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Global Trade Analysis Project

<https://www.gtap.agecon.purdue.edu/>

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Trade Policy Issues of Oil-rich but Land-locked Country Case: Focusing on Kazakhstan Post-WTO Entry

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Abstract

Purpose - The economic recession of Kazakhstan coincided with its World Trade Organization (WTO) membership. Some experts claim that the membership exacerbated the recession further. This paper tries to assess whether the WTO entry hurt the economy of Kazakhstan.

Design/Methodology/Approach - The paper collects Kazakhstan's tariff commitments to WTO members from the World Integrated Trade Solution (WITS) and WTO official websites. It then aggregates the data in terms of region and economic sectors. The Global Trade Analysis Project (GTAP) Computable General Equilibrium (CGE) model is employed to simulate the trade liberalization and the oil-price shock scenarios.

Findings - The economic modeling underlines that the WTO membership is not a cause for the economic recession of Kazakhstan. Instead, Kazakhstan's GDP and welfare rose as a result of WTO entry. In contrast, the oil price plunge, as well as Kazakhstan's involvement in Customs Union (CU), deteriorated the terms of trade and declined the economic growth.

Research Implications - This research is the first attempt to assess the effects of Kazakhstan's WTO membership using the GTAP CGE model. It shows that Kazakhstan's WTO entry was the right step toward global integration. It also signals that Kazakhstan should diversify its economy, export structure, and trade route in order not to face the next economic recession due to unexpected energy price plunge.

Keywords: CGE Model, Kazakhstan, Oil Price, Terms of Trade, WTO Membership

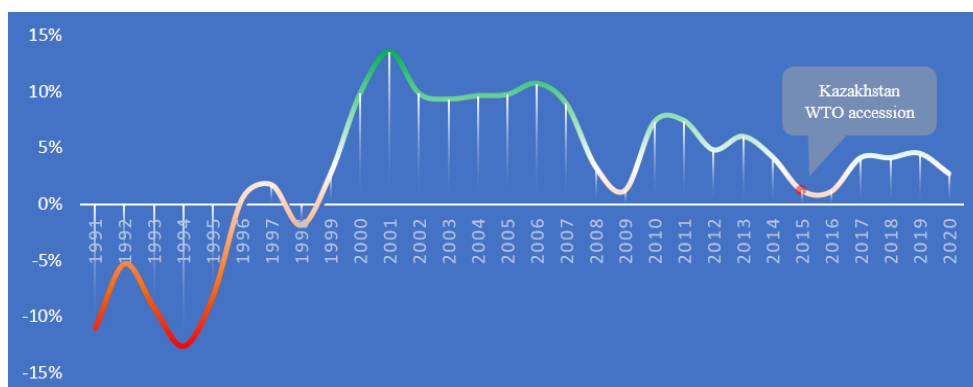
JEL Classifications: F13, F15, F17

I. Introduction

The story of Kazakhstan began from 2015 when the country entered WTO after lengthy negotiations. Since then, several researchers and scholars have been blaming the WTO entry for Kazakhstan's deficient performance in the country's GDP and the terms of trade. This paper assesses Kazakhstan's WTO membership and rewrites the 'story' from a unique perspective.

Natural-resource rich but land-locked country - Kazakhstan has been on an economic roller coaster since its independence, which means that the nation has seen several economic ups and downs (Fig. 1). At first, the economy was hit by the Russian crisis in 1998 and later boosted from 2000 to 2007. Nevertheless, the growth was interrupted by the collapse in oil prices as well as the banking crisis during 2007-8 (Pomfret, 2019). The steep decline in the world oil prices in 2014 shaken the economy once again, ceasing the rapid growth which took place during 2009-2013.

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Fig. 1. Kazakhstan GDP Growth Rate, % (1991-2020)

Note: For 2020, the first quarter is presented.
Source: Country Economy (2020).

Kazakhstan joined WTO in 2015, hoping to diversify its economy and discover new trade routes (World Bank, 2018). The WTO accession coincided with Russian-led Eurasian Economic Union (EAEU) and China's One Belt, One Road. However, right after the accession, the country's GDP decreased by -0.1% in the first quarter of 2016. Since then, the country has not seen a substantial growth either. At the same time, the terms of trade worsened further. Our literature review showed that some researchers believe that the membership deteriorated the economy. Our findings, however, propose that Kazakhstan's economic recession right after the WTO membership is due to the country's reliance on raw materials and undiversified trade routes.

The paper contributes to the existing literature with its novelty as the first attempt, even in the short-term, to assess the effects of Kazakhstan's WTO membership using the GTAP CGE model (Other literature also modeled economically to assess the Kazakh accession. However, those works have been conducted before Kazakhstan joined the organization). The economic simulation of the research serves for 'supportive' literature of WTO membership of developing countries. Besides, the paper reprovves that Kazakhstan needs to diversify its economy and trade route promptly, even the post-WTO entry period.

The paper goes as follows. The second section goes through the literature review and missing contents from the existing literature. In the third section, we briefly investigate why the accession took nineteen years from Kazakhstan. The fourth section presents our simulation model, database, and results. Analysis of Kazakhstan's economic recession and its valid reasons, such as deteriorated terms of trade, are explored in the fifth section. Finally, the paper concludes by offering some suggestions and implications.

II. Literature Review

1. Does WTO Benefit Developing Countries?

Typically, the WTO accession boosts economic growth in developing countries by allowing for greater economies of scale thanks to new market access. Countries undertaking the reforms required to join

the WTO tend to grow at around 2.5% points faster than others once the process is completed. Moreover, on average, those countries have grown 20% faster than the overall world average for the last twenty years (Tang and Wei, 2009).¹⁾

Besides, developing countries appeal to more Foreign Direct Investment (FDI) using the WTO membership as a “seal of approval” recognized by the international business community (Drabek and Bacchetta, 2004; Evenett and Primo, 2005). The accession offers a predictable business environment and gives a reliable guarantee to investors that there will be no policy reversals. According to Winters (2002), trade reforms born from the WTO accession tempt efficiency in the allocation of resources and nurture long-run growth as well as create more competitive markets with more crystal-clear and predictable policymaking (Winters, 2002). Since WTO accession aids a state to reform the economy (Staiger and Tabellini, 1999), a developing country that often struggles to reform may take WTO commitments as an opportunity to diversify and liberalize its economy (Campos 2004; Drabek and Bacchetta, 2004). As a synonym with access to foreign markets and lower-priced imports, WTO membership can be used to “buy” political support from those who have initially been against market-oriented reforms (Tang and Wei, 2009).

