CONSTANTINE PORPHYROGENETUS INTERNATIONAL ASSOCIATION

Journal of Management Sciences and Regional Development
Issue 6, December 2008
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http://www.stt.aegean.gr/geopolab/GEOPOL%20PROFILE.htm
ISSN 1107-9819
Editor-in-Chief: John Karkazis

THE CONTRIBUTION OF TRAM TO THE SUSTAINABLE DEVELOPMENT OF ATHENS

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Abstract. The present paper examines the contribution of the tram to the sustainable development of Athens. The research analyses the opinion of only those people that use the tram and not of the broader public. It was held in May 2005, when the tram operation was normal, as sufficient time had passed since the 2004 Olympic games of Athens. As a result, the citizens of the Greek capital were familiarized with the tram and its destinations. Due to the conventional limitations as far as the extension of the paper is concerned, is highlighted only the most important questions. These are the questions that according to the writers, respond to the target-issue of this paper, which is to demonstrate the passengers' opinion on how much the tram has contributed to the sustainable development of the city of Athens. The paper reaches to useful conclusions and suggestions and also answers the initial question that is to what extent the tram contributes to the functionality and the sustainable development of Athens according to the passengers' opinion.

1. INTRODUCTION

The term "Sustainable development" is about creating an urban environment that is aesthetically upgraded and atmospherically clean. Beyond any doubt, the goal of applying sustainable development to the urban environment of Athens requires strict measures that should be taken in the years to come. Consequently, the action that should be taken to all the levels regarding the urban web should include a better management of land uses, stricter rules for protecting the atmosphere, the preservation and promotion of our cultural sources, a rational use of energy sources and a sufficient traffic policy. (Mitoula R. et al., 2002)

As far as transportation and traffic are concerned, sustainability suggests that total priority should be given to the collective forms of transportation. The aim is to make public transportation more attractive than private transportation. This should lead to a reduced use of cars. (Aravantinos Ath., 1997)

In order to have urban sustainable development, it is necessary, among other things, to solve traffic and pollution problems caused by car emissions and the conventional means of transportation. The solution is the substitution of cars with environmentally friendly transportation means. (Mitoula R., 2004)

Consequently, the tram, with its valuable qualities, is drawing the attention of urban and traffic planners, environmentalists, developers and public administration officials. The tram, which is an environmentally-friendly and clean means of transportation, has a big transportation capacity. If there is a demand for a traffic lane, which cannot be satisfied either by an underground train or buses and trolleys, the solution will be the construction of an upgraded surface tram network. This tram should move, if possible, on a separate traffic lane and should provide reliability, transportation quality, upgraded services to the passengers and a relatively low construction cost, which should be approximately 4 to 7 times cheaper than the underground train. (Kourouzidis S., 2003)

At the same time, the E.U. contributes greatly to the endorsement of policy and financial issues that relate to the construction of tram networks. Besides, along with the implementation of the Single European Act in 1987, a new principle was introduced: "Environmental protection requirements will always be a consistent factor with other individual community policies". (www.eu.int)

Moreover, according to the Subsidiarity principle, the European Community Committee encourages actions that relate to: (European Commission 2001)

- The support of the innovated cities by community resources. Meanwhile, every country should be responsible for elaborating national plans.
- An increasing switch to "clean" vehicles and public means of transportation. In fact, all users should have access to these means, including people with limited moving ability.
- The identification and promotion of the best practices concerning the urban traffic systems, including urban and regional railways as well as the management of the corresponding substructures.

A lot of European cities made this particular qualitative choice, by putting in operation new underground or tram lines and using technologically new and environmentally-friendly buses. (European Commission 2002) Nowadays, in modern Europe, the construction of a tram network which can substitute bus-lanes, is considered by urban planners and developers as well as by politicians, a

way of reconstructing the city in a much lower cost than the cost required for the construction of a conventional underground metro system. In this way new priority lines are given to the tram, which now occupies the space of the road previously used by cars, which caused a serious traffic problem. The promotion and construction of the tram is considered as a way to decrease traffic in the city, thus bringing about positive consequences. Moreover, it constitutes a conscious political choice and strategy of the European Union. (Brian Richards, 2001)

The present paper examines the contribution of the tram to the sustainable development of Athens. The research analyses the opinion of only those people that use the tram and not of the broader public. It was held in May 2005, when the tram operation was normal, as sufficient time had passed since the 2004 Olympic games of Athens. As a result, the citizens of the Greek capital were familiarized with the tram and its destinations.

Due to the conventional limitations as far as the extension of the paper is concerned, we highlight only the most important questions. These are the questions that according to the writers, respond to the target-issue of this paper, which is to demonstrate the passengers' opinion on how much the tram has contributed to the sustainable development of the city of Athens.

This paper reaches to useful conclusions, and suggestions and also answers the initial question that is to what extent the tram contributes to the functionality and the sustainable development of Athens according to the passengers' opinion.

2. THE RESEARCH

The target population of the research were passengers at and above the age of 15. The questionnaires were completed after conducting personal interviews inside the tram. In case the passengers got out of the tram, the completion of the questionnaire was held at the tram stop. To achieve a random sample which would correspond to the real population of tram users each respondent was chosen at the moment that the previous interview had finished. Consequently every second passenger that got into the tram was interviewed. The succession of sexes was also taken into consideration.

