dry Broad & horse beans	Maize, green
Dates	Tomatoes	Animals Live, nes	Duck meat	Manila fiber (Abaca)
Eggplants (aubergines)	Watermelons	Asses	Ducks	Meal Meat
Figs		Bacon and Ham	Fat of Pigs	Meat, nes
Fruit Fresh, nes	<b>Nuts and spices</b>	Barley	Fat of Poultry	Melon seed
Fruit, tropical fresh nes	Almonds Shelled	Beans, dry	Fiber Crops, nes	Millet
Grapefruit (inc. pomelos)	Almonds, with shell	Beehives	Fine Goat Hair	Mixed grain
Grapes	Anise, fennel, corian.	Beets for Fodder	Flax fiber and tow	Mules
Green onions(inc.shllts)	Arecanuts	Bird meat, nes	Flax Fiber Raw	Mustard seed
Hen eggs, in shell	Brazil Nuts Shelled	Buckwheat	Flax Tow Waste	Natural rubber
Kiwi fruit	Brazil nuts, with shell	Camels	Food Wastes	Oats
Leeks & alliaceous vegetables	Cashew Nuts Shelled	Canary seed	forage Products	Offal Liver Duck
Leguminous veg nes	Cashew nuts, with shell	Carobs	Garlic	Offal Liver Geese
Lemons and limes	Chestnuts	Cattle	Geese and guinea fowls	Offal, nes
Lettuce and chicory	Chillies and peppers, dry	Cattle meat	Goat meat	Offal of Cattle, Edible

Source: FAO (2012) and authors' reclassification.

**Annex table 1: List of items by processing category (continued)**

<b>Lightly processed (continued)</b>	<b>Lightly processed (continued)</b>	<b>Processed items (continued)</b>	<b>Processed items (continued)</b>	<b>Processed items (continued)</b>
Offal of Horses	Triticale	Cake of Oilseeds, nes	Eggs Liquid	Hair Carded/ Combed
Oils, Fats of Animal, nes	Turkey meat	Cake of Rapeseed	Extracts Tea, Mate, Prep	Hides Wet Salted Cattle
Olives	Turkeys	Cake of Soybeans	Fat Liver (Foie Gras)	Hidesdry S.Cattle
Onions, dry	Veg Prod for Feed	Canned Mushrooms	Fat Prep, nes	Homogen. Cooked Fruit Prp
Other bird eggs, in shell	Wheat	Cassava Dried	Fatty Acids	Homogen.Meat Prp.
Peas, dry	Wool, greasy	Cassava Starch	Figs Dried	Homogen.Veget.Prp
Pig meat	Wool;Hair Waste	Castor oil seed	Flour of Fruits	Honey, natural
Pigeons, Other Birds	<b>Processed items</b>	Cereal Preparations, nes	Flour of Maize	Ice Cream and Edible Ice
Poppy seed	Alfalfa Meal and Pellets	Cheese of Goat Milk	Flour of Mixed Grain	Infant Food
Pork	Apple juice, concentrated	Cheese of Sheep Milk	Flour of Mustard	Isoglucose
Potatoes	Apple juice, sstrng	Cheese of Whole Cow Milk	Flour of Oilseeds	Juice of Grapefruit
Prep of Pig Meat	Barley Flour and Grits	Cheese Skim Cow Milk	Flour of Pulses	Juice of Pineapples
Prepared Meat, nes	Barley Pearled	Chocolate Prsnes	Flour of Roots and Tubers	Juice of Tomatoes
Pulses, nes	Beer of Barley	Cider Etc	Flour of Rye	Juice of Vegetables, nes
Rabbit meat	Beeswax	Cigarettes	Flour of Wheat	Karakul Skins
Rabbits and hares	Beet Pulp	Cigars Cheroots	Food Prep, nes	Lactose
Rapeseed	Beverage, Dist.Alc	Citrus juice, conc	FoodPrep,Flour,Malt Extr	Leather Use&Waste
Rice, paddy	Beverage Non-Alc	Citrus juice, sng strngth	Frozen Potatoes	Lemon juice, sstrng
Roots and Tubers, nes	Bran of Cereals	Cocoa Butter	Fruit Dried, nes	Linseed oil
Rye	Bran of Maize	Cocoa Paste	Fruit Juice, nes	Liver Prep.
Safflower seed	Bran of Mixed Grains	Cocoa husks. Shell	Fruit Prp, nes	Macaroni
Sausages of Pig Meat	Bran of Pulses	Cocoa powder & Cake	Fruit Tropical Dried, nes	Maize oil
Sesame seed	Bran of Rice	Coconut (copra) oil	Fruit,Nut,Peel, Sugar Prs	Malt
Sheep	Bran of Wheat	Coconuts Desiccated	Germ of Maize	Malt Extract
Silk-worm cocoons	Bread	Coffee Extracts	Germ of Wheat	Maple Sugar and Syrups
Skin Furs	Breakfast Cereals	Coffee Roasted	Ghee Cow Milk	Margrine Short
Sorghum	Butter Cow Milk	Coffee Subst. Cont.Coffee	Glucose and Dextrose	Meat Beef,DrdSltd,Smkd
Soybeans	Butterm.,Curd,Acid.Milk	Copra	Gluten Feed&Meal	Meat Dried, nes
Sugar cane	Cake of Cottonseed	Cotton Linter	Grape Juice	Meat Extracts
Sunflower seed	Cake of Groundnuts	Cottonseed oil	Grapefruit juice, concent	Meat of Chicken Canned
Sweet potatoes	Cake of Linseed	Dried Mushrooms	Grease incl. Lanolin Wool	Meat-CattleBoneless
Tallow	Cake of Maize	Dry Apricots	Groundnut oil	Milk Skimmed Cond
Tobacco, unmanufactured		Eggs Dried	Gums Natural	Milk Skimmed Dry

