MOBILITY POVERTY

MOBILITY POVERTY OVERVIEW IN CENTRAL AND EASTERN EUROPE

BULGARIA

Project: Mobility poverty in CEE countries
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RESEARCH BACKGROUND

Mobility poverty (MP) in some countries has been relatively unexamined and no clear definitions are available at EU or national levels. However, it is a problem that is becoming more pressing as fuel prices are rising and some countries face high car dependency thus commuting to work or for daily errands can become very expensive. The most important factor that causes MP is the household's income. But then the mobility expenses are lower if the family members have good access to public transport and can go on foot/by bicycle to do their daily errands. It seems that the low-income households in peripheral and (by public transport) less accessible areas might be the most affected and vulnerable groups.

Against this backdrop, project Mobility poverty in Central and Eastern Europe aims at reviewing the policies and assessing the state of mobility poverty in Bulgaria, Croatia, Hungary, Romania, Slovakia, and Slovenia. It also aims to raise awareness of policy- and decision- makers about the mobility poverty issue. The overview in selected countries will result in a 4-pager policy brief for each country. The policy briefs will be disseminated to 20-30 stakeholders in each country. These reports will be based on an accessible EU database and quality insight (e.g. interviews). These policy briefs will be a good basis for further project activities, especially stakeholder awareness and communication.

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1/ MOBILITY POVERTY DEFINITION AND INDICATORS

Mobility poverty definition

Despite the fact that Bulgaria is identified as the poorest EU country, at the national strategic documents as National transport strategy by 2030[1], Partnership agreement 2021-2027[2] and the National recovery and resilience plan[3], there is **no clear formulation of the transport poverty issue**. These documents do not identify or explore this factor and his influence on the transport system (national, regional or municipality transport schemes) or on the welfare and the mobility of the Bulgarian citizens and households. The transport poverty concept, but also other crucial and largely recognized factors as the "oil dependency of the transport system", are not included at the strategic transport overview.

This deficiency does not allow the correct and adequate consideration of the problem, the identification of the most vulnerable groups of the society and the differences due to territorial reasons as the limited and obstructed mobility at the rural and mountainous areas.

As a result, the **measures** against transport poverty and restricted mobility most often are limited to proposals and solutions at municipality level and reduction of the public transport fees for some social groups – traditionally pensioners, pupils, and students. This approach may lead also to deterioration of some parameters as presented below at the text.

Encouraging fact is that the issues of energy and transport poverty, as the limited mobility, are becoming part of the **EU strategic documents**, targeting more focused qualification and measures.

Already, the National Recovery and Resilience Plan set as a reform and measure the elaboration of National Transport Scheme which we would like to overlook and set clear measures on transport poverty. The author, as member of the national Commission on Sustainable Mobility, submitted proposal for inclusion of the transport poverty terminology and framework at the draft National sustainable mobility vision.

[1] https://www.mtc.government.bg/en/category/42/integrated-transport-strategy-period-until-2030
[2] https://www.eufunds.bg/bg/taxonomy/term/867
[3] https://www.mig.government.bg/naczionalen-plan-za-vazstanovyavane-i-ustojchivost/

So far, at the EU level, the EC introduced in the European Social Fund the following **definition**:

"**Transport poverty**: individuals' and households' inability or difficulty to meet the costs of private or public transport, or their lack of or limited access to transport needed for their access to essential socio-economic services and activities, taking into account the national and spatial context."

Our opinion is that this definition is too general and, although sets policy and strategical ground for initial work on the problem, is not able to provide the necessary information for adequate institutional decision-making.