In table 1 the routes and the hours during which questionnaires were completed are demonstrated. The number of the respondents that refused to answer to the questions is also demonstrated. The third day gap was due to the public transportations strike in Athens because of the transferred celebration of May 1st. The questionnaires that were completed, according to the goal that was set, were 250.

PICTURE 1. Routes followed during questionnaire completion

DAYS/ ROUTES	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SYNTAGMA-GLYFADA	13:00-17:00			8:30-12:00	9:30-12:00	9:30-12:00
GLYFADA-SYNTAGMA		9:30-13:00		19:00-20:00		18:00-20:00
SYNTAGMA-SEF	8:30-12:00			17:00-18:00	17:00-18:00	
SEF-SYNTAGMA				15:00-17:00	15:00-17:00 18:00-20:00	
SEF-GLYFADA	17:30-20:00			18:00-19:00		17:00-18:00

GLYFADA	20:00					
GLYFADA-SEF		14:00-20:00		13:00-15:00	13:00-15:00	13:00-15:00
TOTAL REFUSAL PER DAY	2	5		11	10	13

The questionnaires were completed at the departure stations and during the routes between stops

3. RESULT OF THE RESEARCH

Demographic – Social characteristics of passengers

There were questions that concerned demographic and social characteristics in the questionnaire. From the answers provided we reached the following conclusions:

Both sexes answered the questionnaires at approximately the same percentage.

There is a concentration to age groups that represent the working population and a smaller one that represents the non working population.

Almost the same percentage corresponds to married and unmarried people although the married slightly outnumber the unmarried by 1%. At smaller proportions we find the divorced and the widowers.

48,2% of those questioned have children (this percent includes besides a part of the married as well as a part of the divorced and the widowers). 54,8% of the respondents (including married, unmarried and divorced people) have no children.

55,2% of the passengers of the tram are University and Technical University graduates as well as master graduates. In addition, 38% of them are high school graduates, while 6,8% are primary or high school graduates. All of the above data show that the tram passengers have a high educational level.

There was a question in the questionnaire that concerned the passengers' income. The answers were divided into 4 selections. Those with monthly income of A) 1-500 euros, B) 500-1000 euros, C) 1000-2000 euros, D) 2000+ euros. From the answers provided we have the following conclusions: 61,4% of the passengers corresponds to high income levels, while the 33,3% corresponds to middle or low income levels. Last but not least, only the 5,3% corresponds to very low income levels. Therefore, the majority of tram users have a high income. This could be explained by the high income classes that live in the areas where the tram goes through.

62,4% of the tram passengers is occupied to higher and lower positions in companies, firms and institutions. 27,2% of the tram passengers are unemployed (students, retired, soldiers, unemployed). 10,4% of the tram passengers are technicians, technical assistants and employees in the private sector.

From the demographic and social characteristics of the respondents, it turns out that a large percentage of tram passengers (50,0% - 60,0%) have a high level of education. In addition, the largest percentage of tram passengers have a high standard of life and 62,4% are occupied in professions that show a high social status.

Characteristics of tram passengers

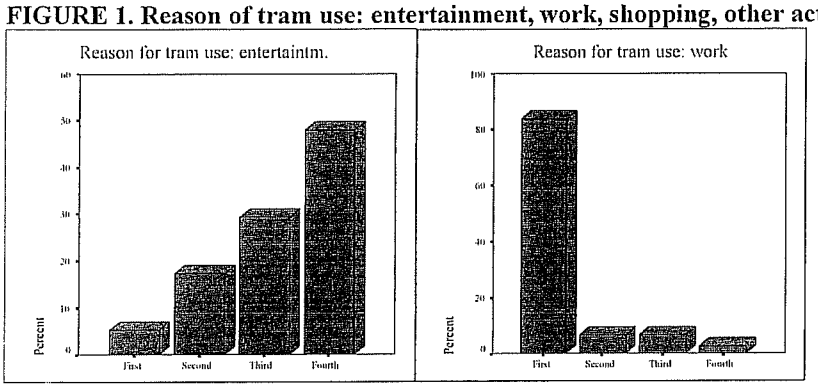
The questionnaire had a question concerning the reasons of tram use (figure 1). There were standard answers (entertainment, work, shopping, other activities). The respondents were asked to prioritize these activities from 1 to 4 according to the most important ones they use the tram for. This question was answered only in case the respondent had answered the previous question, which was whether he uses the tram in order to go to work, to go out, to go shopping and other activities. 75 out of 250 respondents answered this question which corresponds to the 30% of the respondents in the research. The results reveal that the first reason why people use the tram is for them to get to work (84,0%). What follows is the use of the tram to go shopping (64,0%), while 17,3% of the passengers use the tram to go out. Moreover entertainment is the third reason why people use the tram (29,3%). 46,7% of the passengers also use it for transportation to other destinations. Another –but less likely- reason for using the tram is for transportation to shops (48,0%) and for other activities.

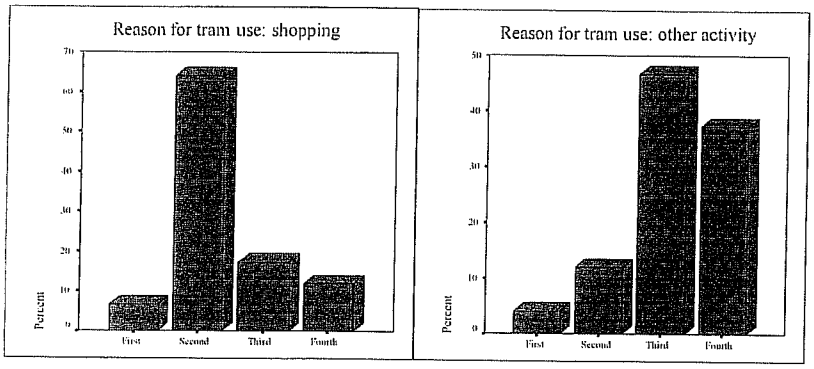
In summary, the first reason for using the tram is transportation to work, followed by transportation to shops and entertainment (in a smaller percentage). Other activities and entertainment seem to be the third reason for using the tram, although the possibilities for the latter are fewer. It is even less possible for the tram to be used as a fourth choice for the above activities.

