

Fails and Successes of Slovenian Transport Policy in the Area of Surface Transportation

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Abstract

Slovenia became a sovereign state in the beginning of the 1990s, but regardless of the frequently emphasized excellent geo-strategic position on the crossing of two important European transport corridors, it got its first national transport policy only in 2006. Have this influenced the development of Slovenian transport system and did it shape the creation of the national transport policy? The authors focused on the measures taken by the Slovenian transport policy since its adoption in 2006. The most important transport policy measures taken so far have been evaluated by applying several statistical methods to the available data. In addition the results of a research that has been carried out to assess population's attitude towards those measures and towards the performance of the Slovenian transport system are included.

Keywords: Transport Policy, Transport System, Transport Statistics, Research

1. Introduction

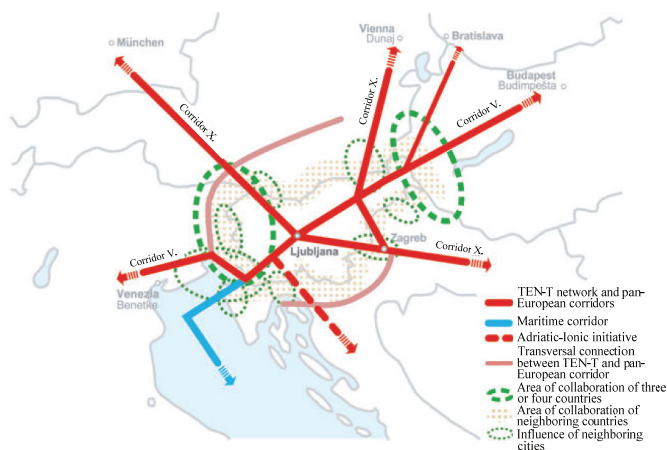
Transport provides many benefits to society; it gives the individual freedom and independence to travel and facilitates trade, taking on an important role in modern developed economies. In order to have an efficiently working transport system government must set the national transport policy and municipalities have to set their local transport policy with regards to national transport policy.

Rodrigue, Comtois and Slack define transport policy as the development of a set of constructs and propositions that are established to achieve particular objectives relating to socio-economic development, and the functioning and performance of the transport system. This means that transport policy must consist of systematically determined objectives, which in addition must be mutually harmonized, time-dependent, measurable and realistic. Good decisions need clear objectives.

This is impossible without vast knowledge on current performance of transport system as well as good forecast on future transport demand and the national financial capabilities or the capability to attract private investments into transport sector. Accordingly transport policy measures are selected. Therefore, transport policy provides guidelines which are selected among several options, and which under given conditions best respond to the determined transport needs (Till, 1974 in).

The position and the role of transport policy are determined by the importance of transport for the entirety of national socio-economic development. In this context the theory distinguishes between two concepts; the *Continental philosophy* within which transport is treated as an input into wider socio-political-economic framework and as such should be heavily regulated and controlled and the *Anglo-Saxon philosophy* which sees transport as just another sector in the economy that should be provided as efficiently as possible in its own right.

Slovenia is a young country; it gained its independence in the early 1990s. Its favorable geo-strategic position was recognized by the European Union in 1994 when two pan-European corridors crossing Slovenian territory were defined. These corridors now form a part of Trans-European transport network (TEN-T), but the question is until when?



Source: (SPRS, 2004, p. 19)

Figure 1 Slovenia's Position in International Context

Slovenia is a country in which *Continental philosophy* towards transportation is still mainly applied, thus national transport policy is considered to be a part of a wider national socio-economic policy. Moreover, being a part of a larger integration, Slovenia needed to incorporate several European issues in the field of transportation into its national transport policy.

In this paper we focused on Slovenian surface transportation and we discuss the efficiency of Slovenian transport policy in governing this segment of transport system in Slovenia. We set two hypotheses in regards to this:

- H1: Slovenian transport policy cannot be considered a transport policy as it does not fulfill the basic requirements of a transport policy.
- H2: Slovenian transport policy is not directing Slovenian surface transport into sustainable direction.