However, along with the benefits mentioned above, the accession may come with some side-effects or bring lesser benefits than expected, to a country’s economy. Usually, dissatisfaction from the membership happens when benefits are overestimated while the implementation costs are underestimated by developing countries (Drabek and Woo, 2010). Campos (2004) uses panel data for 25 transition economies between 1990 and 1998 and finds that WTO membership had an insignificant impact on trade openness, FDI, and growth (Campos, 2004). One of the most popular and striking critical researches toward WTO was conducted by Rose (2004/2005/2007). His extensive search reveals that countries belonging to the GATT/WTO do not have different trade patterns than outsiders (Rose, 2007). Using the Gravity Model, Rose (2004) compares the countries in the WTO with the outsiders in the system. He concludes that it is hard to prove that the GATT/WTO has encouraged trade (Rose, 2004) or made trade flows more stable and predictable (Rose, 2005). Also, Rose (2007) believes that GATT has not brought a profound effect on developing countries’ economies (Rose, 2007). Tomz et al. (2007), as well as Chang and Lee (2011), comment on Rose’s skeptical note. According to them, the incorrect classification of many developing countries as outsiders of GATT members led to such a conclusion. When the countries are classified correctly (including de facto members), the result shows that GATT/WTO has a significant trade-promoting effect (Chang and Lee, 2011; Tomz et al., 2007). Subramanian and Wei (2007) also refuse Rose’s ‘paradox’ and find that GATT/WTO promoted the trade splendidly but unevenly. That is, according to them, the WTO membership creates more effective trade for industrial countries than for developing ones. That is because developed states engage in more trade liberalization and obligations (Subramanian and Wei, 2007). The more rigorous a state’s accession to WTO, and thus the more significant the policy change required, the higher the benefits it will receive from accession (Allee and Scalera, 2012; Larch et al., 2019).

2. Domestic Debates on Kazakhstan’s WTO Accession

Kazakhstan spent almost twenty years on the negotiations. According to Deputy Director of the Department of Economic Integration of the National Chamber of Entrepreneurs of Kazakhstan, Askar Kysykov, “For a country with no direct access to the sea, to integrate into the international trading market is an objective necessity. Therefore, the entry to WTO is a necessary step in improving the

1) A good example as developing country joined the WTO can be China. Within six years of the accession, export value of China to the U.S. markets rose by 290% with gradual lower prices. Also, the drop in China’s tariffs on intermediate inputs led other exporting countries to the U.S. markets to lower their prices (Amiti et al., 2017).

competitiveness of domestic production.” Sagadiyev (2003) also believes that the membership will be a significant milestone in the transition to a market economy for Kazakhstan (Sagadiyev, 2003). Abdrash (2012) concludes that enormous natural resources, scientific potential, skilled labor - all this can make Kazakhstan competitive in the global economy after the membership (Abdrash, 2012).

The most benefiting sectors from the accession in Kazakhstan are the metallurgy, transport, chemical, and consumer goods industry (Amirbekova et al., 2017). The agricultural sector and auto industry go through some challenges as the former will start to receive less government subsidy, and the latter's import tariff will be declined significantly - from 27.9% to 13.3% (Onyusheva and Nizamova, 2015).

However, Balzhigit and Jun (2018) point out that states with low and middle income do not gain much from the WTO (Balzhigit and Jun, 2018). They compare China's and Kyrgyzstan's trade balance after both countries entered the WTO. They produce an idea that China with a positive trade balance gained from the accession while Kyrgyzstan with a deteriorated trade balance could not. Hence, they conclude that Kazakhstan, like its neighbor - Kyrgyzstan, cannot gain much from the accession. That is because, according to Balzhigit and Jun (2018), the country mainly offers the world raw materials. Furthermore, Kazakhstan does not yet have compatible brands, technologies, and products. As a result, right after the accession, the imports increased due to the reduction of import tariffs. At the same time, exports decreased due to the lack of global competitiveness. They justify their argument by a 24% drop in the trade surplus within one year after the accession (Balzhigit and Jun, 2018). However, Kalaganova (2017) argues that a decrease in the trade balance is a natural phenomenon during the early years (5-10 years) of the accession (Kalaganova, 2017).

According to Alexander Egorov - Currency Strategist, joining the WTO did not lead to the realization of most of the hopes as expected (Kapital, 2019). The deputy director of the Center for Analysis of Public Issues - Kanat Berentaev and the Leader of the People's Communist Group - Vladislav Kosarev, believe that there may be more minuses than pluses after the entry (Ivakhnikova, 2015). Abdrash (2013) thinks that WTO was created by developed countries, which now dictate the rules for entry and the entire legal framework of the process. So, what Kazakhstan sells today to the world market, the country can sell without entering the WTO (Abdrash, 2013).

Some Kazakh experts remain neutral regarding the economic impacts of the WTO entry. Chairman of the Almaty Public Antimonopoly Commission Petr Svoik says that the membership does not benefit or harm since the EAEU is already a member of WTO on behalf of Kazakhstan (Davlatov, 2013). He also thinks that, since tariffs of raw materials do not change much after the membership, the raw material exporter - Kazakhstan can still export the raw materials without any shock or benefit. Economists Olzhas Khudaibergenov and Zharas Akhmetov comment that the WTO membership is a matter of status rather than economic benefit (LSM, 2015).

3. Economic Modeling of Kazakhstan's Accession

Kazybayeva and Tanyeri-Abur (2003) analyzed Kazakhstan's accession based on two sets of scenarios by CGE modeling: a 50% reduction of tariffs in individual sectors and all sectors, and a 100% tariff in individual sectors, and all sectors protection under import substitution policy. The former shows that the GDP and welfare increased, and the unemployment decreased while the latter represents that the GDP and household welfare decreased along with the unemployment rate increased (Kazybayeva and Tanyeri-Abur, 2003). Jensen and Tarr (2007) also analyzed Kazakhstan's WTO accession by developing a 56-sector small, open economy comparative static CGE model of Kazakhstan. Their findings show that Kazakhstan would gain 6.7% of the value of consumption in the medium run and 17.5% in the long run from WTO entry. The authors estimated that FDI liberalization in services could account for 70% of the total gains (Jensen and Tarr, 2007). Hindley (2008) pointed out that membership in the WTO would have more impact on imports than exports. The largest source of gains would come

from a better institutional framework, liberalization of foreign investments, and a reduction in corruption (Hindley, 2008). Song Baek-Hoon (2010) projected that Kazakhstan's GDP would increase by 0.02% following WTO membership according to CGE analysis (Song Baek-Hoon, 2010). According to Song Baek-Hoon (2010), potential FTAs with Korea, Japan, and China appears to improve Kazakhstan's terms of trade, although joining the WTO has an insignificant effect on Kazakhstan's terms of trade (Song Baek-Hoon, 2010).