Source: FAO (2012) and authors' reclassification.



**Annex table 1: List of items by processing category (continued)**

<b>Processed items (continued)</b>	<b>Processed items (continued)</b>	<b>Processed items (continued)</b>
Milk Skim of Cows	Pineapples Candy	Sugar, nes
Milk Whole Condensed	Plums Dried (Prunes)	Sunflower Cake
Milk Whole Dried	Poppy Oil	Sunflower oil
Milk Whole Evaporated	Potatoes Flour	Sweet Corn Frozen
Mixes and Dough	Preparations of Beef Meat	Sweet Corn Prep,Preserv
Molasses	Prepared Groundnuts	Tapioca of Potatoes
Mushrooms and truffles	Processed Cheese	Tea
Must of Grapes	Prod.of Nat.Milk Constit	Tobacco Products, nes
Oats Rolled	Raisins	Tomato Peeled
Offal Liver Chicken	Rapeseed oil	Veg.in Tem. Preservatives
Offal of Sheep, Edible	Res.Fatty Subs	Veg.Prep. or Pres.Frozen
Oil Boiled Etc	Rice Broken	Veg.Prod.Fresh or Dried
Oil Citronella	Rice Flour	Vegetable Frozen
Oil Essential, nes	Rice Husked	vegetable oil, nes
Oil Hydrogenated	Rice Milled	Vegetables Dehydrated
Oil of Castor Beans	Rubber Nat Dry	Vegetables fresh nes
Oil of Jojoba	Sesame oil	Vegetables in Vinegar
Oil of Olive Residues	Sheep meat	Vegetables Preserved, nes
Oilseeds, nes	Silk Raw	Vermouths & Similar
Olive oil, virgin	Skins Wet Salted Calves	Wafers
Olive Residues	Skins Wet Salted Goats	Waters,Ice Etc
Olives Preserved	Skins With Wool Sheep	Waxes Vegetable
Orange juice, conc.	Skinsdry S.Calves	Whey Cheese
Orange juice, single strength	Skinsdry Slt Goat	Whey Condensed
Other Fructose and Syrup	Skinsdry Sltsheep	Whey Dry
Palm kernel oil	Soya Sauce	Whey Fresh
Palm kernels	Soybean oil	Wine
Palm oil	Spermaceti	Wool Degreased
Paste of Tomatoes	Straw Husks	Wool Shoddy
Pastry	Sugar beet	Yogh Conc.Or Not
Peanut Butter	Sugar Confectionery	Yoghurt
Pet Food	Sugar Raw Centrifugal	
Pineapple Juice Concentrated	Sugar Refined	

Source: FAO (2012) and authors' reclassification.

**Annex table 2: Turkey's Most Favored Nation tariffs for agriculture, 2011, Simple Averages**

	Final bound duties				MFN applied duties			Imports	
	AVG	Duty free (%)	Max	Binding Coverage (%)	AVG	Duty free (%)	Max	Share (%)	Duty free (%)
Animal products	132.8	0.0	225	100	110.4	7.3	225.0	0.4	16.4
Dairy products	169.8	0.0	180	100	128.6	0.0	180.0	0.1	0.0
Fruit, vegetables, plants	38.8	0.0	146	100	33.2	8.8	146.0	0.5	18.7
Coffee, tea	80.3	0.0	168	100	31.6	8.3	145.0	0.3	41.5
Cereals & preparations	68.6	0.0	180	100	32.9	7.2	130.0	1.0	3.7
Oilseeds, fats & oils	24.4	0.0	68	100	15.1	16.5	50.0	1.7	8.1
Sugars and confectionery	107.3	0.0	135	100	88.6	1.1	135.0	0.0	13.8
Beverages & tobacco	79.6	0.0	167	100	36.0	20.1	75.0	0.3	8.5
Cotton	10.9	0.0	13	100	0.0	100.0	0.0	1.1	100.0
Other agricultural products	30.8	0.2	75	100	10.9	39.5	75.0	0.6	31.4
Fish & fish products	50.0	0.0	82	21.7	32.8	10.8	82.0	0.2	6.9
Minerals & metals	18.4	1.4	50	22.8	2.9	38.2	22.0	22.9	53.9
Petroleum	2.7	0.0	4	20.0	3.1	20.0	5.0	6.9	39.9
Chemicals	16.9	4.3	128	66.1	4.7	20.0	17.0	15.2	27.6
Wood, paper, etc.	26.5	3.6	62	44.1	0.9	82.0	10.0	3.3	84.7
Textiles	24.5	0.0	92	23.0	6.5	2.6	12.0	5.1	2.8
Clothing	27.3	0.0	40	3.4	11.5	0.0	12.0	1.6	0.0
Leather, footwear, etc.	23.0	0.0	40	48.5	2.4	40.0	9.0	2.1	34.1
Non-electrical machinery	10.9	11.0	25	67.1	1.8	24.6	10.0	13.3	29.9
Electrical machinery	11.0	38.3	50	67.7	2.7	25.5	14.0	8.8	44.6
Transport equipment	17.9	0.0	37	56.9	4.3	13.7	22.0	11.2	15.6
manufactures, n.e.s.	14.1	23.6	47	43.2	2.6	21.9	14.0	3.5	47.2