After a screening of the existing scientific research and institutional reports, we are convinced that the best description of the issue and his breakdown by factors and indicator are available at the **"*Transport poverty and its adverse social consequences*" (Lucas, K., Mattioli, G. Verlinghieri, E. and Guzman, A. (2016))**[4]. According to the authors:

"It is extremely difficult to construct a concise definition for transport poverty based on unmet household needs. Firstly, transport poverty resides with individuals rather than the whole household (i.e., one member of a household may experience it whilst another member of the same household does not) and is particularly polarised around gender differences (Booth et al.2000; Robinson and Thagesen 2004). Secondly, mobility is largely associated with the secondary benefit of providing accessibility to goods, services, and activities. These activities are all highly socially, temporally, and geographically context-specific, making it more difficult to construct a single definitive indicator of transport poverty. It is, therefore, unclear whether transport poverty relates to a deficiency in transport supply, and/or to some minimum level of mobility, and/or to a level of accessibility to goods, services, and daily activities."

Consequently, the authors systematize several notions that are interrelated, but also are separate factors influencing the transport poverty.

At Table 1, the transport poverty is defined to the:

- **Mobility poverty** – lack of transport vehicle (car), transport service or infrastructure;
- **Accessibility poverty** – difficulty to access key services;
- **Transport affordability** – lack of available funds for private or public transport;
- **Exposure to transport internalities** – air pollution or traffic casualties.

[4] https://eprints.whiterose.ac.uk/94663/1/ICE%20paper%202016%20Symplectic.pdf

Table 1 A lexicon of definitions for transport poverty

Transport poverty: A broad, overarching notion, which identifies a research/policy field and encompasses the following sub-concepts:		
Notion	**Definition**	**References**
Mobility poverty	A systemic lack of (usually motorized) transport that generates difficulties in moving, often (but not always) connected to a lack of services or infrastructures.	Moore *et al.*, 2013
Accessibility poverty	The difficulty of reaching certain key activities - such as employment, education, healthcare services, shops and so on - at reasonable time, ease and cost	Department for Transport, 2014a; SEU, 2003;
Transport affordability	The lack of individual/ household resources to afford transportation options, typically with reference to the car (in developed countries) and/or public transport	Carruthers *et al.*, 2005; Litman, 2015; Serebrisky *et al.*, 2009
Exposure to transport externalities	The outcomes of disproportionate exposures to the negative effects of the transport system, such as road traffic casualties and chronic diseases and deaths from traffic related pollution. Often considered within the US literatures from an environmental justice perspective.	Barter, 1999; Booth *et al.*, 2000

Based on this lexicon of individual definitions, the authors have devised the following working definition of transport poverty for the purposes of further exploration, critique, and policy formulation:

"An individual is transport poor if, in order to satisfy their daily basic activity needs, at least one of the following conditions apply:

- *There is literally no transport option available that is suited to the individual's physical condition and capabilities.*
- *The existing transport options do not reach destinations where the individual can fulfil his/her daily activity needs, in order to maintain a reasonable quality of life.*

- *The necessarily weekly amount spent on transport leaves the household with a residual income below the official poverty line.*
- *The individual needs to spend an excessive amount of time travelling, leading to time poverty or social isolation.*
- *The prevailing travel conditions are dangerous, unsafe, or unhealthy for the individual."*

Indicators of mobility poverty

At Table 2 are listed the proposed indicators to measure the factors from Table 1 and which we consider appropriate to **evaluate the transport poverty**. Of course, the metrics and benchmarks are indicative and are highly dependent of the concrete situation, country of geographic conditions.

Table 2 – Some examples of indicators, metrics and benchmarks for transport poverty

	Indicator	Metrics	Benchmark	Source
Affordability	Transport Affordability	Income, Quantity of Travel, Single trip Fare	Average and bottom quintile per capita incomes	Carruthers *et al.* (2005)
Mobility	Trip Generation	Number of trips	Vulnerable populations segments (Elderly, Children, disabled people, part time job, job seekers)	Schmöcker *et al.* (2005)
	Trip Distance	Distance of travel		Morency *et al.* (2011)
	Trip Duration	Commuting times		McQuaid and Chen, T. (2012)
Accesibility	Transport Social Needs	Transport Disadvantage (TD)	Access to a private motorised vehicle, demographics, the level of crime, accessibility to key areas of interest	Currie (2004), Delmelle and Casa (2012), Jaramillo *et al.* (2012)
	Index of Public Transport	Availability of Public Transport (PT)	Transport provision per capita.	
	Index of Disparity between Needs and Provision	The difference between transport need and the availability of public transport. (TD – PT)	The gap existing between the social transport need, and the provision of public transport available	
Environmental Justice	NATA diesel PM*	Diesel particulate matter level in air	Average µg/m3	Environmental Protection Agency. 2015. EJSCREEN: Environmental Justice Screening and Mapping Tool [Online]. [Accessed November 2015].
	Particulate matter	$PM_{2.5}$ levels in air.	Annual Average µg/m3	
	Traffic proximity and volume	Count of vehicles at major roads within 500 meters, divided by distance in meters (not km)	Average annual daily traffic	