4. Missing Content from Existing Literature

Kazakhstan, where tariff rates are high, and exports are concentrated on specific items, is likely to be highly volatile in terms of trade. This should be emphasized in the WTO membership negotiation strategy and in assessing the impact of WTO membership.

To our best knowledge, there is a lack of research that is dedicated to analyzing the correlation between the recent economic slowdown and the terms of trade of Kazakhstan after the WTO accession. We also feel that a reason for the recent recession in the Kazakhstan economy should be investigated from the oil price plunge and its consequence - the deterioration of terms of trade. The decline in terms of trade should have been comprehensively analyzed by considering not only Kazakhstan WTO entry but that of Russia-led CU. In this regard, this paper tries to fill the gap in the next sections.

As for economic modeling related literature, the papers above utilized the 'imaginary' tariff commitments of Kazakhstan since those researches had been conducted before Kazakhstan entered WTO. This paper uses the existing tariff commitments of Kazakhstan with other WTO members.

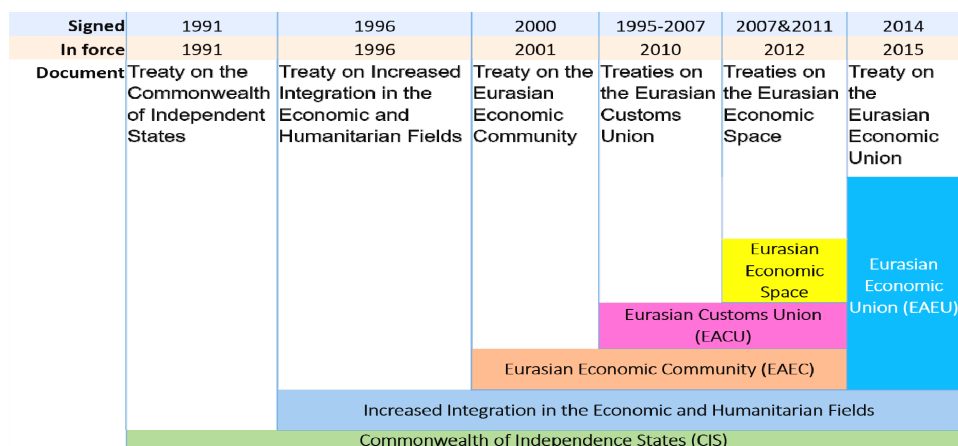
III. Why Did the Accession Take Nineteen-year from Kazakhstan?

First, in 1998, the Kyrgyz Republic among Central Asia states celebrated its WTO accession. Nevertheless, the country soon faced some side effects of WTO membership. Poor economic performance of Kyrgyzstan right-after WTO entry became a disputed element in trade policy discussions elsewhere in Central Asia.²⁾ Some Kazakh experts such as Sagadiyev (2003) and Sarieva (2015) took Kyrgyzstan's (as well as Moldova's and Georgia's) poor economic performance post-WTO membership as an example for Kazakhstan should not haste in preparation for WTO membership (Sagadiyev, 2003; Sarieva, 2015). So, the initial negotiations were delayed until the beginning of the 2000s.

Besides, Kazakhstan's involvement in Russia-led regional trade blocs (Fig. 2) could be one of the core reasons that postponed the early accession (Catherine, 2015). When CU was founded in 2010, the tariff regime of Russia was primarily imposed as the common external tariff. Therefore, the commitments of the Russian Federation in the WTO negotiations would directly affect other EAEU members, including Kazakhstan (Tarr, 2016). Hence, after ECU came into force, individual WTO negotiations were suspended for members, and Russia started the negotiations on behalf of ECU (Isachenko, 2013). There was a common belief that Kazakhstan's WTO accession should somehow be coordinated with that of Russia (TengiNews, 2011). "Joint Accession" was even possible (Hindley, 2008). Tumbarello (2005) argued that being a member of the CU before WTO membership could delay the WTO accession process for Kazakhstan (Tumbarello, 2005).

Lastly, too many agricultural subsidies in Kazakhstan were one of the causes of delaying the WTO

2) However, Pomfret argues that it is hard to demonstrate that the Kyrgyz Republic suffered harm from accession. He says there are many explanations such as Russian crisis, Kazakhstan's large currency devaluations, Kyrgyz Republic banking and external debt crises for the disappointing economic performance. He also points out that benefits from WTO membership are long-term rather than immediate (Pomfret, 2019).

Fig. 2. Timeline of EAEU and Its Predecessors (1991-2005)

Source: Author's reconfiguration based on greater-europe (2018).

accession process since many state support programs were WTO-incompatible (Pomfret, 2019). Moreover, the elite was also extremely cautious about ceding discretionary economic power (Pomfret, 2007). Hindley (2008) also states regarding what set Kazakhstan apart from earlier WTO accession is that Kazakhstan's economy was in transition (Hindley, 2008).

IV. Simulation Model and Database

The paper simulates potential economic impacts after Kazakhstan fully implements its final bound rate in WTO commitments using the GTAP model. This section also introduces the scenarios and results.

1. Methodology and Data

GTAP model: GTAP is a CGE model, which is briefly documented in the GTAP book (Hertel, 1997).³ The GTAP model allows production, consumption, price, and other major economic factors to interact with each other, which ultimately determines the final balance (Cheong, 2012). In this paper, we employ a static CGE modeling that compares a before- and after effect of Kazakhstan's economy.

To analyze economic impacts after Kazakhstan fully implements its final bound rate, the paper shocks on import tariffs. The decrease in import tariff, tms , as a result of Kazakhstan's WTO commitment causes a decline in import price, pms , too since the pms is the sum of tms and $pcif$ variables, as shown in equation (1).⁴

3) CGE model is a system of equations that describes an economy as a whole. The CGE model recognizes the interactions among many markets and their complex ways to link each other, creating the "everything depends on everything else" environment (Hertel, 1997).