Source: World Tariff Profiles 2012 Geneva, World Trade Organization

**Annex table 3: EU's Most Favored Nation tariffs for agriculture, 2011**

	Final bound duties				MFN applied duties			Imports	
	AVG	Duty free (%)	Max	Binding Coverage (%)	AVG	Duty free (%)	Max	Share (%)	Duty free (%)
Animal products	24.3	20.6	140	100	23.0	23	23.8	0.4	8.3
Dairy products	57.6	0.0	226	100	55.2	55.2	0	0.0	0.0
Fruit, vegetables, plants	10.4	22.8	170	100	11.5	11.5	18.8	1.5	12.5
Coffee, tea	6.2	27.1	25	100	6.2	6.2	27.1	0.9	77.1
Cereals & preparations	20.3	6.3	167	100	32.9	16.3	12	0.4	2.3
Oilseeds, fats & oils	6.6	48.2	171	100	15.1	7.1	43.5	1.4	72.7
Sugars and confectionery	28.3	0.0	131	100	88.6	29.1	0.0	0.1	0.0
Beverages & tobacco	21.8	23.0	175	100	36.0	19.2	19.8	0.6	16.8
Cotton	0.0	100.0	0	100	0.0	0	100	0.0	100.0
Other agricultural products	4.4	65.9	131	100	10.9	4.8	65.1	0.4	68.0
Fish & fish products	10.9	12.3	26	100	32.8	10.3	16.4	1.3	6.3
Minerals & metals	2.0	49.6	12	100	2.9	2	49.9	16.6	72.3
Petroleum	2.0	50.0	5	100	3.1	2.7	29.7	20.3	87.4
Chemicals	4.6	20.0	17	100	4.7	4.6	21.7	9.5	46.5
Wood, paper, etc.	0.9	84.1	10	100	0.9	0.9	81.2	2.8	86.3
Textiles	6.5	3.4	12	100	6.5	6.6	2.1	2.2	2.3
Clothing	11.5	0.0	12	100	11.5	11.5	0.0	4.4	0.0
Leather, footwear, etc.	4.2	27.8	17	100	2.4	4.2	22.7	2.4	17.8
Non-electrical machinery	1.7	26.5	10	100	1.8	1.9	21.4	10.9	56.4
Electrical machinery	2.4	31.5	14	100	2.7	2.8	20.4	12.3	59.8
Transport equipment	4.1	15.7	22	100	4.3	4.3	12.7	5.1	27.1
manufactures, n.e.s.	2.5	25.7	14	100	2.6	2.7	20.5	6.4	52.6

Source: World Tariff Profiles 2012 Geneva, World Trade Organization

**Annex table 4: CGE model regions for Scenario 1 simulations**

Economies in CGE model	GTAP Data V 8.1 countries/regions
1 Turkey	Turkey
2 EU-27	Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Austria, Belgium
3 EFTA	Switzerland, Norway, Rest of EFTA
4 Albania	Albania
5 Croatia	Croatia
6 Israel	Israel
7 Egypt	Egypt
8 Rest of North Africa, XNF (Algeria, Lybia, Western Sahara)	XNF
8 Rest of Western Asia, XWS (Iraq, Jordan, Lebanon, Palestinian Territories, Syria, Yemen)	XWS
9 Morocco	Morocco
10 Tunisia	Tunisia
11 Chile	Chile
12 Mauritius	Mauritius
13 South Africa	South Africa
14 Korea, Rep.	Korea, Rep.
15 Mexico	Mexico
16 Certain EPA economies	Cameroon, Cote d'Ivoire, Ghana, Kenya, Botswana, Namibia
17 Certain "Everything but Arms" economies	Cambodia, Lao People's Democratic Republic, Bangladesh, Nepal, Ecuador, Benin, Burkina Faso, Guinea, Senegal, Togo, Central Africa, Ethiopia, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia
18 Certain low and lower middle income economies	China, Mongolia, Indonesia, Philippines, Thailand, Viet Nam, India, Pakistan, Sri Lanka, Bolivia, Colombia, Paraguay, Peru, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, El Salvador, Ukraine, Kyrgyzstan, Armenia, Azerbaijan, Georgia, Islamic Republic of Iran, Nigeria, , Zimbabwe
19 Certain high and upper income economies	Australia, New Zealand, Hong Kong SAR, China, Japan, Taiwan, China, Malaysia, Singapore, Canada, Argentina, Brazil, Uruguay, Venezuela, Belarus, Russian Federation, Kazakhstan, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
20 United States of America	United States of America
21 Rest of the world	Rest of Oceania, Rest of East Asia, Rest of Southeast Asia, Rest of South Asia, Rest of North America, Rest of South America, Rest of Central America, Caribbean, Rest of Eastern Europe, Rest of Europe, Rest of Former Soviet Union, Rest of Western Africa, South Central Africa, Rest of Eastern Africa, Rest of South African Customs, Rest of the World