2/ SITUATION IN THE FIELD OF MOBILITY POVERTY

According to Eurostat[5] for 2022 (annual data for 2019) on the **commuting time** that persons in employment (from 20 to 64 years) are reaching their workplaces at the group 0 min. pertains 79 300, group 1-14 min. – 538 300, group 15-29 min. – 211 900, group 30-59 min. – 1 121 500, the group over 60 min. – 146 200 and without answer are 26 500 people.

Table n°3: Data breakdown by degree of urbanization

Commuting time	Cities	Towns and suburbs	Rural areas	Rural areas - men	Rural areas - women
0 min.	36 000	13 600	29 400	18 500	11 000
1-14 min.	162 000	181 900	194 400	99 400	95 000
15-29 min.	574 500	368 600	268 800	152 900	115 900
30-59 min.	750 800	169 800	200 900	125 300	95 600
60 min. or over	66 100	30 700	49 300	31 700	17 600

The ratio of males and females shows significant differences mainly at the rural areas and the longer travel distance (30-60 min. or over) at the cities and towns. This is due to the share of private car transportation where, particularly in the remote areas, the group of male users is dominant.

The Partnership Agreement 2021-2027 identify as a problem a low level of labour mobility comparing to the EU average.

The National transport strategy reports that 54% of the monitored households own a car and 3,3% - two or more cars. For financial reasons 17,7% cannot afford to purchase and maintain a family car. Another 28% have stated that they do not need a family car.

Regarding the passengers **split of transport modes** the data[6] shows that the private car travels are estimated to 84,8% for 2017 to 84,7% for 2019, with trains are from 2,1% to 2% and with public transport from 13,1% to 13%. The estimations are similar (except of the trains) to the EU picture where at 2017 private car travels

[5] https://ec.europa.eu/eurostat/databrowser/view/LFSO_19PLWK28__custom_2779952/bookmark/bar?lang=en&bookmarkId=c9724ed7-89f2-4541-903b-fc43220d7222
[6] https://ec.europa.eu/eurostat/databrowser/view/TRAN_HV_PSMOD__custom_3400053/bookmark/table?lang=en&bookmarkId=0627a685-8004-4af8-b0ea-e4ba1363f92d

are 82,7%, trains – 7,7% and public transport – 9,6% and at 2019 – 82,5%, 8% and 9,5% accordingly.

The **households transport expenditures** (code CP07) according to the National accounts on GDP aggregates on consumption purpose Eurostat data[7] shows that for 2017, 2018 and 2019 the percentage retains above 13% (13,9% for 2017, 13,3% for 2018 and 13,8% for 2019).

The data for **"individual expenditures on transport services"** (CP073)[8] referring mainly to the purchase of public transport tickets, the percentage decrease from 5.1% at 2014 to 4.3% at 2019, still considerably higher than the EU average being 2.2-2.3% for the same period.