The above question was cross-tabulated with the recode of the question that concerns the frequency of tram uses. According to the findings, the tram constitutes the third and fourth choice as far as its use for entertainment reasons is concerned. This applies not only to the occasional users (1 – 9 times per week) but also to the frequent users (10 – 20 times per week). The percentages are respectively 28,0% and 30,0% for the third position and 44,0% and 50,0% respectively for the fourth position. On the contrary, the tram is used for moving to work as a first and primary reason by occasional users (60,0%) as well as by frequent users (66,0%). Last but no least, tram is used as a third and fourth choice for transportation to other activities. 52,0% and 44,0% correspond to occasional and frequent users as a third choice for tram use. While 32,0% and 40,0% correspond to occasional and frequent users as a fourth choice of moving towards other activities.

The question "for which reason do you use tram (shops)" was cross-tabulated with the question that concerned the sex of the respondents. It is obvious that almost a double percent of women 84,2% uses tram as a second reason in comparison to the 43,2% of men who use tram as a second reason. For the other reasons for of tram transportation (entertainment, work, other activity), the distribution of answers between men and women are at the same levels

FIGURE 1. Reason of tram use: entertainment, work, shopping, other activity)

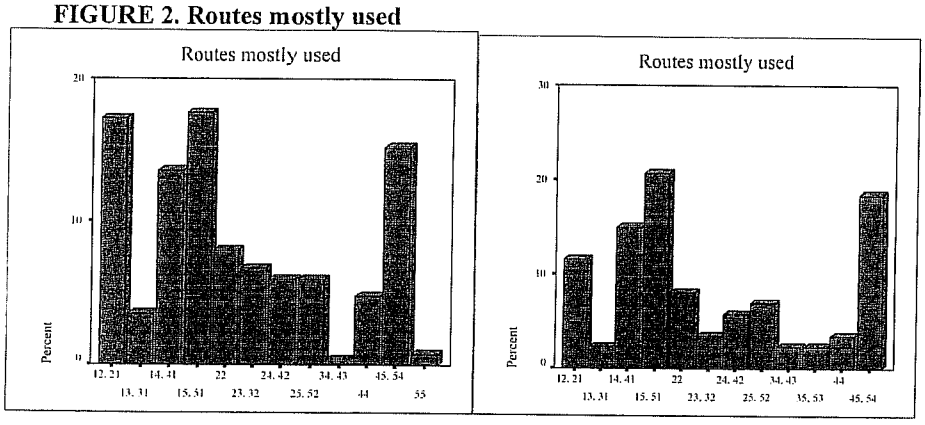




The identity of Tram passengers

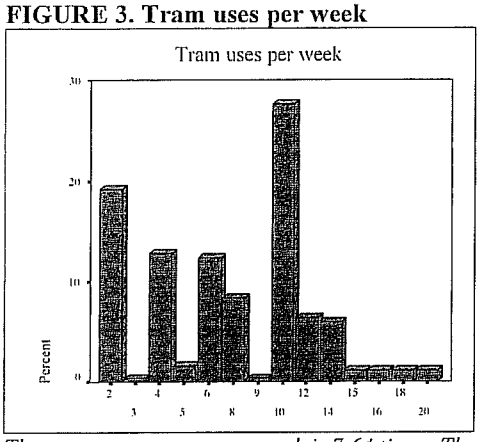
There was another question in the questionnaire regarding "which are the two most frequently used routes?". The aim of this question was to find out whether tram is used for long or short distance routes. After recoding the variables of the above question, the findings (Figure 2) show that the first, second and fourth in terms of percentages routes are long distant, while the third and the fifth are short distant. The conclusion is that the passengers use the tram for longer distances rather than shorter ones.

FIGURE 2. Routes mostly used



The answers to the question concerning the frequency of tram uses per week (figure 3), show that the largest percentages correspond to 10 and 2 uses per week. It is obvious that as far as the first case is concerned passengers use the tram in order to go to work while in the second case passengers use the tram possibly for transportation to other destinations. Furthermore, the rest uses (4, 6 and 8 per week), appear in large percentages. This is a fact that does not help us to make secure judgments as far the reason of transportation is concerned. It could be for transportation to work. It could also be for any other periodic non activity, such as shopping, entertainment or something else.

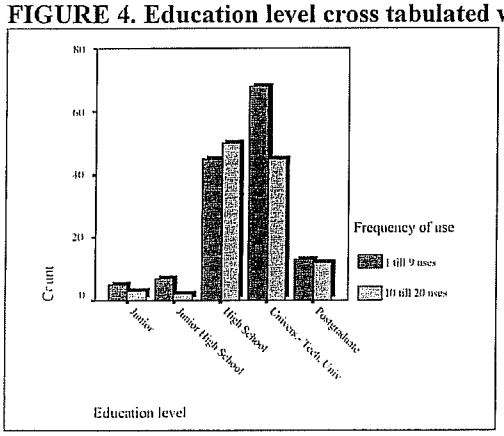
FIGURE 3. Tram uses per week



The average tram use per week is 7,64 times. The highest frequency noted down is 8 times.