Source: GTAP, <https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=8.211>. Note: This regional specification was used for running Scenario 1 experiments; a different regional specification, which identified individual trade partners, was used for Scenario 2 experiments (see table 3).

**Annex table 5: CGE model regions for Scenario 2 simulations**

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1	Turkey
2	EU27
3	Mexico
4	South Africa
5	Colombia
6	Peru
7	Panama
8	Costa Rica
9	Guatemala
10	El Salvador
11	Honduras
12	Nicaragua
13	Korea, Rep.
14	USA
15	Rest of World

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Source: GTAP, <https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=8.211>.

**Annex table 6. Export effects for Turkish economy from experiments of widening the customs union to cover trade in agricultural products, change in dollar value of Turkish exports to the world, by sector**

Sector	GTAP model data for Turkey's exports, fob  million USD	Simulations of widening customs union*							
		i)		i) and ii)		i), ii) and iii)		i), ii), iii) and iv)	
		million USD	percent	million USD	percent	million USD	percent	million USD	percent
Paddy rice	0.2	0.5	323.7	0.5	343.7	0.6	370.5	2.4	1,569.3
Wheat	24.0	12.4	51.7	17.0	70.8	18.7	77.8	30.6	127.1
Cereal grains nec	49.2	1.0	1.9	1.5	3.1	2.0	4.0	5.1	10.4
Vegetables, fruit, nuts	3,143.0	230.3	7.3	270.9	8.6	328.9	10.5	930.4	29.6
Oil seeds	105.2	1.1	1.1	4.0	3.8	7.2	6.9	-62.4	-59.4
Sugar cane, sugar beet	0.1	0.0	0.2	0.0	2.3	0.0	5.1	0.1	63.0
Plant-based fibers	229.7	1.7	0.7	4.1	1.8	7.2	3.1	38.7	16.9
Crops nec	631.8	18.6	2.9	39.8	6.3	89.0	14.1	425.7	67.4
Bovine cattle, sheep and goats, horses	8.8	0.1	1.6	0.4	4.0	0.6	6.9	6.7	76.4
Animal products nec	124.4	1.0	0.8	2.1	1.7	3.3	2.7	16.1	12.9
Raw milk	14.1	0.5	3.3	1.2	8.4	2.0	14.1	5.2	37.1
Wool, silk-worm cocoons	6.6	0.3	4.7	0.9	13.9	1.5	22.8	12.4	189.0
Forestry	27.0	0.1	0.5	0.2	0.8	0.4	1.4	0.1	0.2
Fishing	154.8	0.4	0.2	0.5	0.3	0.6	0.4	0.2	0.1
Coal	0.1	0.0	-0.2	0.0	-0.2	0.0	-0.4	0.0	-0.2
Oil	9.5	0.0	0.2	0.0	0.5	0.1	0.6	0.0	0.3
Gas	0.0	0.0	-0.5	0.0	-0.6	0.0	-1.1	0.0	-0.3
Minerals nec	1,764.2	0.6	0.0	0.9	0.1	1.5	0.1	-0.1	0.0
Bovine meat products	8.4	0.2	2.7	0.5	5.4	1.1	13.5	3.5	41.6
Meat products nec	44.3	2.5	5.6	4.4	9.8	6.4	14.4	14.1	31.8
Vegetable oils and fats	400.1	185.5	46.4	212.8	53.2	235.4	58.8	212.4	53.1
Dairy products	169.2	110.9	65.5	118.4	70.0	127.2	75.2	133.7	79.0
Processed rice	1.9	1.2	65.6	1.3	66.8	1.3	71.6	1.4	73.3
Sugar	39.0	341.3	875.0	357.7	917.2	375.0	961.6	389.5	998.9
Food products nec	3,518.9	160.0	4.5	228.4	6.5	274.7	7.8	295.8	8.4
Beverages and tobacco products	409.5	8.1	2.0	9.9	2.4	15.3	3.7	16.8	4.1
Textiles	13,167.4	109.2	0.8	173.8	1.3	310.0	2.4	180.1	1.4
Wearing apparel	8,560.4	74.3	0.9	114.4	1.3	221.2	2.6	86.8	1.0
Leather products	505.4	8.4	1.7	11.4	2.3	37.8	7.5	33.9	6.7
Wood products	1,616.4	11.4	0.7	17.5	1.1	31.0	1.9	4.0	0.2
Paper products, publishing	947.2	6.4	0.7	9.9	1.0	17.5	1.8	3.1	0.3
Petroleum, coal products	1,749.7	1.2	0.1	1.8	0.1	3.0	0.2	0.3	0.0
Chemical, rubber, plastic products	7,202.9	47.2	0.7	79.0	1.1	139.0	1.9	46.5	0.6
Mineral products nec	3,510.0	19.9	0.6	30.1	0.9	53.3	1.5	4.1	0.1
Ferrous metals	8,785.4	38.7	0.4	59.1	0.7	104.4	1.2	11.5	0.1
Metals nec	2,543.7	16.0	0.6	25.1	1.0	44.3	1.7	5.0	0.2
Metal products	4,304.0	32.6	0.8	50.0	1.2	89.1	2.1	11.5	0.3
Motor vehicles and parts	16,198.1	94.6	0.6	142.6	0.9	249.5	1.5	25.8	0.2
Transport equipment nec	1,923.3	21.8	1.1	33.3	1.7	58.6	3.0	4.9	0.3
Electronic equipment	2,881.5	29.7	1.0	45.7	1.6	81.2	2.8	9.6	0.3
Machinery and equipment nec	11,973.1	113.5	0.9	175.8	1.5	313.0	2.6	57.9	0.5
Manufactures nec	2,052.3	14.6	0.7	22.5	1.1	39.9	1.9	4.7	0.2
Electricity	212.6	0.8	0.4	1.2	0.6	2.1	1.0	0.2	0.1
Gas manufacture, distribution	0.2	0.0	0.8	0.0	1.3	0.0	2.3	0.0	0.2
Water	13.9	0.1	0.9	0.2	1.4	0.3	2.4	0.1	0.5
Construction	807.0	3.7	0.5	6.2	0.8	10.8	1.3	1.3	0.2
Trade	1,881.7	11.9	0.6	19.3	1.0	36.7	1.9	14.8	0.8
Transport nec	10,566.2	45.4	0.4	70.1	0.7	121.9	1.2	24.3	0.2
Water transport	104.3	0.5	0.4	0.7	0.7	1.2	1.2	0.4	0.4
Air transport	4,508.6	21.0	0.5	32.9	0.7	65.5	1.5	27.1	0.6
Communication	591.7	3.0	0.5	4.4	0.7	7.6	1.3	0.3	0.1
Financial services nec	849.9	4.3	0.5	6.7	0.8	11.5	1.4	1.3	0.1
Insurance	846.1	4.3	0.5	6.7	0.8	11.7	1.4	1.5	0.2
Business services nec	736.8	3.8	0.5	6.0	0.8	10.4	1.4	2.0	0.3
Recreational and other services	1,398.9	6.9	0.5	10.6	0.8	18.4	1.3	2.6	0.2
Public Admin., Def., Educ., Health	1,590.1	8.9	0.6	14.5	0.9	24.5	1.5	5.8	0.4
Total	122,912.7	1,832.3	1.5	2,448.8	2.0	3,615.5	2.9	3,049.6	2.5