4) The equations can be obtained from AnalyseGE which is a powerful tool to analyze the results of RunGTAP software program.

$$pms_{i,r,s} = tms_{i,r,s} + pci_{i,r,s} \quad (1)$$

Where:

$tms_{i,r,s}$ - import tariff of the sector i imposed on exports of country r by the country s ;

$pms_{i,r,s}$ - import price of product i provided by country r to region s ;

$pci_{i,r,s}$ - CIF world price of sector i supplied from r to s ;

In turn, the decrease in the domestic price of imports has two direct and indirect effects. First, it causes a drop in aggregate prices of imports, making imported products relatively cheaper in a country. Because of the competition, domestic prices also converge with imported goods' prices. Eventually, consumers enjoy much cheaper goods in their local markets. The variable pim is obtained from MSHRS, which represents each region's participation in the imports of sector i in the country s (in percentage), and the pms in equation (2).

$$pim_{i,s} = \Sigma[k, REG, MSHRS_{i,k,s} * pms_{i,k,s}] \quad (2)$$

Where:

$pim_{i,s}$ - price for aggregate imports;

$MSHRS_{i,k,s}$ - a share of imports from r in import bill of s at market prices;

The second effect is to increase the other regions' export, qxs to a state (Kazakhstan in our case) that reduced its import tariffs after the WTO accession. As a result, the trade somehow can be diverted from the countries which had had preferential trade agreements to other regions that started taking advantage of lower tariffs thanks to the WTO membership. As shown in equation (3), the variable qxs is obtained from qim , which are the aggregate imports of sector i of the country s ; $ESUBM$, which is the elasticity of substitution between imports and domestic products i in region s ; and the difference between pms and pim .

$$qxs_{i,r,s} = qim_{i,s} - ESUBM_i * [pms_{i,r,s} - pim_{i,s}] \quad (3)$$

Where:

$qxs_{i,r,s}$ - export sales of commodity i from r to region s ;

$qim_{i,s}$ - aggregate imports of i in region s , market price weights;

$ESUBM_i$ - elasticity of substitution between imports and domestic products i in region s ;

We also utilize one of the vital advantages of GTAP - measuring the impacts of the accession on welfare. A researcher can even decompose the welfare effects: allocative efficiency, endowment effect, technical change, population growth, terms of trade, the investment-savings terms of trade, preference change (Burfisher, 2017).

Data: The paper utilizes the 10th version of the standard GTAP database. The Database (GTAP v10) describes the world economy for four reference years (2004, 2007, 2011, and 2014) and distinguishes 65 sectors in each of the 141 countries/regions. Regional and sectoral aggregation for our scenarios are shown in Table 1 (See also Appendix Table A and Table B).

As for other tariff and trade data, WITS⁵⁾ offers a "treasure" to a researcher. The paper relies

5) The World Bank - in collaboration with the United Nations Conference on Trade and Development (UNCTAD) and in consultation with organizations such as International Trade Center, United Nations Statistical Division (UNSD) and

Table 1. Regional and Sectoral Aggregation

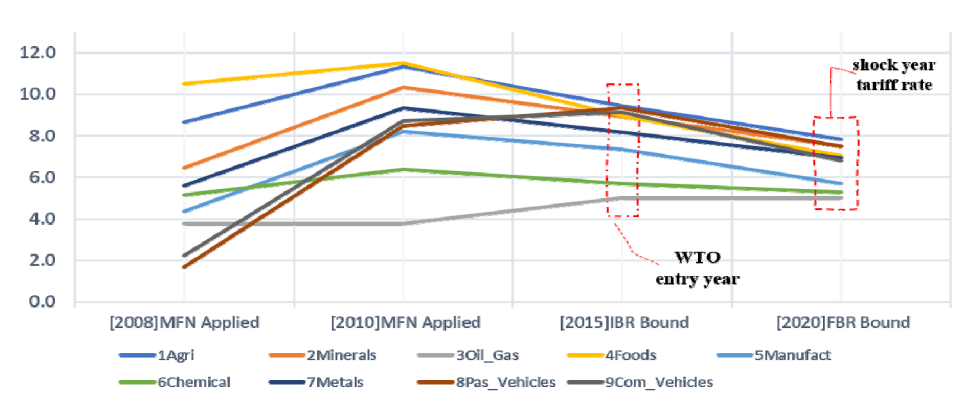
8 Regions	10 Sectors
1 Kazakhstan	1 Agri
2 China	2 Minerals
3 Japan	3 Oil_Gas
4 Korea	4 Foods
5 US_Canada	5 Manufact
6 EU_28	6 Chemical
7 EAEU_CIS	7 Metals
8 RestofWorld	8 Pas_Vehicles
	9 Com_Vehicles
	10 Services

Source: Aggregated by the author in GTAPAgg2 software.

on the WITS to gather almost all of Kazakhstan's trade and tariff data. Besides, Kazakhstan's initial and final bound rates, along with its other WTO commitments, can be found at WTO Data portal and Tariff Analysis Online facility websites.

2. Simulation Model and Results

Scenarios: By the end of 2020, Kazakhstan will have lowered 3,512 import tariff lines to an average of 6.1%, which will be the final average bound rate (Fig. 3). Our first scenario (S1) takes this final bound rate as a shock (Table 2). Scenario 2 and 3 simulates the oil price shock and its impacts on

Fig. 3. Kazakhstan Import Tariff Rates from 2008-2020

Source: Author's reconfiguration on data of WITS (n.d.). Kazakhstan's economy. By shocking the oil price, 10%, and 25% drop, respectively, we can predict

the World Trade Organization (WTO) - developed the World Integrated Trade Solution (WITS). This software allows users to access and retrieve information on trade and tariffs.

Table 2. RunGTAP Scenarios' Description

Scenario	Scenario 1: Implementing the final bound rate	Scenario 2: 10% drop in the oil price	Scenario 3: 20% drop in the oil price
Description	Import tariff reduction because of the WTO accession	Along with FBR implementation, a 10% reduction in the oil price	Along with FBR implementation, a 20% reduction in the oil price
Aggregation	8 regions and 10 sectors	8 regions and 10 sectors	8 regions and 10 sectors
Reference year	2014 (GTAP v10's benchmark year)	A new baseline based on Scenario 1	A new baseline based on Scenario 1

Note: All scenarios are static CGE model.

the reaction of Kazakhstan's economy as 35% of the country's GDP comes from oil and gas (which is 75% of total exports) (Trade Portal, 2019).

Results: Table 3 shows the main macroeconomic changes in the aggregated regions as a result of Kazakhstan's implementations of the WTO final bound rate. Because of the WTO accession (S1), the welfare of Kazakhstan would gain \$631 million. At the same time, the state would lose much more substantial welfare losses from the price fluctuation in the oil and gas industry (-\$4,612 million in S2 and -\$9,686 million in S3). The largest share of Kazakhstan's welfare in S1 comes from allocative efficiency effect, which is the excess burden of each tax (See Table C in the Appendix to see the detailed welfare decomposition).

