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INTERMODAL TRANSPORTATION ALTERNATIVES AS A MEANS TO TURKEY'S VEHICLE TRAFFIC

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Abstract: *The main target of the transportation sector is to present the transportation demand in the fastest and the most economical very safely. In Turkey, the weight of the road transport over the transport system is ever increasing; particularly railways cause the neglect of the kinds of other transportation.*

As a result, becoming of high costs, unproductive road use, crossing of efficient areas to highways, occurring of noise and environmental pollution, resulted in building of unbalanced transportation system. From the early years of the Republic until to the beginning of the Second World War, railways, which have a fundamental importance in the development moves of Turkey, were thrown into the background after 1950. In Turkey a transportation system need, which is reliable, balanced and considering the needs of the interest of the community and country, is more needed than ever before.

In this study the importance of intermodal transport, which is an alternative to the time loss causing to long queues and standby in both countries and the entrance and exit of trucks to the most important address of Kapıkule Customs which locate in the Western Gates of Edirne and have an important place in Turkey's foreign trade ,has been investigated.

INTRODUCTION

Road transport has an important role in Turkey's domestic and foreign trade activities. In our country, international road freight transportation takes the second place after international sea freight transportation in terms of value and weight, except for the first and last transportation legs, road vehicles are used at a high rate in the entire transportation operation, as it enables uninterrupted transportation between the exit and destination points. Highway is preferred by approximately 90% in domestic cargo transportation activities.

Employing drivers is the most important problem that fleet-owning companies face today and that will negatively affect their commercial activities in the short term if necessary precautions are not taken. In Germany, one of the leading countries in the logistics sector, it is not difficult to predict the factors that prepare the process leading to the driver crisis. Long waits and delays at the border gates, especially in Kapıkule, and the straining humanitarian conditions of these long waits are among these factors. While this problem was widely covered by the public with the press statements made by UND and UTIKAD, the Ministry of

Commerce made studies and determinations on the subject. Even though improvements have been made, the truck drivers who are tired have entered a difficult process with the pandemic.

There is a shortage of approximately 40,000 truck drivers every year in Turkey. The economic impact of driver employment in delivering the manufactured goods to the consumer also has another dimension that affects logistics costs. Long waits and delays at the border gates, especially in Kapıkule, and the straining humanitarian conditions of these long waits are among these factors.

1.INTERMODAL TRANSPORT

The concept of intermodality is defined as a transportation system that proposes to use at least two different modes of transportation in the door-to-door transportation chain. (Glen, 1995: 3–13.)

Intermodal transport; It is the mode of transportation in which the goods (goods) are transported by two or more modes of transportation in a transport unit or land vehicle, and in the transitions between the types, not the goods themselves but the transport (loading) unit is handled. In intermodal freight transportation, the load in the container or trailer moves from the starting point to the final point with a combination of transportation types. The main feature of its transport is the free exchange of equipment between mods. The container part of a truck can be transported in an airplane or a rail vehicle may be transported by sea transport. Intermodal freight transportation requires special types of handling equipment to be able to transfer containers between types. These equipment's are defined as intermodal transport units. (Çekerol, 2007:12). With the integration of intermodal transportation, operational efficiency is achieved by reducing the handling in the transfer of loads. An indirect effect of this is to reduce the damage to the loads and to reduce the risks used in insurance cost calculations (Çancı and Türkay, 2006: 238).

2. TRANSPORT IN TURKEY

In terms of the value of the goods transported, maritime transport has the largest share in both imports and exports in the last 10 years. Seaway in imports between 2010-2019.

While transportation has a share of approximately 62-70%, its share is 60% in the first three quarters of 2020. Decreased below the level of 58.10%. While increasing the share of seaway in export shipments from 2010 to 2018; The share of maritime transport, which was 51.41% in 2010, reached the highest share in a 10-year period in 2018, and the share of maritime transport increased to 63.31% in the said year. While this rate decreased to 60.82% in 2019, it became 59.86% in the first three quarters of 2020.

Table.1 % Shares in Imports and Exports by Transport Types (Based on Weight)

Yıl	IMPORT	EXPORT	IMPORT	EXPORT	IMPORT	EXPORT	IMPORT	EXPORT
2016	3,72	24,49	0,06	0,81	95,78	74,19	0,43	0,52
2017	4,00	22,12	0,06	0,81	95,56	76,49	0,37	0,58
2018	4,05	20,44	0,05	0,83	95,48	78,25	0,42	0,48
2019	4,34	17,59	0,06	0,87	95,12	81,09	0,49	0,45
2020 (3. Q)	4,04	16,19	0,04	0,35	95,35	82,84	0,56	0,62

Source : TÜİK

Road transport takes the second place in terms of value in Turkey's foreign trade transports. The share of road transport in imports has reached 2018 in the last 10 years. While it tends to decrease by about 20% in 2019 and the first three quarters of 2020, owns a share. The year in which it had the highest share in the analyzed period was 26.75%. It is the year 2010. The share of road transport in exports is the highest in the analyzed period. The year it was in was 2010 with 40.88%; In the period from 2010 to 2018, the share of highways in exports decreased to 28% in 2018. in 2019 While it increased to 30.36%, the share of highways in exports in the first three quarters of 2020 was 31.79%.