\* Experiments of widening the EU-Turkey customs union to cover trade in agricultural products: The CGE model simulated the impacts of: i) EU-Turkey trade in agricultural products becoming duty- and quota-free; ii) Turkey adopting EU tariffs and TRQs on agricultural imports from the rest of the world (the EU common external tariff); iii) Turkey adopting the agricultural components of EU free trade agreements and the GSP; and, iv) Turkey adopting the Common Agricultural Policy.

**Annex table 7.** Imports effects for Turkish economy from experiments of widening the customs union to cover trade in agricultural products, change in dollar value of Turkish imports from the world, by sector

Sector	GTAP model data for Turkey's imports, cif million USD	Simulations of widening customs union*							
		i)		i) and ii)		i), ii) and iii)		i), ii), iii) and iv)	
		million USD	percent	million USD	percent	million USD	percent	million USD	percent
Paddy rice	4.4	0.7	16.0	0.8	17.1	0.5	12.2	-0.8	-17.2
Wheat	558.5	197.4	35.3	557.4	99.8	544.1	97.4	466.9	83.6
Cereal grains nec	262.0	116.9	44.6	159.9	61.0	160.3	61.2	151.0	57.6
Vegetables, fruit, nuts	336.7	53.2	15.8	77.1	22.9	329.7	97.9	244.5	72.6
Oil seeds	891.9	11.9	1.3	11.2	1.3	9.4	1.1	149.0	16.7
Sugar cane, sugar beet	1.7	0.0	1.0	0.0	0.3	0.6	38.0	0.2	12.5
Plant-based fibers	1,261.4	-5.0	-0.4	-9.4	-0.7	-15.5	-1.2	-66.0	-5.2
Crops nec	583.0	76.7	13.2	115.5	19.8	291.9	50.1	188.5	32.3
Cattle, sheep, goats, horses	26.9	1.0	3.9	1.4	5.4	0.8	3.0	-6.1	-22.7
Animal products nec	398.8	2.8	0.7	0.4	0.1	-1.5	-0.4	-28.1	-7.0
Raw milk	3.6	-0.1	-4.0	-0.2	-6.8	-0.4	-10.7	-0.7	-19.5
Wool, silk-worm cocoons	21.9	-0.2	-1.1	-0.3	-1.2	-0.4	-1.9	-0.6	-2.6
Forestry	305.6	-0.6	-0.2	-0.8	-0.3	-1.2	-0.4	-0.6	-0.2
Fishing	44.3	-0.1	-0.2	-0.1	-0.3	-0.2	-0.4	0.0	-0.1
Coal	1,541.6	2.9	0.2	4.0	0.3	7.6	0.5	1.7	0.1
Oil	11,811.1	-3.7	0.0	-19.1	-0.2	-9.3	-0.1	-10.7	-0.1
Gas	5,942.0	9.4	0.2	14.8	0.2	28.5	0.5	4.5	0.1
Minerals nec	987.1	2.9	0.3	4.6	0.5	8.5	0.9	1.8	0.2
Bovine meat products	121.2	39.0	32.2	8.0	6.6	275.3	227.1	238.7	196.9
Meat products nec	101.3	250.5	247.3	252.3	249.1	251.1	247.9	237.3	234.3
Vegetable oils and fats	828.4	30.7	3.7	313.1	37.8	410.3	49.5	431.8	52.1
Dairy products	94.5	781.7	826.9	783.1	828.5	1,105.9	1,169.9	1,092.8	1,156.1