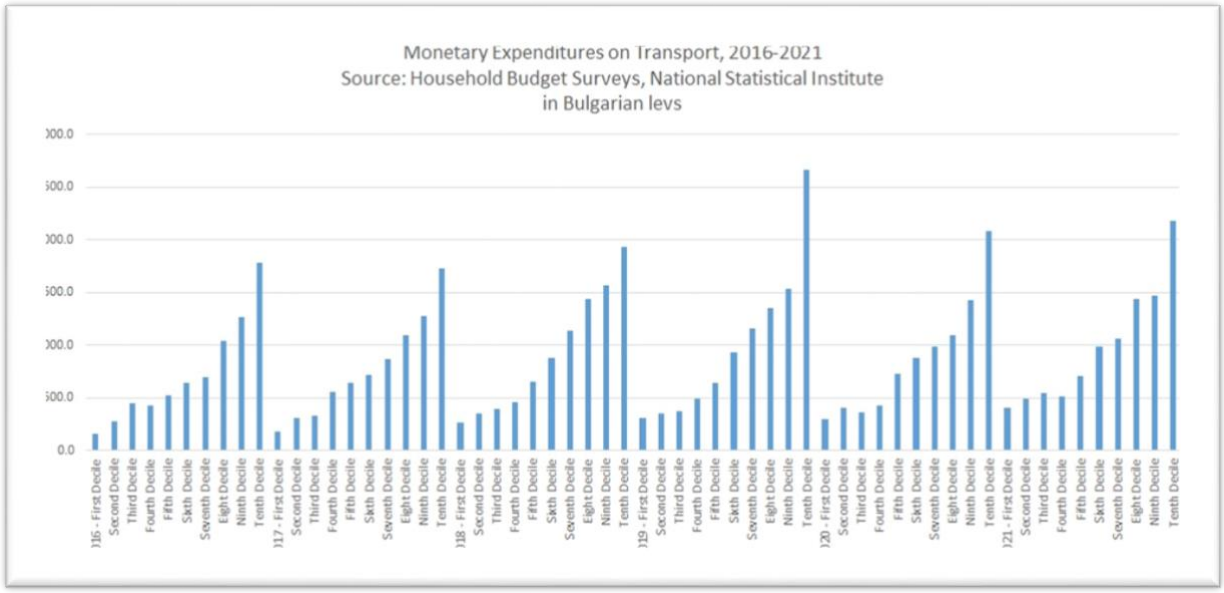
At the National Statistics Institute (NSI)[9] based on 3060 Household budget survey according COICOP classification the **average annual households transport expenditures** are estimated as following: 2016 – 6.9% (390 EUR), 2017 – 6.8% (413 EUR), 2018 – 7.3% (478 EUR), 2019 – 7.6% (519 EUR).

The average **individual annual transport expenditures** of each family member are 6% for 2016, 4.6% - 2017, 4.4% - 2018 and 5.1% for 2019.

Regarding the **households transport expenditures by deciles**, the NSI data (Graph 1) shows increase from 1207 EUR for 2016 to 2227 EUR in 2021 for the 1st Decile, 1767 to 2955 EUR for the 2nd Decile, 2225 to 3635 EUR for the 3rd Decile, 2664 to 4368 EUR for the 4th Decile, 3151 to 5157 EUR for the 5th Decile, 3713 to 6073 EUR for the 6th Decile, 4358 to 7060 EUR for the 7th Decile, 5229 to 8615 EUR for the 8th Decile, 5229 to 8615 EUR for the 9th Decile and 6918 to 11643 EUR for the 10th Decile.

[7] https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_CO3_P3__custom_2639949/bookmark/table?lang=en&bookmarkId=33a4db65-ea68-492e-9a83-2af8792ef374
[8] https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_CO3_P3__custom_5080255/default/table?lang=en
[9] https://infostat.nsi.bg/infostat/pages/reports/result.jsf?x_2=600

Graph n°1: Monetary expenditures on transport, 2016-2021.



Source: Household Budget Surveys, National Statistical Institute in Bulgarian levs.

The **median income by type of households** according to NSI shows for an individual 2235 EUR in 2016 to 3450 EUR in 2021, for two adults and two dependent children 3287 EUR for 2016 to 5310 EUR in 2021.

Regarding the **poverty line and social inclusion** indicators[10], according the NSI, an individual in 2020 has the poverty risk threshold of EUR 3091 annually and a household of two adults and two children under 14 – EUR 6498.

According to the **combined poverty indicator** (PEPS01N) for 2020 at risk are 2 193 500 citizens or 31,7 % of the population.