The question that concerned the passengers' education level was cross-tabulated with the recode of the question that concerned the frequency of use. The findings show (Figure 4) that the largest percentages of frequent and occasional users 40,2% and 49,3% respectively, correspond to University and Technical University graduates. High school graduates follow with 32,6% as occasional and 44,6% as frequent users of tram. Master graduates correspond to a small but important percentage. That is 10,7% for the frequent users of tram and 9,4% for the occasional users of tram. On the contrary, secondary and junior high graduates are represented by very small percentages.

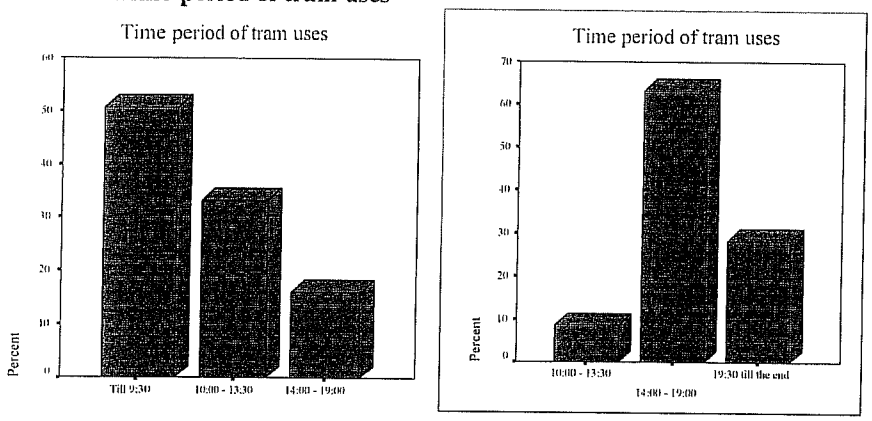
FIGURE 4. Education level cross tabulated with the frequency of use



The description of the transportation hours leads to the conclusion, that the working population is transferred to and from work around 9:30 a.m. and from 14:00 – 19:00 p.m. Besides, this was made clear by the answers given to the previous question: "The main reason to choose tram is for someone to be transferred to and from work".

Furthermore, the question concerning the hours of tram use was cross tabulated with the recode of the question concerning the frequency of tram uses (Figure 5). It is concluded that occasional users (1 – 9 times per week) prefer to use tram at 14:00 – 19:00 (early in the afternoon) with a second preference at 10:00 – 13:00 in the morning. The percentages are respectively 43,5% and 28,0%. Frequent users are transferred from 9:30 in the morning, and 14:00 – 19:00 in the afternoon with, percentages 37,5% and 34,4% respectively.

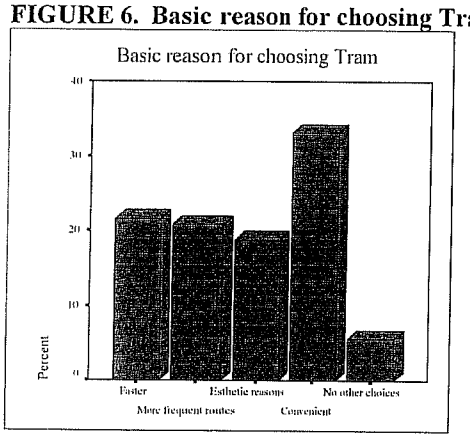
FIGURE 5. Time period of tram uses



Satisfaction of the passengers' needs and perspectives

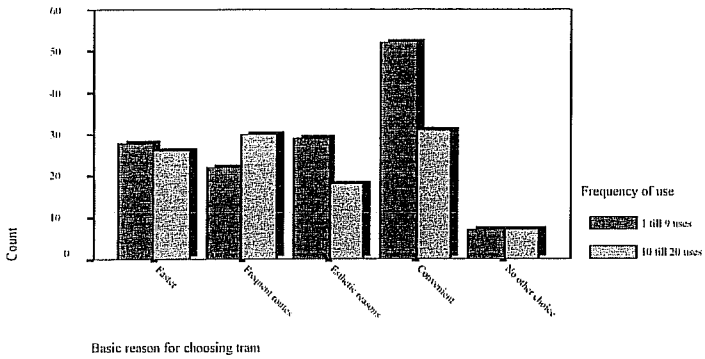
The respondents seem to mostly choose the tram (Figure 6) (question: "which is the basic reason you choose the tram?") because it is convenient due to the short distance from their house or work. Moreover, a big part of the passengers believe that the tram is faster than the conventional means of transportation. Many prefer it due to its more frequent routes or even more for aesthetic reasons, since the tram is a means (according to the passengers' remarks) that upgrades the citizens' transportation. A smaller percentage answered that they have no choice. In addition they regard its use as necessary.

FIGURE 6. Basic reason for choosing Tram



The above question was cross tabulated with the question concerning the frequency of tram uses. (Figure 7). Interesting results came out. Specifically, 57,7% of the frequent users (10 – 20 times per week) use the tram, mostly due to its more frequent routes compared to the 42,3% of occasional users (1 – 9 times). On the other hand, 61,7% of the occasional users pay more attention to aesthetic factors while only the 38,3% of the frequent users do the same. Moreover 62,7% of occasional users pay more attention to the fact that the tram is convenient contrary to the 37,3% of the frequent users who pay attention to this reason. However, the findings show that 51,0% of the occasional and 48,0% of the frequent users, that is almost the same percentage, choose the tram because they think it is a faster means of transportation than other conventional means.