Processed rice	97.2	33.2	34.1	33.4	34.4	37.4	38.5	37.0	38.1
Sugar	38.4	12.2	31.7	9.5	24.9	21.8	56.9	20.7	53.9
Food products nec	1,158.6	256.6	22.1	249.8	21.6	301.1	26.0	296.4	25.6
Beverages and tobacco prods	566.8	2.2	0.4	3.0	0.5	1.5	0.3	0.1	0.0
Textiles	7,603.0	6.1	0.1	9.7	0.1	24.5	0.3	4.0	0.1
Wearing apparel	2,008.8	-8.0	-0.4	-11.7	-0.6	-21.0	-1.0	-9.4	-0.5
Leather products	979.2	-6.4	-0.7	-8.1	-0.8	-23.5	-2.4	-22.5	-2.3
Wood products	1,405.5	-5.0	-0.4	-6.3	-0.4	-9.9	-0.7	-4.4	-0.3
Paper products, publishing	3,074.1	-8.2	-0.3	-11.7	-0.4	-18.4	-0.6	-6.6	-0.2
Petroleum, coal products	7,191.6	-1.6	0.0	-5.1	-0.1	-0.8	0.0	-1.2	0.0
Chemical, rubber, plastic prods	24,762.4	-28.3	-0.1	-56.1	-0.2	-83.6	-0.3	-33.0	-0.1
Mineral products nec	1,450.6	-5.7	-0.4	-8.0	-0.6	-13.4	-0.9	-0.6	0.0
Ferrous metals	13,786.9	22.6	0.2	37.7	0.3	69.7	0.5	15.0	0.1
Metals nec	10,154.0	24.9	0.2	40.0	0.4	74.4	0.7	3.4	0.0
Metal products	2,680.3	-5.3	-0.2	-8.8	-0.3	-14.4	-0.5	-3.4	-0.1
Motor vehicles and parts	16,491.2	-24.3	-0.1	-34.9	-0.2	-52.7	-0.3	-8.2	0.0
Transport equipment nec	2,924.3	-3.8	-0.1	-4.7	-0.2	-7.0	-0.2	2.2	0.1
Electronic equipment	6,420.2	-22.3	-0.3	-31.8	-0.5	-53.8	-0.8	-5.7	-0.1
Machinery and equipment nec	26,909.4	-64.9	-0.2	-89.5	-0.3	-150.1	-0.6	-11.8	0.0
Manufactures nec	1,396.0	-5.7	-0.4	-8.3	-0.6	-13.6	-1.0	-3.4	-0.2
Electricity	31.0	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.1
Gas manufacture, distribution	2,762.0	-1.3	0.0	-1.4	-0.1	-0.5	0.0	-3.7	-0.1
Water	15.8	-0.2	-1.0	-0.2	-1.2	-0.3	-2.0	-0.2	-1.1
Construction	154.2	-0.6	-0.4	-0.9	-0.6	-1.5	-1.0	0.0	0.0
Trade	716.9	-3.0	-0.4	-4.6	-0.6	-8.1	-1.1	-4.2	-0.6
Transport nec	1,008.5	-2.9	-0.3	-4.3	-0.4	-6.9	-0.7	-2.3	-0.2
Water transport	77.4	-0.1	-0.2	-0.2	-0.2	-0.3	-0.4	-0.1	-0.2
Air transport	1,970.3	-3.4	-0.2	-5.0	-0.3	-8.3	-0.4	-5.1	-0.3
Communication	423.8	-1.3	-0.3	-1.8	-0.4	-2.9	-0.7	-0.6	-0.1
Financial services nec	1,103.8	-3.5	-0.3	-5.2	-0.5	-8.0	-0.7	-2.4	-0.2
Insurance	1,036.0	-2.2	-0.2	-3.4	-0.3	-5.2	-0.5	-2.0	-0.2
Business services nec	1,514.4	-4.1	-0.3	-6.3	-0.4	-10.0	-0.7	-2.4	-0.2
Recreational and other services	574.4	-1.4	-0.2	-2.0	-0.3	-3.1	-0.5	-1.2	-0.2
Public Admin., Def., Educ., Health	1,414.2	-5.5	-0.4	-8.5	-0.6	-13.4	-0.9	-6.2	-0.4
Total	170,029.0	1,706.6	1.0	2,327.8	1.4	3,395.9	2.0	3,333.2	2.0

