

The Impact of Economic Crisis on Teleworking and Travel Behaviour in the Cities of Thessaloniki and Karditsa, Greece

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Greek economic crisis

- The term “economic crisis” is used in Greece not only for its economic point of view but also for political and social ones (Profillidis and Botzoris, 2015).
- The Greek economic crisis seriously affected the economy of the country.
- Between the years 2008 and 2016, the per capita Global Domestic Product (GDP) of Greece was reduced by 23.89%, compared to +0.79 in Eurozone member countries and +2.87% in the EU-28 member countries.
- Unemployment increased in Greece from 7.8% in 2008 to 23.9% in 2016, in Eurozone member countries from 7.5% in 2008 to 10.0% in 2016 and in the EU-28 member countries from 7.0% in 2008 to 8.6% in 2016 (World Bank, 2017).

Results of economic crisis

- Reduce transport cost (utilitarian and recreational transportation)
 - ❖ Use sustainable modes or cancel the trip



Teleworking

New status in travel demand

=

Reduced investment in large scale transport infrastructure projects

=

Environmental benefits

The economic crisis **should not be an excuse but an opportunity** for public authorities and stakeholders in order to promote sustainable transportation in urban areas and improve citizens' quality of life

Sustainable transportation

Walking

- Sustainable transport mode
- Available to every citizen
- No cost
- Fundamental transport mode
- The way that every route starts and ends

Bicycle

- Sustainable transport mode
- Bicyclists = vulnerable road users

The level of mobility has increased in the last decades raising concerns about increased car use and its impact on the external cost of transport.

➤ Enhance policies that promote public transport and reduce private transport dependence in urban areas.

Attractive and efficient public transport system
=
level of service (good & cheap)

A clear understanding of

- Travel behaviour and consumer needs and expectations
- Psychological factors that influence mode
- Measures needed to reduce car dependence

Teleworking

Teleworkers as a wider definition are the ones who occasionally work from home, although working mostly at traditional places of work remote from their home, typically an office.

Benefits

- Reduced commuter= reduced time spent in traveling, savings in fuel costs, public transport fares, stress associated with commuting etc
- Uninterrupted work
- deal with household tasks
- higher productivity
- more working hours

External effects

- Reduced home to work commuting, with consequent reduction in traffic congestion and pollution

Drawbacks

- Feelings of isolation
- Loss of status in the workplace
- Additional costs in lighting and heating of the home
- Provision of office space
- Lose the ability to control the quality of work
- loss of interaction between workers
- Data security issues

Scope and methodology of the research

This paper examines the impact of the economic crisis in Greece in the change of commuters' travel behaviour and their willingness to accept and promote teleworking.

- The survey was based on a questionnaire conducted on a random sample of 419 participants (219 for Thessaloniki, 200 for Karditsa) of different age, education level, profession and personal income through personal interviews in the year 2016.
 - ✓ Random
 - ✓ Representatively as possible based on their demographic data
 - ✓ Anonymous
 - ✓ Clarifications receiving possibility

Study area



Questionnaire

17 questions divided into three parts:

- In the first part (questions 1÷8), the participants answered about their **demographic data**, personal income, and possession of bicycle and/or private vehicle.
- In the second part (questions 9÷13), the participants revealed their opinion about their **willingness to reduce private vehicles use, and change of transport mode for a more sustainable one**, comparing the years 2008 (before the economic crisis) and 2016 (economic crisis in progress).
- In the third part (questions 14÷17), the participants stated the percentage of **teleworking time**, their willingness to increase teleworking due to economic and/or other reasons, and they also compared their productivity level with the one in their typical working space.

Statistical analysis of the present surveys' results was conducted with the use of SPSS software.