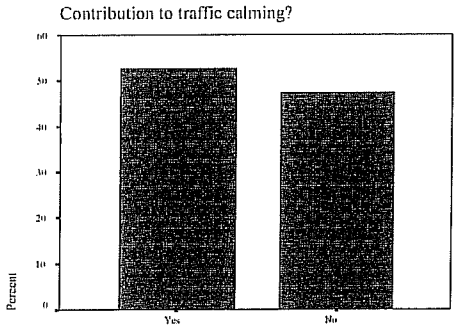
FIGURE 7. Basic reason for choosing tram cross - tabulated with Frequency of use



The Passengers' opinions and suggestions about the tram's better operation

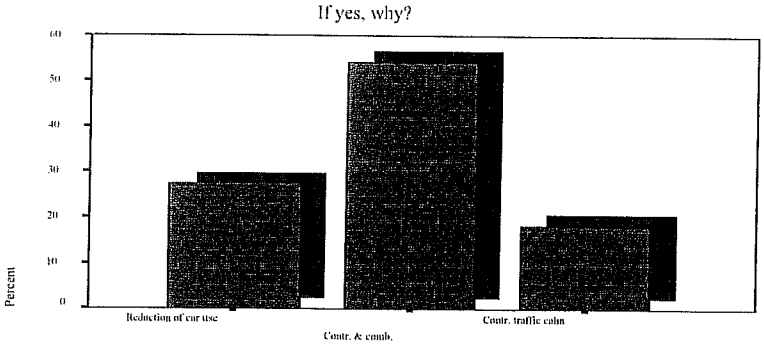
The opinions vary as to whether tram has positively contributed to traffic problems (Figure 8). Specifically, 52,6% of the respondents answered "yes", while of them 47,4% answered "no". Obviously, the positive opinions about the tram are prevalent. However, the negative opinions also take up a large percentage. Following the above question, there was another one concerning the reasons why the passengers think the tram has contributed or not to traffic decongestion.

FIGURE 8. Contribution to traffic calming



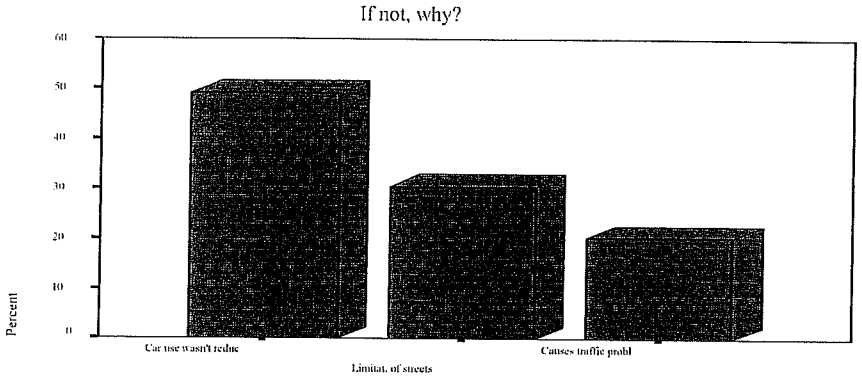
This question was "If yes, why (choose one of the following reasons)" (Figure 9). 54,2% of the respondents answered, "I think the tram has contributed, in combination with other means, to saving more free space". 27,5% of the respondents answered, "car use was reduced". Last but not least 18,3% of the respondents believe "that the tram has contributed to relieve traffic in main streets". Of course the standard answers given to this question were more or less the same and highly correlated. The question was set in order to analyze the public opinion about traffic decongestion. The respondents to this question were 131, representing 52,4% of the respondents who believe that the tram has contributed to traffic decongestion.

FIGURE 9. Why did the tram contribute to traffic calming?



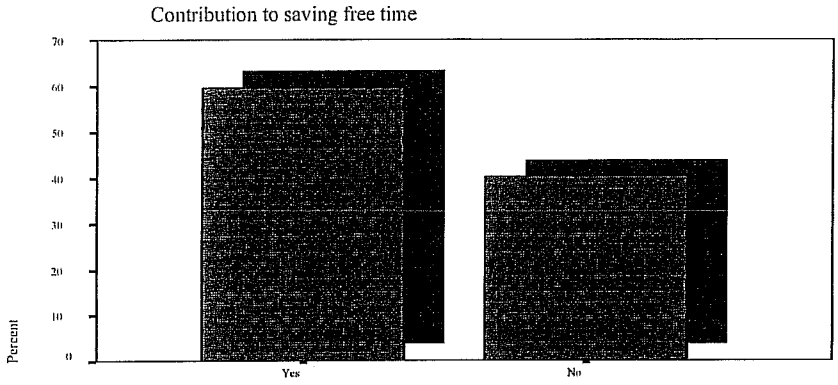
On the other hand, there were some negative answers to the question: "If not, why? (Choose one of the following reasons)". 49,2% of the respondents state that "the use of cars was not reduced". Moreover 30,5% of the respondents answered, "the tram reduced the available space of main streets". Last but not least, 20,3% of the respondents answered, "it has caused traffic problems". Subsequently, the opinion that the tram has not reduced the use of cars comes first, while the opinion that it has reduced the available space of main streets follows. What is observed is that a smaller percentage believes that the tram has caused traffic problems.