The countries that would gain because of Kazakhstan's accession are China, Korea, and the EU. These three regions would also be beneficiary in the case of oil and gas price plunge since they could import the energy relatively cheaper. In contrast, Kazakhstan's WTO entry caused the welfare of EAEU and CIS, as well as the North American region, to lessen by -\$214 and -\$56 million, accordingly. That is because preferential agreements that EAEU and CIS countries have been enjoying could lose its 'power' to some extent. Hence, the trade could be diverted from them to the WTO members. -\$354 million welfare suffering of the Rest of the World region after Kazakhstan fully ratified its tariff bindings could be explained by the difference between MFN applied and MFN bound rates. This paper used MFN bound rate as a shock while Kazakhstan's applied rate to the most of least developed or developing states in our aggregated 'RestofWorld' region is much lower according to the benchmark year of GTAP.⁶ So, 'RestofWorld' saw trade protectionism rather than trade liberalism, because S1 utilized MFN bound rate as a shock.

As for changes in the real GDP, Kazakhstan's GDP would increase because of the WTO accession, while a 10% and 20% decline in the oil price would decrease the GDP by -0.04 and -0.17, respectively. Other oil and gas exporting regions (US_Canada and RestofWorld in our experiment) also saw deteriorated GDP. However, surprisingly, EAEU and the CIS region's GDP would be better off even though there is the largest rentier state, Russia, in this group.

The terms of trade of Kazakhstan and the EAEU_CIS region would somewhat be worse off because of Kazakhstan's accession. The scale of deterioration of the TOT, however, is much worse if the price drop happens in the oil and gas industry. It is consistent with the findings of Kose (2002) that mentions the impact of changes in world prices has a significant effect on the economic cycle, especially in

6) The GTAP utilizes trade weighted average applied rates for countries.

Table 3. Macroeconomic Changes in the Region's Economy

	Welfare change, \$ million			Change (%)					
	S1	S2	S3	Real GDP			TOT		
1 Kazakhstan	631	-4612	-9686	0.2	-0.04	-0.17	-0.04	-3.86	-7.84
2 China	221	27802	53007	0.0	0.02	0.04	0.01	0.47	0.89
3 Japan	6	21309	42668	0.0	0.05	0.10	0.00	1.62	3.30
4 Korea	188	12740	25706	0.0	0.12	0.24	0.03	1.28	2.61
5 US_Canada	-56	9109	5316	0.0	-0.01	-0.09	0.00	0.28	0.56
6 EU_28	109	53290	105735	0.0	0.05	0.09	0.00	0.53	1.09
7 EAEU_CIS	-214	-15000	-27016	0.0	0.52	1.28	-0.04	-2.66	-5.42
8 RestofWorld	-354	-88999	-199338	0.0	-0.04	-0.20	0.00	-0.81	-1.58

Source: Author's calculation in static CGE model.

developing countries (Kose, 2002). Hence, as Kazakhstan is a raw material exporter and commodity importer (Mussina, 2017), the terms of trade of Kazakhstan are usually defined by the change in the oil price and its production (World Bank, 2018).

Table 4 shows changes in Kazakhstan's export-import volume as well as the import price in Kazakh domestic markets. The experiments of all three scenarios show that Kazakhstan would start exporting more in all sectors except there would be a massive export decline in the chemical fields (-9.7% and -23.8% in S2 and S3, respectively). In terms of total imports, Kazakhstan would import more passenger vehicles, foods, and agricultural products after the accession (Table D in the Appendix shows that the import share of private households and firms in these sectors is substantial). In the case of the oil price plunge scenarios, imports of all sectors except the Oil_Gas and Chemical industry would decline. 40% and 124% sharp increase in the Oil_Gas sector can be seen very impressive to our readers. However, if we convert this percentage indexes into volume, their share in overall import contributes

Table 4. Changes in Kazakhstan's Economic Sectors

	Change (%) in								
	Export			Import			Import price		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
1 Agri	1.3	6.2	13.1	3.0	-2.4	-5.0	-1.8	-0.3	-0.6
2 Minerals	0.3	2.9	5.8	0.2	-0.8	-2.0	-0.3	-0.5	-0.8
3 Oil_Gas	0.1	3.1	8.2	0.0	39.5	124.3	0.0	-8.7	-17.8
4 Foods	0.5	5.3	11.1	3.9	-3.0	-6.3	-2.5	-0.4	-0.7
5 Manufact	1.2	10.7	22.6	1.0	-1.8	-3.8	-1.3	-0.1	-0.3
6 Chemical	0.3	-9.7	-23.8	1.5	1.4	4.1	-1.0	-1.5	-3.0
7 Metals	0.4	9.8	19.9	1.7	-2.1	-4.3	-0.9	-0.3	-0.6
8 Pas_Vehicles	2.9	7.8	16.1	6.2	-1.9	-4.0	-12.1	-0.2	-0.4
9 Com_Vehicles	0.4	6.3	12.1	-0.6	-2.0	-4.0	0.9	-0.6	-1.1
10 Services	0.2	7.0	14.6	0.2	-3.7	-7.4	0.0	0.2	0.4
Total	7.6	49	100	17.1	23.0	91.8	-19.0	-12.6	-24.9

Source: Author's calculation in static CGE model.

the smallest.

As we mentioned in the methodology part, the trade liberalization decreases the overall price in a country: the more import, the lower prices. After Kazakhstan fully enters WTO, Kazakh car lovers would buy imported passenger cars, among other importing goods much cheaper - a 12.1% decrease. The foods and agricultural products would also be available at a lower price in local markets. When the price went down in the oil and gas industry, all the importing goods would get cheaper (except Services) since the energy as an input for those products could cost lesser.

In short, Kazakhstan would gain in the form of welfare and real GDP increase from WTO accession. However, the terms of trade slightly would worsen. Also, an unexpected price drop in the oil and gas industry could make the country worse off as it did before.