Results

Question 1: Age (year 2008)			Question 3: Profession			Question 4: Education		
City	T	K	City	T	K	City	T	K
<18	0.0%	13.0%	Public servant	12.8%	24.0%	Primary school	4.6%	1.0%
18-25	3.7%	11.0%	Private employee	37.4%	17.0%	Secondary school	5.5%	11.0%
26-35	37.0%	16.0%	Self-occupant	17.4%	21.0%	Highschool	21.5%	32.0%
36-45	23.3%	27.0%	University student	3.7%	5.0%	Vocational education	14.6%	12.0%
46-55	27.9%	18.0%	Scholar	0.9%	12.0%	TEI	20.5%	15.0%
>55	8.2%	15.0%	Unemployed	19.6%	9.0%	University	33.3%	29.0%
Sample	219	200	Retired	8.2%	4.0%	Question 2: Gender		
City: T=Thessaloniki,			Farmer	0.0%	6.0%	Male	45.2%	43.0%
K=Karditsa			Household	0.0%	2.0%	Female	54.8%	57.0%

Results

Question 5: Personal income before the economic crisis (before taxes), (year 2008)

0 €	<5,000€	5,001€-10,000€	10,001€-15,000€	15,001€-20,000€	>20,000€	City
14.2%	11.4%	27.9%	21.5%	14.2%	11.0%	Thessaloniki
28.0%	3.0%	12.0%	21.0%	20.0%	16.0%	Karditsa

Question 6: Personal income during the economic crisis (before taxes), (year 2016)

0 €	<5,000€	5,001€-10,000€	10,001€-15,000€	15,001€-20,000€	>20,000€	City
19.6%	20.1%	29.7%	16.4%	10.0%	4.1%	Thessaloniki
27.0%	7.0%	21.0%	31.0%	10.0%	4.0%	Karditsa

Question 7: Possession of private car and bicycle before the economic crisis (year 2008)

Private cars per family		Possession of bicycle	
0÷1	≥2	Yes	No
49.3%	50.7%	30.1%	69.9%
32.0%	68.0%	76.5%	23.5%

Question 8: Possession of private car and bicycle during the economic crisis (year 2016)

Private cars per family		Possession of bicycle		City
0÷1	≥2	Yes	No	
54.4%	45.6%	33.8%	66.2%	Thessaloniki
32.5%	67.5%	80.5%	19.5%	Karditsa

Results

Question 9: Reduction of urban trips with private car during the years of economic crisis

Question 10: Willingness for further reduction of urban trips with private car

Utilitarian trips		Recreational trips		Utilitarian trips		Recreational trips		City
Yes	No	Yes	No	Yes	No	Yes	No	
58.9%	41.1%	71.7%	28.3%	54.3%	45.7%	61.2%	38.8%	Thessaloniki
53.5%	46.5%	66.5%	33.5%	57.5%	42.5%	58.5%	41.5%	Karditsa

Question 11: Transport mode to reduce urban trips with private car during the years of economic crisis

Utilitarian trips, distance <2km			Recreational trips, distance <2km			City
Walk	Bicycle	Public transport	Walk	Bicycle	Public transport	
43.9%	22.8%	33.3%	43.5%	22.2%	34.3%	Thessaloniki
45.8%	49.2%	5.0%	46.7%	47.5%	5.8%	Karditsa

Utilitarian trips, distance >2km			Recreational trips, distance >2km			City
Walk	Bicycle	Public transport	Walk	Bicycle	Public transport	
18.6%	22.3%	59.1%	21.2%	20.5%	58.3%	Thessaloniki
14.2%	60.0%	25.8%	12.5%	69.2%	18.3%	Karditsa

Results

Question 12: Factors affecting citizens not walk or bike for urban trips before the beginning of economic crisis (year 2008) (>1 answer)

Walk

Travel time	Convenience	Road safety	Personal safety	Public image	Weather conditions	City
68.2%	30.9%	4.2%	1.5%	2.7%	38.5%	Thessaloniki
73.5%	28.2%	6.8%	6.0%	4.3%	47.0%	Karditsa

Bicycle

Travel time	Convenience	Road safety	Personal safety	Public image	Weather conditions	City
33.7%	24.4%	7.5%	4.5%	10.6%	41.3%	Thessaloniki
28.2%	47.8%	17.9%	13.7%	9.4%	64.1%	Karditsa

Results

Question 13: Factors affecting citizens to walk or bike for urban trips during the years of economic crisis (>1 answer)

Walk

Improvement of transport infrastructure	Improvement of road safety	Improvement of personal safety	Reduction of personal income	Health and other reasons	City
33.1%	4.3%	2.4%	51.4%	29.7%	Thessaloniki
45.3%	6.8%	11.2%	42.7%	23.1%	Karditsa