2. Data and Methods

In order to thoroughly assess the effects of national transport policy on the performance of surface transportation a lot of data has to be considered. We obtained data from several publically available sources in Slovenia, namely:

- Statistical Office; aggregate data on traffic flows in rail and road transport
- Slovenian Roads Agency; detailed data on traffic flows in road transport
- Slovenian Police; data on traffic safety
- Ministry of Infrastructure and Spatial Planning; data on first registrations of personal cars
- Ministry of Finance; budget for transport sector investments
- Ministry of Economic Development and Technology; fuel prices
- Slovenian Environment Agency; transport performance indicators
- Slovenske železnice annual reports; performance indicators on both passenger and freight operations
- DARS – Motorway Company in the Republic of Slovenia annual reports; revenues from tolling

Supplementary data was obtained by direct contact with people in charge for detailed data on public transport in road and rail transport, as well as for data on fuel sales and fuel prices in neighboring countries.

In addition a research was carried out to learn about travelling needs and habits of Slovenian citizens as well as to get their opinion on transport policy measures taken so far and on ones that will possibly be yet taken.

Also the results from the SARTRE IV study were considered.

SPSS 20 was used to handle the data. We tested numeric data for outliers (we used trimmed mean method as the data collected by the research was not normally distributed and to prevent skipping outliers in the first quartile of data) and performed seasonal decomposition on time series to prevent the overlooking of actual transport policy effects on time series. We used multiplicative seasonal decomposition because we were not able to tell that seasonal and irregular amplitude variations do not change over time.

Accident Point Weightage – APW (see;) is used to assess traffic safety on road segments and consequently for black spots elimination. We used it to assess general improvement of road traffic safety in Slovenia as well as to assess the performance of roads of different categories. We correlated the APW coefficient to traffic flows expressed in millions of vehicle kilometres per year.

$$APW = 6 \cdot X_1 + 3 \cdot X_2 + 0.8 \cdot X_3 + 0.2 \cdot X_4 \quad (1)$$

where: X_1 – number of fatal accidents

X_2 – number of serious injury accidents

X_3 – number of slight injury accidents

X_4 – number of damage only accidents

3. Analysis

The Slovenian transport policy

Slovenia did not have an integral transport policy until 2006, although there was a try in 2004, but the proposed resolution was never approved by the National Assembly. However in the mid-1990s two separate national programs were set; the ambitious National Motorway Construction Programme in the Republic of Slovenia (published in the Official Gazette of the Republic of Slovenia No. 13/1996) and far less ambitious National Programme of the Slovenian Railway Infrastructure Development (published in the Official Gazette of the Republic of Slovenia No. 13/1996). These two programs seem to have shaped the development of Slovenian surface transportation considerably.

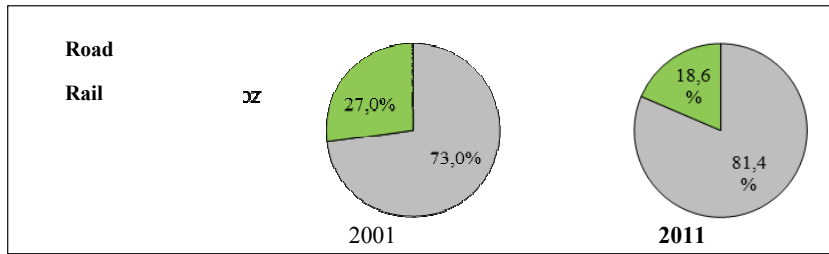
Resolution on Slovenian transport policy adopted in May 2006 (published in the Official Gazette of the Republic of Slovenia No. 58/2006) is not an example of a comprehensive transport policy, rather it is an example of a weakly defined transport policy that would act better as a handbook on sustainable transport policy than as a real national transport policy. It covers fewer issues than the common European transport policy of 2001, which Slovenian transport policy needed to be based on with a further concretization in regards to national needs and capabilities. Objectives and measures are given in a generalized manner, without any time horizons defined and without any measurable goals set or national characteristics considered. Implementation documents consisting of Slovenia's specific objectives were promised but so far not many of them have been published.