Airline in Turkey's foreign trade activities on the basis of value among transportation types transportation is in the third place. Railway transportation is the type of transportation with the lowest share in Turkey's foreign trade. In the first three quarters of 2020, the share of railway transportation, which was understood to be important due to the coronavirus pandemic and came to the fore with its preference in foreign trade, in exports was limited to 1.07%, while its share in exports was 0.80%.

In Turkey's foreign trade, maritime transport is also on the basis of weight, just as it is on the basis of value. transportation comes first. Sea transport in imports to have a share of 95%. continued. The share of road transport in imports is around 4% after 2016. After the same year, the share of road transport in Turkey's exports tends to decrease; While the share of highways in exports was 24.49% in 2016, at the end of the first three quarters of 2020, the share of highways in exports decreased to 16.19% in parallel with the increase in sea transportation. Railway transportation has a share of less than 1% in both imports and exports of Turkey on a weight basis in the last 10 years. The intensive use of railway transports within the scope of the coronavirus pandemic resulted in an increase in the share of railway transports in both imports and exports in the first three quarters of 2020 compared to the previous year.

Table.2 Vehicle Entering and Exiting from West Gates by Land Gates

Land Gates		2017		2018		2019		2020		2021 (Ocak-Şubat)	
		Total Vehicle	Share %	Total Vehicle	Share %	Total Vehicle	Share %	Total Vehicle	Share %	Total Vehicle	Share %
KAPIKULE	Incoming	891.293	26,1	1.024.545	29,7	1.159.112	30,4	787.626	30,6	93.236	24,6
	Outgoing	848.087	24,8	994.915	28,9	1.101.335	28,8	787.342	30,7	92.676	24,4
	Total	1.739.380	25,5	2.019.460	29,3	2.260.447	29,6	1.574.968	30,7	185.912	24,5
HAMZABEYLİ	Incoming	705.904	20,7	665.909	19,3	751.330	19,7	621.343	24,2	105.013	27,8
	Outgoing	260.605	7,6	301.833	8,8	315.913	8,3	221.321	8,6	31.984	8,4
	Total	516.833	7,6	603.881	8,8	619.032	8,1	428.921	8,4	62.477	8,2
İPSALA	Incoming	315.139	9,2	326.410	9,5	340.853	8,9	123.842	4,8	14.551	3,8
	Outgoing	311.496	9,1	313.774	9,1	333.950	8,7	112.806	4,4	14.010	3,7
	Total	626.635	9,2	640.184	9,3	674.803	8,8	236.648	4,6	28.561	3,8
DEREKÖY	Incoming	89.597	2,6	114.913	3,3	132.279	3,5	65.632	2,6	3.765	1,0
	Outgoing	90.240	2,6	113.109	3,3	132.263	3,5	64.580	2,5	3.638	1,0
	Toplam	179.837	2,6	228.022	3,3	264.542	3,5	130.212	2,5	7.403	1,0
TÜRKİYE TOTAL		6.823.685		6.894.966		7.638.987		5.132.258		758.663	

Source : Ministry of Commerce

Kapıkule Customs Gate is experiencing the highest density due to the fact that it is a transit customs within the Western gates. Ipsala, Hamzabeyli Customs Gates follow him.

Table.3 Number of Vehicles Entering and Exiting by Types

Years		Turck Tractor Trailer	Tanker	Turck Van	Bas	Car	Other	Total
2017	Login	1.746.521	16.747	237.370	123.197	1.541.130	387.523	**4.052.488**
	Exıt	1.713.888	69.246	226.226	129.867	1.537.012	385.803	**4.062.042**
	Total	3.460.409	85.993	463.596	253.064	3.078.142	773.326	**8.114.530**
2018	Login	1.731.627	39.130	183.852	99.965	1.652.791	17.745	**3.725.110**
	Exıt	1.760.881	28.651	174.492	108.394	1.650.045	19.614	**3.742.077**
	Total	3.492.508	67.781	358.344	208.359	3.302.836	37.359	**7.467.187**
2019	Login	1.846.023	38.330	187.379	92.202	1.872.303	445.117	**4.481.354**
	Exıt	1.883.977	23.902	178.434	101.928	1.872.269	447.058	**4.507.568**
	Total	3.730.000	62.232	365.813	194.130	3.744.572	892.175	**8.988.922**
2020	Login	1.791.511	19.855	143.290	28.944	819.430	190.466	**2.993.496**
	Exıt	1.797.049	18.248	134.195	35.469	820.734	188.017	**2.993.712**
	Total	3.588.560	38.103	277.485	64.413	1.640.164	378.483	**5.987.208**
2021 (1. 2)	Login	310.124	2.458	25.595	3.448	73.453	26.914	**441.992**
	Exıt	313.713	3.448	23.847	3.918	75.248	26.820	**446.994**
	Total	623.837	5.906	49.442	7.366	148.701	53.734	**888.986**

Source : Ministry of Commerce

It is seen that it has the highest number of passages within the customs gates among the TIR-Tractor-Trailer-Trailer types.