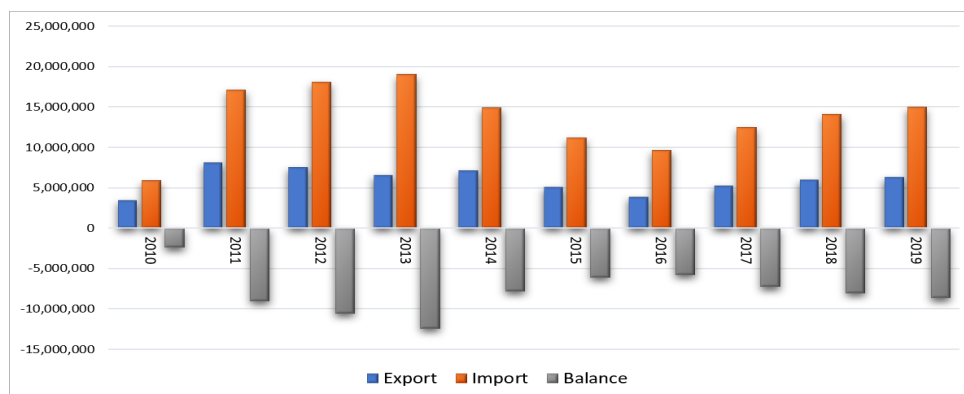
V. Analysis of Kazakhstan's Economic Recession

1. The Worsened Terms-of-trade of Kazakhstan

The recent Kazakhstan's recession emerged due to several reasons such as the oil price plunge, tenge devaluation, Russia-led trade blocs. Among the reason, the drop in oil price overweighs as the fuel contributes the most to Kazakhstan's GDP.

When the world oil price dramatically decreased in 2013-2015, it led to significant terms of trade shock for the Kazakhstan economy (Madani, 2016). Since petroleum and petroleum products contribute the most to Kazakhstan's terms of trade (Bozduvan and Erkan, 2019), the trade balance directly deteriorated, and the GDP growth slowed (Fig. 1). Besides, weakened external demand as a result of the slowdown in China's growth and Russia's recession during 2013-15 declined the export. According to Madani (2016), adverse external conditions contributed to an unexpected decline in the GDP growth rate in 2015 (1.2%) and early 2016, -0.1% falling for the first quarter (Madani, 2016). Many studies such as Cakir (2009), Kose (2002), Mendoza (1995) have already proved that there is a relationship between the terms-of-trade and economic growth (Cakir, 2009; Kose, 2002; Mendoza, 1995). Mendoza

Fig. 4. Kazakhstan Export-Import and Trade Balance with EAEU States (1,000 USD)



Source: Author's illustration based on UNCOMTRADE data via WITS.

(1997) explains that instability in terms of trade reduces savings activities, which negatively affects capital accumulation and economic growth (Mendoza, 1997).

On top of that, 19% of tenge devaluation in 2014 lessened private consumption (Madani, 2015). Consequently, it made import and domestic price more expensive even though the devaluation facilitated Kazakhstan oil export somehow. The lack of domestic demand, in turn, exacerbated the recession. Hence, the slowdown in growth continued even after Kazakhstan joined WTO in 2015 (to see GDP growth in Fig. 1).

Besides, Kazakhstan has seen a trade deficit with EAEU states since the establishment of the CU (Fig. 4). Considering Kazakhstan's trade with EAEU as a share of total global trade is around 20% (Eurasianet, 2019), and its import with EAEU states as a share of total imports is about 35-40% (International Trade Centre, 2020), the trade deficit with EAEU contributes much to the deterioration. That being said, research on the long-term effects of Kazakhstan's involvement in EAEU is needed with rigorous interpreting the statistical data.

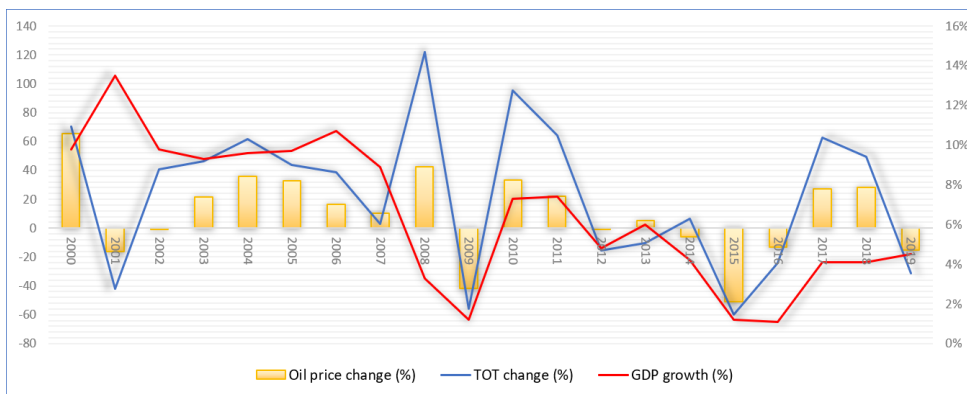
2. A correlation between the Recession and World Energy Price

Fig. 5 illustrates a casual correlation between the world oil price and a change rate in GDP growth and terms of trade for Kazakhstan from 2000 to 2019. It is not hard to see that there is a direct correlation between the global oil price and Kazakhstan's economic growth. Kazakhstan's economy boomed in the early 2000s until the financial crises in 2008. The crises ceased the growth of almost any country, including Kazakhstan, worldwide. After the economy thrived once again in 2010-11, the economic recession we are considering in this paper originated. Hence, we can say that the economic slowdown after Kazakhstan joined the WTO in 2015 initially emerged in 2013 and still has impacted the economy.

3. Interpretation of the Simulation Results

Our trade liberalization simulation (S1 in Table 3) proposes that Kazakhstan gains from the WTO

Fig. 5. Correlation between the Oil Price and Change Rate in GDP Growth and TOT



Source: Authors' illustration based on countryeconomy (2020).

accession. The country earns the welfare benefit and real GDP growth while the membership slightly deteriorates the terms of trade. Also, the export and import value increases in all the aggregated sectors. Hence, import prices get cheaper for Kazakh consumers (Table 3). However, despite the trade liberalization, if the world energy price drops again, the Kazakhstan economy continues suffering (S2 and S3 in Table 3).

Shortly, the economic slowdown for Kazakhstan originated in 2012-13 because of the oil price plunge. Along with the oil price drop, Kazakhstan's membership to the CU further worsened the terms of trade. In contrast, the trade liberalization due to the WTO accession brought benefit to Kazakhstan's economy.

VI. Conclusion Remarks

This paper analyzed the recent economic recession and trade policy of Kazakhstan post-WTO membership. Even though Kazakh officials took a meticulous and lengthy approach to join the organization, the short-term effects have not produced expected growth yet. After the membership, some researchers pinpointed the WTO membership as a cause of the economic slowdown and deteriorated terms of trade. However, our simulation and analysis of Kazakhstan's economic slowdown propose a different judgment. The trade liberalization scenario found out that the lower tariffs improve consumer's welfare and the GDP. The number of imported and exported goods increases, and as a result, the Kazakh consumers enjoy the cheaper imported goods in their local market. At the same time, exporters have a chance to offer their goods to the global market with much higher bargaining power. However, a potential drop in the energy price could worsen off the country's welfare and the terms of trade as well as decrease the GDP growth.