According to the definition of transport policy and its elements, Slovenian transport policy thus cannot be considered as such.

The performance of Slovenian surface transport – The effectiveness of Slovenian transport policy

Such a faulty transport policy cannot lead transportation system in a systematic way towards sustainability. However since 2006 and the adoption of the Slovenian transport policy some positive effects can be noted.

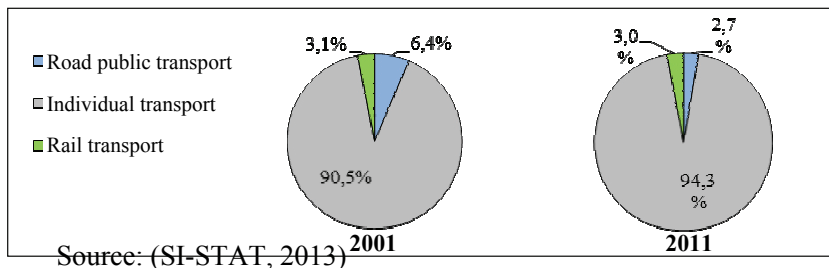
Slovenian transport policy emphasized the importance of Slovenian geo-strategic position as well as the need to retain the freight transit flows over Slovenian territory as they fetch money; it was assessed that each transported ton over Slovenian territory procures 20 to 30 EUR to Slovenian budget. It was also stressed that these traffic flows should be accommodated by the railways. But so far, only about 25% of National Programme of the Slovenian Railway Infrastructure Development had been realized; in fact around 73% of all investments in transport sector in the period from 1992 to 2011 were aimed to the construction of Slovenian motorways system and only after 2007 more substantial amounts have been invested in the railway infrastructure. In addition, long term neglecting of the existing railway system caused some serious deterioration to the tracks. So, the modal split of cargo flows presented in Figure 2 is expected.



Source: (SI-STAT, 2013)

Figure 2 Modal Split of Cargo flows in Slovenia in 2001 and 2011

Similar unsustainable trends can be seen in passenger flows; public transportation is losing its share in respect to individual transportation, although the costs of owning and operating a car increased significantly. In 2011 Slovenian households spent 15.1% for personal mobility whilst the EU average was 13.2% .



Source: (SI-STAT, 2013)

Figure 3 Modal Split of Passenger Transport in Slovenia in 2001 and 2011

Nonetheless, majority of Slovenian citizens is not willing to change their travel habits if the costs of running a car increase by 10% and nor if they increase by 50%. Partially this is due to the fact that more than 61% of car owners use their car primarily to reach their working place. The other reason is deficient public transportation system. Only 8.6% of citizens use it on regular basis and almost two thirds of these users are high school and college students. These users are subsidized so subsidies keep the public transportation alive; In 2011 alone, interurban road and rail public transportation received around 78 million EUR of public money while they transported less than 36 million passengers. The solution is foreseen in the integration of rail and road public passenger transport (common management, adjusted schedule and unified ticket), however this project is delayed.

Table 1 Reasons for not using Public Transportation

	Price	Trip duration	Schedule and frequency	Comfort and cleanliness	Distance to the station
Big city	3,02	3,67	3,44	2,71	2,68
Small city	2,71	3,89	3,93	2,46	2,88
Suburb	2,76	3,96	4,25	2,74	3,58
Rural area	2,49	3,90	4,51	2,35	3,72
Average	2,68	3,87	4,12	2,49	3,25