Bicycle

Improvement of transport infrastructure	Improvement of road safety	Improvement of personal safety	Reduction of personal income	Health and other reasons	City
56.3%	2.9%	2.2%	47.8%	30.2%	Thessaloniki
76.9%	11.9%	5.2%	29.9%	17.9%	Karditsa

Results

Question 14: Teleworking from the residence

Almost never	Rarely	Sometimes	Often	Almost always	City
69.1%	16.8%	8.7%	4.1%	1.3%	Thessaloniki
51.4%	22.1%	13.3%	7.3%	5.9%	Karditsa

Yes	No	City
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Question 15: Willingness to increase teleworking from the residence	18.3%	81.7%	Thessaloniki
	45.6%	54.4%	Karditsa
Question 16: Is teleworking as productive comparing to physical presence in working site?	31.0%	69.0%	Thessaloniki
	47.1%	52.9%	Karditsa

Question 17: Factors that increase willingness to telework from the residence (>1 answer)

Reduce transport cost	Avoid travel time	Convenience	Accessibility	Personal/family/other reasons	City
29.3%	27.5%	35.1%	5.4%	22.8%	Thessaloniki
26.5%	22.1%	42.6%	5.8%	12.1%	Karditsa

Conclusions-Economic conditions

- Citizens' **personal income** was severely reduced during the years of economic crisis for both the examined cities. About 37% of the participants stated that their personal annual income was less than 5,000€ in the year 2016 (Thessaloniki: 39.7%, Karditsa: 34%) comparing to about 28% in the year 2008 (Thessaloniki: 25.6%, Karditsa: 31%).
- It is obvious that more people live in economic conditions far lower, comparing to the period before the economic crisis, thus affecting their working status and travel behavior.

Conclusions-Mean of transport (1/2)

- **Possession of private car** has lightly changed during the years of economic crisis. Before the beginning of the crisis (year 2008), the possession index of ≥ 2 private cars per family was 50.7% in Thessaloniki and 68% in Karditsa. In the year 2016, this index has dropped to 45.6% in Thessaloniki and 67.5% in Karditsa respectively.
- **Possession of bicycle** has also slightly changed during the years of economic crisis. Before the beginning of the crisis (year 2008), the bicycle possession index was 30.1% in Thessaloniki and 76.5% in Karditsa. In the year 2016, this index has increased to 33.8% in Thessaloniki and 80.5% in Karditsa respectively.

Conclusions-Mean of transport (2/2)

- There is an obvious reduction of **private car use** for both utilitarian and recreational urban trips during the examined years. In the city of Thessaloniki the reduction index was 58.9% for utilitarian trips and 71.7% for recreational trips. The same index in the city of Karditsa was 53.5% for utilitarian trips and 66.5% for recreational trips respectively.
- The participants were **also willing to further reduce private car use**. In the city of Thessaloniki the index was 54.3% for utilitarian trips and 61.2% for recreational trips. The same index in the city of Karditsa was 57.5% for utilitarian trips and 58.5% for recreational trips respectively.

Conclusions-Influence factors

- The main **factors that influenced citizens to walk** during the examined years were the reduction of personal income (Thessaloniki: 51.4% and Karditsa: 42.7%) and the improvement of transport infrastructure (33.1% in Thessaloniki and Karditsa: 45.3%).
- The **main factors that influenced citizens to bike** during the examined years were also the reduction of personal income (Thessaloniki: 47.8% and Karditsa: 29.9%) and the improvement of transport infrastructure (Thessaloniki: 56.3% and Karditsa: 76.9%).

Conclusions-Teleworking

- Participants were more willing to **increase teleworking** comparing to physical presence in working site in the city of Karditsa (45.6%) than in the city of Thessaloniki (18.3%).
- The main factors that increased the willingness of participants to telework from the residence were the following: **reduction of transport cost** (Thessaloniki: 29.3% and Karditsa: 26.5%), **avoidance of travel time** (Thessaloniki: 27.5% and Karditsa: 22.1%) and **convenience** (Thessaloniki: 35.1% and Karditsa: 42.6%).

This survey can assist state officials and stakeholders to **promote sustainable transportation and teleworking** with expected **positive economic, societal and environmental benefits** for their cities.

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Thank you for your attention