FIGURE 10. Why didn't the tram contribute to traffic calming?



As far as the question "Has the tram contributed to saving more free time (Figure 11)" is concerned, the answers are distributed as follows: 59,7% of the respondents answered "yes", while 40,3% of the respondents answer "no". The opinion that the tram has contributed to saving more free time prevails. Therefore, the tram is considered by the largest proportion of the sample to be a faster transportation means. However, 40,0% of the respondents believe the opposite.

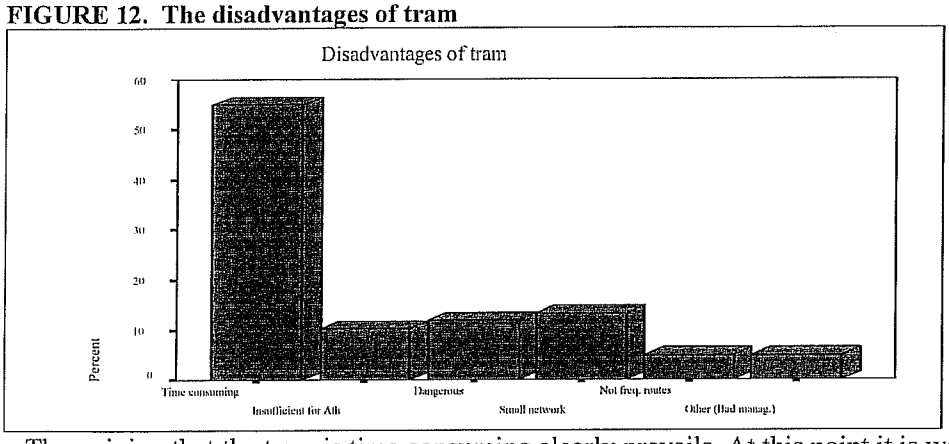
FIGURE 11. The tram's contribution to saving more free time



The cross tabulation of the specific question with the recode of the question concerning the tram uses shows that: 63,1% of the frequent users and 56,9% of the occasional users believe that "tram has helped in saving more free time". This can be explained by the fact that the tram is affected by traffic problems. Therefore it is more preferable than other means of transportation (cars, taxis, buses). In addition, it provides a successful solution to the problem of lack of parking space.

Concerning the question: "which are the disadvantages of the tram? (Choose one)" (Figure 12), 226 people answered from a total of 250. 54,9% of the respondents believe that the tram is time consuming and 13,3% of the respondents think that the tram has a limited network. Also 11,9% of the respondents believe that the tram is dangerous and 10,2% of them think that the tram is non functional for the city of Athens. Last, the opinions that the tram has few routes and other problems (e.g. bad management by TRAMSA e.t.c.) take up the 4,9% of the total of the answers provided.

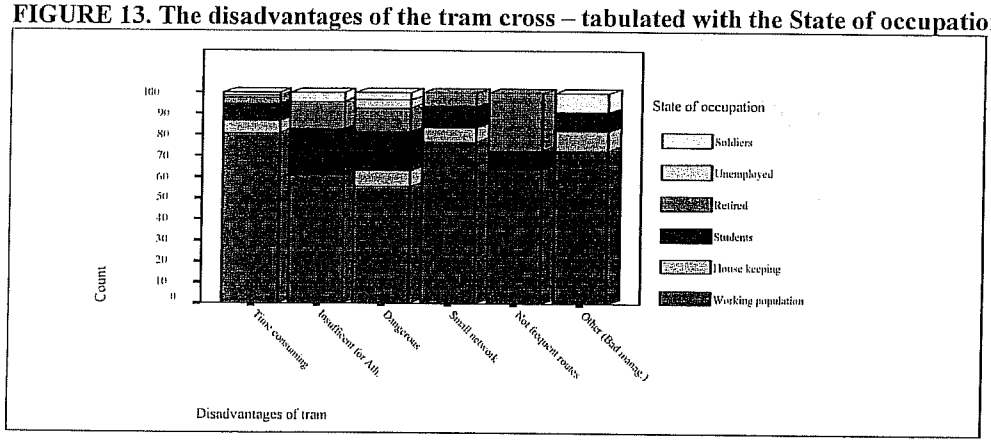
FIGURE 12. The disadvantages of tram



The opinion that the tram is time consuming clearly prevails. At this point it is worth mentioning that this answer was probably given because the tram has a fixed and stable lane. Therefore, it was expected to be faster than the conventional means of transportation. Subsequently the tram is regarded as time consuming because it is not as fast as it was expected to be. Besides, the tram is considered to have a limited network; therefore, it does not seem to serve properly with the specific standard routes. In addition, another proportion of the respondents thinks that the tram is dangerous due to the fact that several accidents and crashes have taken place on its tracks. Last, a rather small percentage of people finds that the tram routes are not as frequent as they should and an equally small percentage believe

that the Tram SA does not have a good management resulting in lack of technical support (spare tram vehicles and improper information about the routes etc).