Note: 1 – doesn't agree, 3 – partially agree, 5 – totally agree

Source: Authors, based on Research

This affects the traffic flows. The amount of vehicles kilometers done by personal cars increased by one third in the period from 2001 to 2011, more significant increase is registered for heavy goods vehicles (HGV; 80%) and the largest increase is recorded for the segment of light goods vehicles (LGV; 130%). Traffic flows and level of service by theory influence the traffic safety (see for example ;). In the past years this growth of traffic flows was mainly accommodated by motorways as the motorways network was quickly expanding and the HGVs were required to use these roads by legislation. In addition the introduction of prepaid toll system for the vehicles of up to 3.500 kg of maximum permissible mass switched certain amount of long-distance traffic to motorways. This was good for traffic safety as motorways are the safest roads by theory ; only 26 out of 190 fatalities caused by HGV drivers occurred on motorways in the period from 1999 to 2011, and in total Slovenian motorways are 3,4 times safer than Slovenian main roads. However it also caused the neglecting of other state roads; in 2010 54,5% of state roads were assessed to be in a poor or very poor condition . The problem will be emphasized in future as the money acquired from the annual fee for the use of road motor vehicles is directed towards the investments in rail sector since April 2010.

Table 2 Evaluation of Road Safety by APW Method

	Motorways [APW]	Motorways length [km]	Traffic flows on motorways [mio vehicle km]	AADT ^a on motorways	Main roads [APW]	Regional roads [APW]	All roads [APW]
2001	706,6	288,2	2.213,7	21.045	2.983,0	4.262,0	19.444,4
2002	710,6	303,3	2.459,1	22.210	2.892,0	3.829,2	18.325,6
2003	924,6	329,4	2.719,3	22.616	2.626,4	4.252,0	19.198,4
2004	981,8	329,3	2.912,9	24.170	2.727,0	4.421,6	20.373,4
2005	1.437,0	390,2	3.378,4	23.719	3.206,8	5.335,0	20.640,4
2006	1.550,8	398,1	3.617,2	24.894	3.700,6	6.015,0	21.364,0
2007	1.428,8	398,1	3.911,2	26.917	3.369,0	5.535,0	20.809,6
2008	1.087,8	490,4	4.943,0	27.542	2.409,8	3.644,4	15.672,4
2009	1.019,0	518,9	5.406,4	28.547	1.658,4	2.583,0	13.361,6
2010	1.309,2	533,3	5.631,3	28.930	1.300,8	2.416,0	12.610,0
2011	1.191,2	533,3	5.872,8	30.171	1.414,0	2.933,8	13.090,0

Note: ^a – annual average daily traffic

Source: Authors, based on ;

More than 60% of accidents occur in settlements with or without street system and consequently almost 80% of accidents are damage only accidents caused by inattentive and wrong movement of the vehicle. However causes of accidents change with the age of the inducer as can be seen in Table 3.

Table 3 Causes of Traffic Accidents by Age Group

	Entire population	Young drivers/riders (15-24)	Senior drivers/riders (65-74)	Senior drivers/riders (75+)
Speeding	15,6%	29,4%	9,0%	7,0%
Advantage rule neglected	12,5%	13,8%	26,4%	28,6%
Inattentive overtaking	2,7%	3,7%	2,5%	2,5%
Wrong movement	26,8%	15,0%	28,2%	30,6%
Irregular driving direction	13,9%	15,9%	15,0%	13,8%
Safety distance neglected	11,6%	15,8%	9,8%	8,3%
Other ^a	16,9%	6,5%	9,1%	9,1%

Note: ^a – state of the road, pedestrian's mistake, irregularity of cargo or car

Source: Authors, based on

More rigorous legislation and higher fines for traffic offences caused fewer violations yet citizens are in favor of even more rigorous fines for the worst offences; 77% would increase the fine for alcohol or drug driving and around 50% would increase the fines for speeding. In addition, more than 92% of citizens supports the statement the traffic control is more important than the fines in assuring high traffic safety level. According to SARTRE IV study there is just a slight chance to be controlled for speeding or alcohol driving in Slovenia; in a three year period only 19% of drivers were fined for speeding (in the Netherlands 43%) and only one third of drivers was tested for alcohol.