\* Experiments of widening the EU-Turkey customs union to cover trade in agricultural products: The CGE model simulated the impacts of: i) EU-Turkey trade in agricultural products becoming duty- and quota-free; ii) Turkey adopting EU tariffs and TRQs on agricultural imports from the rest of the world (the EU common external tariff); iii) Turkey adopting the agricultural components of EU free trade agreements and the GSP; and iv) Turkey adopting the Common Agricultural Policy.

**Annex table 8: EU27 average ad valorem equivalent import tariff rates, 2007**

product	----- Exporter -----											
	Turkey	EFTA	Albania	Israel	Egypt	Morocco	Tunisia	Chile	Mauritius	Korea, Rep.	Mexico	EFTA to Mexico
	----- 2007 (rates percent) -----											
farm products	2.56	2.32	0.00	5.11	5.24	8.87	3.95	3.09	0.52	7.63	1.74	5.61
processed food	3.45	5.25	13.94	6.50	9.06	1.89	31.57	5.00	21.25	10.07	2.52	7.13
other products	0.00	0.03	0.00	0.01	0.01	0.00	0.00	0.02	0.00	3.50	0.00	0.63
All products	0.21	0.21	0.64	0.59	0.71	1.69	1.75	0.77	6.52	3.52	0.13	0.96
	----- 2011 rates (percent) -----											
farm products	1.72	1.75	0.78	0.00	2.04	1.07	7.96	1.91	0.00	0.53	1.79	3.64
processed food	2.40	5.05	10.36	0.00	2.84	3.35	2.57	6.68	0.00	4.95	3.21	4.62
other products	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.14	0.00	0.21
All products	0.16	0.25	0.38	0.00	0.21	0.20	1.38	1.07	0.00	1.16	0.16	0.46