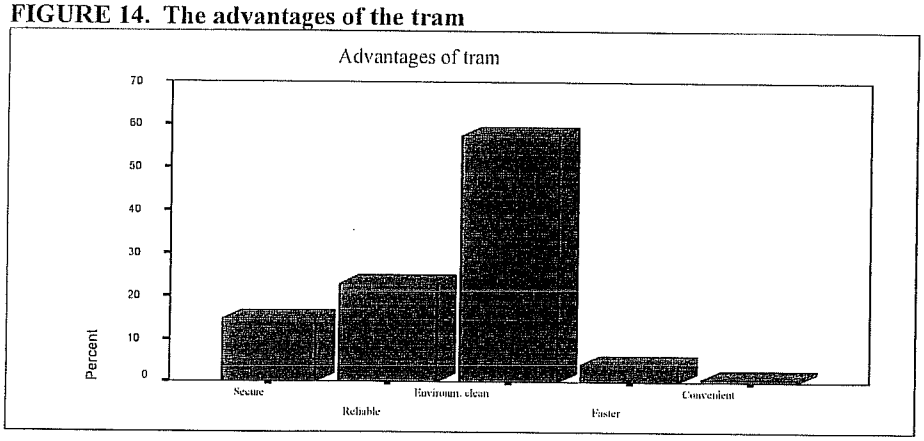
FIGURE 13. The disadvantages of the tram cross – tabulated with the State of occupation



The results that come out after cross tabulating the above question with the recode of the question concerning the state of occupation (Figure 13) show that 59,9% of the working respondents pay more attention to the "time consuming" disadvantage compared with the 54,9% of the average. However in all the other disadvantages their percentages are below average.

Regarding the question "which are the tram's advantages (choose one)" (Figure 14) there were 245 answers in a total of 250. 57,6% of the respondents said that "it is an environmentally clean means of transportation". The opinion that the tram is "a reliable means of transportation" is represented by the 22,9% of the respondents. Moreover, 14,7% of the respondents comment that it is "a secure means of transportation". Besides, 4,1% of the respondents think that the tram is faster than the conventional transportation means. Last, we have a very small percentage 0,8%, representing the opinion that the tram is convenient. In conclusion, it is obvious that the tram represents an environmentally clean means of transportation for the largest proportion of the tram passengers, while it also represents the characteristic of reliability (and security) in smaller percentages. In contrast, a very small percentage believes that the tram is faster than the conventional means of transportation and even a smaller percentage than the above believes that the tram is convenient.

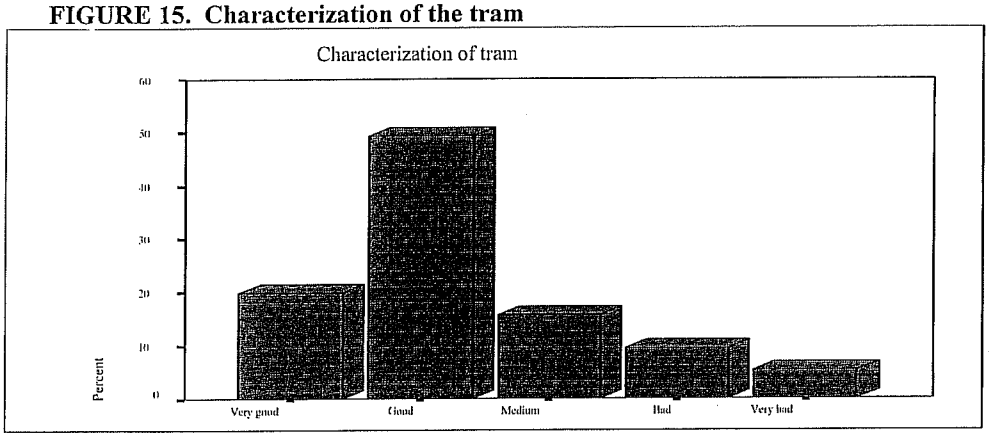
FIGURE 14. The advantages of the tram



The cross tabulation of the above question with the recode of the question regarding the state of occupation presents the following results. 58,9% of the working respondents believe that the tram is an environmentally clean means. It is clear that the above answer prevails in the answers of people who belong to all states of occupation (house keeping, retired, unemployed and soldiers). Moreover it is important that 23,3% of the working respondents think that the tram is reliable.

As far as the question of "How would you characterize the tram till now?" is concerned, it must be emphasized that the answers were recoded. The answer was characterized as "very good" when it had 2 or even more positive opinions about the tram. Respectively, it was characterized as "good" when it had 1 positive opinion about the tram. If there were 2 contradictory opinions about the tram, the answer was characterized as "medium". For 1 negative opinion the answer was characterized as "bad" and for 2 or even more negative opinions the answer was characterized as "very bad". Subsequently 49,4% think that the tram is "good" and 19,9% think it is "very good". Moreover 15,8% believe that the tram is "medium" and 9,5% think the tram is "bad". Last, only 5,4% think that the tram is "very bad".

FIGURE 15. Characterization of the tram



In conclusion, the answers mainly given are categorized as "good" and "very good". If the percentages of both "good" and "very good" are added the result will be 69,5% representing the respondents who believe that the tram is at least a good means of transportation. As far as the "medium" percentage is concerned, it should be noted that this characterization was not given because the tram is not always appreciated because of its flaws. Furthermore the respondents who gave this answer consider that it has many possibilities to become better. Last, if "bad" and "very bad" are added the result will be 14,9% representing the respondents who believe that the tram is at least a bad means of transportation. This fact leads to the conclusion that a relatively small proportion has a negative opinion about the tram, while the largest has a good or even a very good opinion. Any opinion could be positively altered by the improvement of the tram's functionality.

The result of cross tabulating the above question with the recode of the question concerning the tram's frequency is that the characterization "good' is given by the 52,3% of the frequent users and by the 46,9% of the occasional users.