Young drivers are the most dangerous participants in traffic; they are dangerous to themselves and to others as in 12 years period they caused more than 115,000 traffic accidents involving more than 210,000 people and fatality hurting 811 people (more than a quarter of all victims in traffic). Slovenian transport policy tackled this issue with a program of additional training for novice drivers which has to be taken within 2 years since the drivers' license attainment. The results are fantastic; in 2012 the number of accidents caused by young drivers halved and only 6 % of these accidents involved alcohol. Similar program is in force for repeating offenders.

Slovenian tolling system for vehicles of maximum permissible mass over 3.500 kg is comprehensive: the differentiation is based upon the distance travelled, number of axes, day time and emissions standard of the vehicle. However the toll collection system is outdated and around 10% of motorways mainly in central area of Slovenia are free of charge. The use of motorways is thus tempting and without a suitable alternative in the form of railways, the transit cargo flows are increasing very quickly. Transport sector in Slovenia is responsible for 26 % of greenhouse gas (GHG) emissions and the price of diesel oil is not helping; among neighboring countries only Croatia has lower fuel price, but Croatia is not important on the transit route from Italy to Hungary over Slovenia. The only study on external costs in Slovenia was done in 2004, and the assessment is that road freight transport produces 93,4 ^{EUR}/_{1.000 tkm} higher external costs than rail freight transport. This is without road deterioration caused by overloaded HGV.

In 2010 Slovenia introduced modified motor vehicle tax; instead of being based upon vehicle's value it is now based upon vehicle's carbon dioxide (CO₂) emissions. This resulted in the reduction of CO₂ emissions of newly registered new cars in the first year for almost 5% and for 11,6% from 2009 to 2012; in 2012 CO₂ emissions from new cars were 133,7 ^g/_{km} which is less than EU average (135,7 ^g/_{km}). Since January the 1st 2012 different tax is applied for gasoline and diesel cars and in the year 2012 is the first year with more new diesel cars newly registered. The average CO₂ emissions of diesel cars was 131,8 ^g/_{km} in 2012.

4. Discussion and Conclusion

The obligation of transport policy is to provide citizens the safe and unimpeded daily travel and to provide the opportunity for the development of economy. Slovenian transport policy is just partially successful in doing so; the distribution of traffic flows is a complete failure as the transport policy did not manage to transfer transit cargo flows to rails as well as to organize and promote more intensive use of public transportation, but there are some positive initiatives to achieve cleaner transportation within such an unsustainable distribution of traffic flows, and the traffic safety improved significantly.

Effectiveness of Slovenian transport policy can be more formally discussed also in terms of the objectives that were set by the ASSESS study whose purpose was to estimate the national transport policies in achieving the objectives of the European transport policy in 2005. Slovenia has so far largely harmonized its legislation with the European directives, regulations and decisions, but it's lagging behind especially in revitalizing the railways. The successes and fails of Slovenian transport policy are summarized in Table 4.

Table 4 Evaluation of Effectiveness of Slovenian Transport Policy in Regards to Surface Transport System (based on ASSESS Study Objectives)

Shifting the balance between modes of transport	Improving quality in the road transport sector Revitalizing the railways Turning intermodality in to reality	The construction of the motorway network, neglecting the other state roads Delay, lack of allocated funds At low scale in freight transport; no real intermodal public passenger transportation stations, integration of public passenger transport is delayed
Eliminating bottlenecks	Building the Trans-European transport network	Constructed motorway network; delay in the construction of the railway network in the TEN-T directions
Placing users at the heart of transport policy	Improving road safety Adopting a policy on effective charging for transport Recognizing the rights and obligations of users	Considerably improved, primarily due to construction of the motorway network; huge improvement in the segment of young people Differentiated system for trucks, but inefficient toll collection system; lump sum, physically controlled system for light vehicles (efficient in term of traffic safety, inefficient in terms of external costs) Passengers' rights in road and rail transport are governed by the Regulations, which are harmonized with European guidelines

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