Source: GTAP database, version 9



**Annex Table 9:** Detailed net trade simulation results for Scenario 2.

	Sector (percentage change)	Mexico	South Africa	Colombia	Peru	Panama	Costa Rica	Guatemala	El Salvador
1	Paddy rice	-0.568	-0.580	-0.195	-0.021	-0.002	-0.011	-0.008	-0.002
2	Wheat	-0.517	-0.528	-0.179	-0.019	-0.002	-0.010	-0.008	-0.002
3	Cereal grains nec	-0.156	-0.158	-0.053	-0.006	-0.001	-0.003	-0.002	0.000
4	Vegetables, fruit, nuts	-0.215	-0.221	-0.074	-0.008	-0.001	-0.004	-0.003	-0.001
5	Oil seeds	-0.239	-0.243	-0.082	-0.009	-0.001	-0.005	-0.004	-0.001
6	Sugar cane, sugar beet	-0.342	-0.355	-0.119	-0.013	-0.002	-0.007	-0.005	-0.001
7	Plant-based fibers	-0.228	-0.229	-0.077	-0.008	-0.001	-0.004	-0.003	-0.001
8	Crops nec	-0.375	-0.382	-0.130	-0.014	-0.002	-0.007	-0.006	-0.001
9	Bovine cattle, sheep and goats, horses	-0.282	-0.286	-0.096	-0.010	-0.001	-0.005	-0.004	-0.001
10	Animal products nec	-0.168	-0.171	-0.058	-0.006	-0.001	-0.003	-0.002	-0.001
11	Raw milk	-0.500	-0.510	-0.172	-0.018	-0.002	-0.010	-0.007	-0.002
12	Wool, silk-worm cocoons	-0.793	-0.795	-0.237	-0.031	-0.003	-0.013	-0.012	-0.002
13	Forestry	-0.025	-0.135	-0.099	-0.010	-0.003	-0.006	-0.004	-0.001
14	Fishing	-0.151	-0.156	-0.054	-0.006	-0.001	-0.003	-0.002	-0.001
15	Coal	-0.156	-0.138	-0.027	-0.008	-0.002	-0.003	-0.004	0.000
16	Oil	-0.087	-0.078	-0.013	-0.002	0.000	-0.001	-0.001	0.000
17	Gas	0.032	0.025	0.016	-0.006	0.000	0.001	-0.001	0.000
18	Minerals nec	-0.064	-0.079	-0.025	-0.003	-0.001	-0.002	-0.002	0.000
19	Bovine meat products	-0.550	-0.564	-0.194	-0.020	-0.002	-0.011	-0.008	-0.002
20	Meat products nec	-0.631	-0.647	-0.222	-0.023	-0.003	-0.013	-0.009	-0.002
21	Vegetable oils and fats	-0.388	-0.399	-0.137	-0.014	-0.002	-0.008	-0.006	-0.001
22	Dairy products	-0.518	-0.533	-0.183	-0.019	-0.002	-0.011	-0.008	-0.002
23	Processed rice	-0.341	-0.351	-0.121	-0.013	-0.001	-0.007	-0.005	-0.001
24	Sugar	-0.361	-0.372	-0.128	-0.013	-0.002	-0.007	-0.005	-0.001
25	Food products nec	-0.261	-0.269	-0.092	-0.010	-0.001	-0.005	-0.004	-0.001
26	Beverages and tobacco products	-0.159	-0.164	-0.056	-0.006	-0.001	-0.003	-0.002	-0.001
27	Textiles	0.394	0.229	-0.032	0.027	-0.001	-0.006	0.011	-0.001
28	Wearing apparel	1.062	0.443	-0.129	-0.002	-0.001	-0.005	-0.005	-0.001
29	Leather products	0.009	-0.045	-0.170	-0.018	-0.002	-0.002	0.001	-0.002
30	Wood products	-0.268	0.198	-0.115	-0.014	0.006	-0.007	-0.005	-0.001
31	Paper products, publishing	-0.321	3.073	-0.087	0.000	0.001	-0.007	-0.005	-0.001
32	Petroleum, coal products	0.304	0.217	-0.013	-0.001	0.000	-0.001	0.001	0.000
33	Chemical, rubber, plastic products	-0.148	-0.104	-0.049	0.019	0.000	-0.003	0.003	0.001
34	Mineral products nec	-0.121	-0.238	-0.099	0.003	0.030	0.032	0.028	0.002
35	Ferrous metals	-0.247	-0.258	-0.089	-0.009	-0.001	-0.005	-0.003	-0.001
36	Metals nec	0.015	-0.329	-0.114	-0.012	-0.002	-0.007	-0.005	-0.001
37	Metal products	-0.305	-0.287	-0.126	-0.002	-0.001	-0.008	-0.005	-0.001
38	Motor vehicles and parts	0.411	0.626	0.532	0.002	-0.001	-0.004	0.001	0.002
39	Transport equipment nec	-0.571	-0.590	-0.203	-0.021	-0.002	0.220	-0.007	-0.002
40	Electronic equipment	-0.506	-0.479	-0.172	-0.019	-0.002	-0.011	-0.008	-0.002
41	Machinery and equipment nec	-0.258	-0.194	0.007	0.006	-0.001	-0.006	0.000	0.003
42	Manufactures nec	0.059	0.178	-0.047	0.009	-0.002	0.007	0.003	-0.001
43	Electricity	-0.228	-0.234	-0.079	-0.008	-0.001	-0.005	-0.003	-0.001
44	Gas manufacture, distribution	-0.454	-0.467	-0.161	-0.017	-0.002	-0.009	-0.007	-0.002

**Annex Table 9: Detailed net trade simulation results for Scenario 2 (continued)**

Sector	Mexico	South Africa	Colombia	Peru	Panama	Costa Rica	Guatemala	El Salvador
45 Water	-0.452	-0.466	-0.160	-0.017	-0.002	-0.009	-0.007	-0.001
46 Construction	-0.267	-0.274	-0.094	-0.010	-0.001	-0.005	-0.004	-0.001
47 Trade	-0.313	-0.322	-0.110	-0.011	-0.001	-0.006	-0.005	-0.001
48 Transport nec	-0.214	-0.221	-0.076	-0.008	-0.001	-0.004	-0.003	-0.001
49 Water transport	-0.079	-0.081	-0.027	-0.003	0.000	-0.002	-0.001	0.000
50 Air transport	-0.233	-0.240	-0.083	-0.009	-0.001	-0.005	-0.003	-0.001
51 Communication	-0.316	-0.326	-0.113	-0.012	-0.001	-0.007	-0.005	-0.001
52 Financial services nec	-0.305	-0.313	-0.108	-0.011	-0.001	-0.006	-0.005	-0.001
53 Insurance	-0.306	-0.314	-0.108	-0.011	-0.001	-0.006	-0.005	-0.001
54 Business services nec	-0.295	-0.304	-0.105	-0.011	-0.001	-0.006	-0.004	-0.001
55 Recreational and other services	-0.288	-0.296	-0.102	-0.011	-0.001	-0.006	-0.004	-0.001
56 Public Administration, Defense, Education, Health	-0.324	-0.332	-0.114	-0.012	-0.001	-0.006	-0.005	-0.001