ETEPI[11] index for Bulgaria is estimated to 37,1 with share of transport expenditures for the 1st income quintile of 2% for 2018 and 8,1% share of the 1st quintile of population with very high level of difficulty of accessing public transport.

The data on **road casualties**[12] presents similar rate for 2018 – 610 victims and 2019 – 628, but a decline at 2020 to 463 victims most probably due to the travel restrictions during the COVID crises. On this indicator, Bulgaria is permanently at the top of the EU countries with most road casualties.

[10] https://www.nsi.bg/en/content/8258/poverty-and-social-inclusion-indicators-national-level
[11] https://eepi.openexp.eu/eepi.html
[12] https://ec.europa.eu/eurostat/databrowser/view/TRAN_SF_ROADVE__custom_2638498/bookmark/table?lang=en&bookmarkId=afeef534-85c4-4e8b-b5c8-ab018ba235e7

Although there is a slight reduction of the **harmful emissions from transport** (Tables 4 and 5) at the last years, Bulgarian citizens still faces some of the most severe exceedances in the EU of both annual and daily limit values for PM_{10}, with the ensuing risks for its population's health as identified by the Infringement procedure[13] on EU's ambient air quality legislation.

Table n°4: Harmful emissions from road transport[14], t/y.

Harmful emission, t/y	2016	2017	2018	2019	2020	2021
SOx	37	39	41	42	37	38
NOx	42078	39466	39248	39529	35914	38101
NMVOC	11007	9398	8226	7713	6853	7709
CH_4	1004	917	862	839	759	831
CO	66026	60042	53386	49418	44830	52292
CO_2	8890574	8955637	9257535	9618203	9107893	9635316
N_2O	311	307	314	306	290	313
NH_3	900	830	765	739	698	700

Source: Bulgarian Executive Environmental Agency

Table n°5: Harmful emissions from transport 2020[15], t/y.

Emission sources	S0x (1000 t/y)	NOx (1000 t/y)	NMVOC (1000 t/y)	CO (1000 t/y)	PM_{10} (1000 t/y)	$PM_{2,5}$ (1000 t/y)
Road transport	0,04	35,91	6,85	44,83	2,76	2,17
Other transport	1,74	12,36	1,19	26,88	0,50	0,49
Total	1,77	48,28	8,04	71,71	3,26	2,65
Share of transport (%)	2,55	52,70	11,02	28,71	7,29	8,36

Source: Bulgarian Executive Environmental Agency

The **registered noise levels [16] by districts and towns** in 2021 shows exceedance of the permissible limits at 503 surveyed points out of the total of 735.

Comparing the **annual public transport card price** in the three biggest cities of Bulgaria – Sofia, Plovdiv, and Varna with the corresponding poverty line (SILC)[17], we found that the Varna Municipality public transport policy clearly

[13] https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2150
[14] https://www.nsi.bg/en/content/2554/emissions-pollutants-air-industrial-combustible-and-production-processes
[15] https://eea.government.bg/bg/soer/2020/transport/transport
[16] https://www.nsi.bg/en/content/2574/registered-noise-levels-district-and-town
[17] https://www.nsi.bg/en/content/8262/poverty-and-social-inclusion-indicators-district

generates transport poverty and social exclusion of the most vulnerable transport users.

Table n°6: Comparison of card prices to poverty line at district level

City	Price 2022	Poverty line 2021	% of poverty line
Sofia	300 EUR	4 484 EUR	6,8
Plovdiv	260 EUR	2 928 EUR	9
Varna	450 EUR	3 095 EUR	14,8

Source: Municipality public transport websites

Conclusions on data availability and relevance

In some cases, we decided to not include the data for 2020 and 2021, as they are significantly influenced by the COVID crises and do not reflect the normal trends.