2.1. Rail Freight

The total line length, which was 10,959 kilometers in 2003, increased by 17% and reached 12,803 kilometers in August 2020. Conventional line total increased by about 6% in the same period; The increase in the total line length was largely due to the High Speed Train lines.

It is aimed to increase the total railway line length to 17,527 kilometers in 2023, and to 23,627 kilometers between 2023 and 2035. Turkey's international railway connections are made with Kapıkule (Bulgaria), Uzunköprü (Greece), Canbaz (Georgia), Doğukapı (Armenia), Kapıköy (Iran), Islahiye, Nusaybin and Çobanbey (Syria) and Doğukapı, Islahiye, Nusaybin and Çobanbey gates currently not in service.

Turkey's 13 ports in total have railway connections and these ports Haydarpaşa, Derince, İzmir, Bandırma, Mersin, Samsun, İskenderun, Tekirdağ, Zonguldak, Yılport, Evyap, DP World and Nemport Ports. While the number of freight wagons serving on Turkish railways was 16,070 in 2003, it reached the highest number in 2016 and rose to 19,750; In August 2020, the number of freight wagons was 16,956. The capacity, which was 624,405 tons in 2003, reached 882,928 tons in 2016, when the number of wagons was the highest. While the rate of increase in the number of wagons was approximately 5.5% in the period from 2003 to 2020, the capacity increase on a ton basis was approximately 41% during the same period.

2.2. Ro-Ro Freight

8 Ro-Ro ship assets have a tonnage of 195,680 DWT or 460,099 GT, with an average age of 17.

In terms of the number of vehicles arriving and departing from Turkey to Europe and from Europe to Turkey the total rate of the region with 347,327 vehicles is 69%, number of vehicles arriving and departing from Turkey to the Black Sea and from the Black Sea to Turkey With 93,958 vehicles, the collection rate of the region is 19%, In terms of the number of vehicles arriving and departing from Turkey to the Mediterranean and from the Mediterranean to Turkey with 62,056 vehicles, the collection rate of the region is 12%. On other lines, 3,557 vehicles were transported.

Table.4 Ro-Ro Lines Transported Vehicles (2016-2020)

2016	451.672
2017	542.301
2018	583.560
2019	591.734
2020	504.752

Source: Republic of Turkey Ministry of Transport and Infrastructure

With the exception of the years 2012 and 2019, the number of tow trucks, TIRs, TIR tankers, trailers and freight wagons departing from Turkey with regular Ro-Ro lines with international connections is increasing linearly in the direction of Europe. While the total number of vehicles traveling with Ro-Ro was 170.492 in 2011, this number increased by 89% in 2019 and became 321.700. In the same period, the increase in the number of vehicles going towards Europe was 74%, 146% in the Black Sea and 127% in the Mediterranean. While the total number of outgoing vehicles was 321,700 at the end of 2019, the total number of outgoing vehicles at the end of the first three quarters of 2020 was 177,393.

In the first three quarters of 020, it is observed that exports started to increase after February in the distribution of international rail transport on a monthly basis by weight. While no major changes were observed in import shipments during the year, there was a decrease in the amount of freight transported as of July. According to TUIK data, in the period until the end of the third quarter of 2020, Germany is the first country in terms of value and the third country in terms of weight in export shipments from Turkey by rail. In terms of weight, shipments to Bulgaria are in the first place, while Bulgaria is in the second place in terms of value.

CONCULUSION

Although we are in a good position with our neighbors in Turkey's logistics performance index ranking, our foreign trade rate is slow. The waiting time at the border for export transactions is 10 hours. Average 7 hours for import. The biggest problem in these transactions is the excess of unnecessary paperwork and documentation. It takes 4 hours to complete export operations and 2 hours for imports.

While the expenditure per container for the transaction costs at the borders in exports is 338 dollars, this figure is 46 dollars in imports. The average expenditure for documents in exports and imports is 55 dollars. Because of these costs, Turkey's score in terms of expenses spent on border transactions for exports is 68.1 out of 100. There is a success rate of 99 percent in imports. In other words, it seems more difficult to export from Turkey. Without these costs, Turkey could provide 1 billion dollars more foreign currency inflow.

Waiting and delays in Kapıkule, which is the most important starting point for export shipments to Europe, cause loss of time and cost increases in transportation and foreign trade, weakening the competitiveness of our export products in the international arena. Alternative routes and routes to be used in road transport are gaining importance day by day. In this context, it is foreseen that the Ro-Ro lines of Karasu-Constanta (Romania) that started operating on 03.02.

Precaution regarding Kapıkule customs gate It can be thought that if the document check is carried out first by the weighing, then by the customs police and then by the Customs Enforcement Customs Directorate, it will gain momentum due to the fact that the imported shipments are returned empty.

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