After analyzing Kazakhstan's economic recession further correlating with the simulation results, we found out that there is a direct correlation between the world energy price fluctuations and Kazakhstan's economy. The considered economic slowdown after the WTO membership is a continuation of the recession that originated in 2012-13 because of the oil price plunge. We also highlighted that Kazakhstan's membership to the CU is one of the main contributors to weakening the terms of trade. In contrast, trade liberalization due to the WTO accession brings benefits to Kazakhstan's economy as a form of welfare gain, GDP growth, cheaper importing goods for the consumers as well as broader exporting markets for exporters.

The paper's implications and suggestions are as follows. Since the unexpected drop in the energy price could lead to the next economic recession, this worry should be a signal for the Kazakh policy-makers to foster the diversification programs in the economy. The government should train the exporters and producers to utilize WTO membership opportunities efficiently. Notably, lower tariffs, and restrictions to enter larger markets, Dispute Settlement mechanism to resolve conflicts, transparent trade data provided by the members are widely used advantages of the membership.

As for the limitation of this research, the first things first, the economic impacts of WTO accession come up in medium- and long-terms more clearly. So, the next researches with the long-term impacts can rewrite the story of Kazakhstan WTO accession. Also, Kazakhstan's commitment to reduce non-tariff barriers (NTBs) is left empty for further research. Besides, our simulation covered the import tariff commitments of Kazakhstan only. Kazakh exporters that enjoy lower MFN rates by other members should also be considered to see the full benefit of the WTO membership.

References

- Abdrash, A. (2012), "Economic Opportunities and Consequences of the Accession of Kazakhstan to the WTO within the Global Economy", *Scientific Articles Kazakhstan*. Available from <https://articlekz.com/article/11199>
- Abdrash, A. (2013), "Kazakhstan's Accession to the WTO: Advantages and Disadvantages. Russian Experience: Expert Opinions. Analysis of the Current Situation", *Scientific Articles Kazakhstan*. Available from <https://articlekz.com/article/11131>
- Allee, T. L. and J. E. Scalera (2012), "The Divergent Effects of Joining International Organizations: Trade Gains and the Rigors of WTO Accession", *International Organization*, 66(2), 243-276.
- Amirbekova, A., D. Madiyarova and I. Andronova (2017), "What are the Pros and Cons for Kazakhstan of Joining the WTO from an Export Potential Point of View?", *Journal of Business and Retail Management Research*, 11(3), 85-92.
- Amiti, M., M. Dai, R. Feenstra and J. Romalis (2017), *How did China's WTO Entry Benefit US consumers?* (NBER Working Paper, No. 23487), Cambridge, MA: National Bureau of Economic Research Working Paper.
- Balzhighit, A. and Y. Z. Jun (2018), "Impact of WTO Membership on the Kazakhstan's Export", *International Journal of Business Marketing and Management*, 3(2), 67-71.
- Bozduman, E. T. and B. Erkan (2019, April 11-13), "Sectoral Competitive Advantages in Kazakhstan's Foreign Trade as a Rising Star of Central Asia", Paper Presented at 7th SCF International Conference on the Future of the European Union and Turkey-European Union Relations, Usak, Turkey, 160-168.
- Burfisher, M. E. (2017), *Introduction to Computable General Equilibrium Models* (2nd ed.), New York, NY: Cambridge University Press.
- Cakir, M. (2009, November 14-15), "Terms of Trade and Economic Growth of Emerging Market Economies", Paper Presented at the International Conference on Administration and Business, Bucuresti, Romania, 14-15.
- Campos, N. F. (2004), "What Does WTO Membership Kindle in Transition Economies?: An Empirical Investigation", *Journal of Economic Integration*, 19(2), 395-415.
- Chang, P. L. and M. J. Lee (2011), "The WTO Trade Effect", *Journal of International Economics*, 85(1), 53-71.
- Cheong, In-Kyo (2012), "Economic Assessment of the Korea-US FTA", *Korean Social Sciences Review*, 2(1), 33-94.
- Drabek, Z. and M. Bacchetta (2004), "Tracing the Effects of WTO Accession on Policymaking in Sovereign States: Preliminary Lessons from the Recent Experience of Transition Countries", *World Economy*, 27(7), 1083-1125.
- Drabek, Z. and W. T. Woo (2010), *Is the World Trade Organization Attractive Enough for Emerging Economies?* (2010 ed.), London: Palgrave Macmillan, 249-294.
- Evenett, S. J. and C. A. Primo Braga (2005), *WTO Accession: Lessons from Experience* (Trade Note 22), Washington, DC: International Trade Department.
- Hertel, T. (1997), *Global Trade Analysis: Modeling and Applications*, New York, NY: Cambridge University Press.
- Hindley, B. (2008), *Kazakhstan and the World Economy: An Assessment of Kazakhstan's Trade Policy and Pending Accession to the WTO* (ECIPE, No. 01/2008), Brussels: European Centre for International Political Economy.
- Isachenko, T. M. (2013), "The Trade Policy of Russia: Latest Developments and Main Priorities", *Rivista di Studi Politici Internazionali*, 80(3), 347-360.
- Jensen, J. and D. G. Tarr (2007), *The Impact of Kazakhstan Accession to the World Trade Organization: a Quantitative Assessment* (Policy Working Paper, No. 4142), Washington, DC: World Bank Group.