We found out that both Eurostat and national data (NSI) for transport expenditure category **do not include the obligatory annual expenditures** as insurance for the car, tax, flat road tax and mandatory annual technical inspection/validation of the vehicle. These expenditures are variable according to the region or the type of car, but usually are at the range of 250-500 EUR annually and are significant factor compared to the measured transport categories. Therefore, we cannot consider the available data comprehensive for our purpose as the private car transportation has the highest share at the transport mode. The issue was confirmed also at interview and email communication with a civil servant from NSI responsible for the data aggregation above.

Transport affordability and mobility poverty:

As the private car travels are estimated to 85% of the modal split and 18% of the households cannot afford to buy and maintain a private car, we have a clear indicator of transport poverty.

This is particularly visible at the **rural areas** and the longer travel distance (30-60 min. or over) in the **cities and towns** and **women** group seems more vulnerable.

According to the commuting time breakdown in this longer travel distance group fall 1 267 700 employed citizens.

The 10 % transport expenditures indicator appear to not be applicable for Bulgaria as the poverty level is very high and the poorer deciles income is so low that significant part (40-45%) of the entire budget is spent on food which do not leave enough to be spent on transport. For the first four deciles, the low percentage of transport spending indicate rather the **deprivation of transport activity**. This finding was confirmed in an interview with researcher on poverty issues at the Economy institute of Bulgarian academy of Sciences.

The **exposure to transport externalities** of the Bulgarian citizens is one of the most severe in EU by both traffic casualties, noise, and harmful transport emissions. Detailed evaluation of particular vulnerable groups or number of citizens is difficult as there is no targeted data collection.

3/ MOBILITY POVERTY POLICIES AND MEASURES

As explained above, Bulgaria **do not have particularly designed policies** to tackle the mobility poverty. Initial steps are undertaken on the reforms and measures adopted in the scope of the Recovery and Resilience Plan, but it requires detailed studies, the elaboration of definitions and a legislative process.

The existing measures are focused on providing to pensioners, pupils, students, and some vulnerable groups, **public transport reduced fares** at national and municipality levels. Short-term measures are applied at national level as a crisis management at national level.

Some measures, as the **Municipalities Clean Air Programmes** or the **Road Safety Strategy 2021-2030**, might be considered as influencing particular factors relevant to the mobility poverty.

4/ KEY ACTORS IN THE MOBILITY POVERTY FIELD

National Poverty Line is decided by the **Government** on an annual basis. Since 2021, the national methodology is standardized to the Eurostat SILC.

National Statistical Institute is responsible for the collection and evaluation of the statistical data. Sectoral data is also collected by the relevant **ministries**.

Council of Ministers is an overarching body responsible in elaborating the proposals and in providing the rationale for Governmental and National Assembly (Parliament) decisions.

Ministry of Transport and Communications and **Ministry of Labour and Social Policy** are responsible for the implementation of the respective policies.

Bulgarian Academy of Sciences supports the elaboration of policies and suggests approaches and measures.

Although not entirely decentralized, **municipalities** have a legal mandate to suggest, decide and implement policies and measures applicable at the municipality level. Their budgets are approved and provided by the Government on an annual basis.

International and national **NGOs**, **syndicates**, **business associations** and other relevant players have their “right to say” on policies, programmes, and measures at national and municipality levels.

Still, our opinion is that the **European Commission** will be the main driving factor of the Mobility poverty field in Bulgaria.

5/ RESEARCH GAPS

- No specific scientific research on mobility poverty in Bulgaria.
- Lack of targeted collection of data on mobility poverty factors.

6/ EXPERT EVALUATION

We recommend:

- The development and aggregation of targeted, regional-specific indicators and metrics for tackling the Transport poverty by geographical and urbanization types – city, small town, rural and mountainous regions.

- To conduct a specific detailed survey by regional and municipality level to correctly assess the transport poverty situation and needs.

- The survey results to serve as a basis at the elaboration of the National transport scheme and, later, at the county and municipal transport schemes.

LITERATURE

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Lucas, K., Mattioli, G., Verlinghieri, E. & Guzman, A. (2016). "Transport poverty and its adverse social consequences". *Proceedings of the Institution of Civil Engineers – Transport*, 169 (6). pp. 353-365. https://doi.org//10.1680/jtran.15.00073