- Kalaganova, N. (2019), "Joining the WTO is a Step Towards an Economy Based on Innovations in the Competitiveness of Kazakhstan Products", *Scientific Articles Kazakhstan*. Available from <https://articlekz.com/article/20322>
- Kazyvaeva, S. and A. Tanyeri-Abur (2003, June 23-26), "Trade Policy Adjustments in Kazakhstan: A General Equilibrium Analysis", Paper Presented at the International Conference: Agricultural Policy Reform and the WTO: Where are We Heading?, Capri, Italy.
- Kose, M. A. (2002), "Explaining Business Cycles in Small Open Economies: How Much do World Prices Matter?", *Journal of International Economics*, 56(2), 299-327.
- Larch, M., J. A. Monteiro, R. Piermartini and Y. Yotov (2019), *On the Effects of GATT/WTO Membership on Trade: They are Positive and Large after All* (Working Paper, No. ERS-2019-09), Geneva, Switzerland: World Trade Organization.
- Madani, D. H. and I. Sarsenov (2015), *Kazakhstan - Low Oil Prices: An Opportunity to Reform - Biannual Economic Update* (Kazakhstan Economic Update, No. 1), Washington, DC: World Bank.
- Madani, D. H. and I. Sarsenov (2016), *A Long Road to Recovery* (Kazakhstan Economic Update, No. 3), Washington, DC: World Bank.
- Mendoza, E. G. (1995), "The Terms of Trade, the Real Exchange Rate, and Economic Fluctuations", *International Economic Review*, 36(10), 101-137.
- Mendoza, E. G. (1997), "Terms-of-trade Uncertainty and Economic Growth", *Journal of Development Economics*, 54(2), 323-356.
- Mussina, S. T., A. N. Shevchenko, A. S. Tastanova and D. R. Shulyak (2017, April 30), "Current Trends in Foreign Trade of the Republic of Kazakhstan", Paper Presented at IX International Scientific and Practical Conference: "Science of the Future: Issues and Hypotheses", Moscow, Russia, 29-31.
- Onyusheva, I. V. and N. A. Nizamova (2015), "Kazakhstan's Accession to the WTO: Prospects and Consequences", *Economics and Modern Management: Theory and Practice*, 10-11(53), 82-89.
- Pomfret, R. (2007), "Lessons from Kyrgyzstan's WTO Experience for Kazakhstan, Tajikistan, and Uzbekistan", *Asia Pacific Trade and Investment Review*, 3(2), 27-46.
- Pomfret, R. (2019), *The Central Asian Economies in the Twenty-first Century: Paving a New Silk Road*, Princeton, NJ: Princeton University Press, 204.
- Rose, A. K. (2004), "Do We Really Know That the WTO Increases Trade?", *American Economic Review*, 94(1), 98-114.
- Rose, A. K. (2005), "Does the WTO Make Trade More Stable?", *Open Economies Review*, 16(1), 7-22.
- Rose, A. K. (2007), "Do We Really Know That the WTO Increases Trade? Reply", *American Economic Review*, 97(5), 2019-2025.
- Sagadiyev, K. (2003), "Kazakhstan's Membership of the WTO: Problems, Consequences and Prospects", *Kazakhstan Business Magazine*. Available from <http://www.investkz.com/journals/34/290.html>
- Sarieva, P. M. (2015), "The Consequences of the Entry of the Republic of Kazakhstan into the WTO," *Scientific Articles Kazakhstan*. Available from <https://articlekz.com/article/19834>
- Song, Baek-Hoon (2010, December 1-2), "Analysis of Economic Effects of Kazakhstan's Accession to the WTO and Spread of the FTA", Paper Presented at the 2nd Central Asian Domestic Conference, Seoul, Korea, 381-398.
- Staiger, R. W. and G. Tabellini (1999), "Do GATT Rules Help Governments Make Domestic Commitments?", *Economics and Politics*, 11(2), 109-144.
- Subramanian, A. and S. J. Wei (2007), "The WTO Promotes Trade, Strongly but Unevenly", *Journal of International Economics*, 72(1), 151-175.
- Tang, M. K. and S. J. Wei (2009), "The Value of Making Commitments Externally: Evidence from WTO Accessions", *Journal of International Economics*, 78(2), 216-229.
- Tarr, D. G. (2016), "The Eurasian Economic Union of Russia, Belarus, Kazakhstan, Armenia, and the Kyrgyz Republic: Can It Succeed Where its Predecessor Failed?", *Eastern European Economics*, 54(1), 1-22.

- Tomz, M., J. L. Goldstein and D. Rivers (2007), "Do We Really Know That the WTO Increases Trade? Comment", *American Economic Review*, 97(5), 2005-2018.
- Tumbarello, P. (2005), *Regional Trade Integration and WTO Accession: Which is the Right Sequencing? An Application to the CIS* (IMF Working Paper, No. WP/05/94), Washington, DC: International Monetary Fund.
- Winters, L. A. (2002), *Trade Policies for Poverty Alleviation* (World Bank Group Report, No. 29799), Washington, DC: World Bank, 28-38.
- World Bank (2018), *Kazakhstan - Systematic Country Diagnostic: A New Growth Model for Building a Secure Middle Class* (Report, No. 125611-KZ), Washington, DC: World Bank.

Appendices

Table A. Detailed Regional Aggregation and Description

Regional aggregation	Description	Country ISO codes
Kazakhstan	Kazakhstan	kaz
China	China	chn
Japan	Japan	jpn
Korea	South Korea	kor
US_Canada	USA and Canada	can usa
EU_28	EU members including the UK	aut bel bgr hrv cyp cze dnk est fin fra deu grc hun irl ita lva ltu lux mlt nld pol prt rou svk svn esp swe gbr
EAEU_CIS	EAEU and CIS	blr rus kgz tjik xsu arm aze geo
RestofWorld	Rest of the world	aus nzl xoc hkg mng twn xea brn khm idn lao mys phl sgp tha vnm xse bgd ind npl pak lka xsa mex xna arg bol bra chl col ecu pry per ury ven xsm cri gtm hnd nic pan slv xca dom jam pri tto xcb che nor xef alb ukr xee xer bhr irm isr jor kwt omn qat sau tur are xws egy mar tun xnf ben bfa cmr civ gha gin nga sen tgo xwf xcf xac eth ken mdg mwi mus moz rwa tza uga zmb zwe xec bwa nam zaf xsc xtw

Table B. Detailed Sectoral Aggregation and Description

Sectoral Aggregation	Description	GTAP sectoral codes
Agri	Agriculture, livestock, forestry, and fishery	pdr wht gro v_f osd c_b pfb ocr ctl oap rmk wol frs fsh cmt omt pcr
Minerals	Minerals including coal	coa oxt nmm
Oil_Gas	Oil and gas	oil gas
Foods	Food products	vol mil sgr ofd b_t
Manufact	Manufacturing	tex wap lea lum ppp bph ele eeq ome omf
Chemical	Chemical products	p_c chm rpp
Metals	Metals and metals products	i_s nfm fmp
Pas_Vehicles	Passenger vehicles	mvh
Com_Vehicles	Commercial vehicles including the ship and air transportations	otn otp wtp atp
Services	Services	ely gdt wtr cns trd afs whs cmn ofi ins rsa obs ros osg edu hht dwe