4. CONCLUSIONS – COMPARING THE RESULTS WITH THE PAPER'S HYPOTHESIS – PROPORTIONS

The results were compared with the paper's hypothesis: "whether the tram has contributed to the sustainable development of the city of Athens", as it is reflected in the opinion of the tram passengers.

It is concluded that the passengers of the tram have a good opinion about it and they also have increasing expectations concerning its further development. This is proved by the fact that the largest percentage of the tram passengers prefers it more than other means of public transport (buses, trolleys). Therefore, the use of car is reduced to a smaller or bigger proportion. This leads to pollution and traffic reduction. This was also the main target of the construction and operation of the Stable Track Transportation Means and especially of the tram network. The present research concludes that the passengers think that the tram is faster and more convenient, compared to conventional means of public transportation. Moreover, 57,6% of the respondents think the tram is environmentally friendly, 37,6% think it's reliable and safe and 52,4% believe that it has helped to reduce the traffic problems and has contributed to the sustainable development of Athens.

In addition, the passengers–citizens who live in the areas crossed by the tram, seem to have changed their opinion about the tram. Although there were complaints during the tram's construction phase, they now have a good opinion about the tram, which is represented by a large percentage (69,3%) of the respondents. Moreover, despite some negative opinions, there are expectations that its functionality will improve, a fact that is of course related to wider traffic interventions.

Besides, the basic factor that can lead to a successful function and establishment of the tram depends on the broader traffic and urban interventions. However, a large percentage of the respondents think that the tram has reduced the available space of main streets. Moreover, an important percentage has expressed the opinion that the areas the tram crosses have undergone an aesthetic deterioration (e.g. cutting down of trees for the construction of tram network e.t.c.). However, the expansion of the tram networks and the improvements suggested by the passengers (e.g. increase of "green" areas, more frequent and better coordinated routes, and harmonization with the rest of the urban environment) can lead this successful pilot attempt to better results. Another additional, subsidiary measure towards this direction is the planning of an integrated network of "Mass Transportation Means" so that the necessary transfers can be organized and accurate. Besides, this need has been emphasized since the underground train construction stage.

An important finding of this research is that younger passengers and 84,0% of the working passengers have a better opinion about the tram than the older and non working passengers. This fact shows that there is a high possibility for citizens to improve their commuting habits and urban consciousness. A campaign promoted by the public institutes, the existence of strong motives for further reduction in the use of cars (e.g. low price tickets for several groups of population, hours of free transfer, the facilitation of the use of bicycles etc) as well as some enforceable strict regulations (e.g. fines for illegal parking and uncontrollable gas emissions) could hopefully lead to a more sustainable development of the network of all the public means of transportation, which could consequently contribute to the creation of a more functional and livable city.

The Mass Media could also help towards the public's acceptance of the Public Means of Transportation and especially the tram. However, at present, the Press seem to present a negative image of the tram and emphasize its disadvantages regarding its operation. Moreover, the speedy way of life, which is promoted nowadays, demands even faster means of transportation than the tram.

What is worth to be emphasized at this point is the fact that the duration of transportation constitutes a very important factor of choosing a public means of transportation. Nowadays, people tend to overestimate the rapid means of transportation, because they manage to cover long distances in a relatively short time, and cope with their busy schedules and the rapid way of life that the modern life style has imposed. 57,9% of the passengers think that the tram has contributed to their saving more free time. The above percentage should be taken into account, when considering the traffic problem of Athens which increases transportation time. According to the findings of the research, the tram is considered as unjustifiably time consuming, given that there is a stable track for it. The explanation given is based on the passengers' remarks that the tram is inevitably compared to the underground train, which is certainly faster than the tram. Moreover, the tram turned out not to be what most people had expected. However if the interventions and measures suggested are applied, it is very likely that the tram's operation will improve and many more needs will be satisfied.

Finally what remains to be answered is whether the tram is actually a public transportation means which has contributed to the sustainable development of the city of Athens Under the present circumstances and given that the basic needs of passengers (reliability, security, speediness in comparison to conventional means of transportation, aesthetic reasons, and environmental concerns) are satisfied, the answer is positive. There are, however, many things to be done in order to successfully complete this first attempt. A few suggestions are the following:

- Structural interventions of traffic and urban type (making the city greener, environmental improvements around the tram).
- Construction of a Complete Public Transportation Means network which covers the passengers' needs for transfer.
- Existence of motives and enforcement of strict penalties for the reduction of car use and the promotion of the tram's better operation as well as of all the other public means of transportation.
- Expansion of the Tram network in order to serve a larger part of the population
- The connection of the centre of the city with other areas of Athens is also necessary.
- Better organization of the Tram SA in order for the tram to function more accurately and respond to the passengers' needs and expectations to a bigger extent.
- Advertising the tram in the Mass Media in order for its image to be improved.
- Students' education and familiarization with environmentally friendly transport means and especially the tram.
- The Tram's association with art and cultural activities.

In conclusion, a stable track network is under development in Athens. The underground train of course prevails, while the tram comes second. The function of this network and specifically that of the tram network will depend on how willing the competent public officers are to implement the necessary structural interventions. Positive results have already begun to occur. Moreover the passengers' opinion has positively changed. The tram can effectively function in the city frame of Athens and complete its successful pilot attempt. This initial success is expected to lead to the embellishment of the urban environment and the improvement of the service provided to the passengers, thus promoting the sustainable development in the city of Athens to a greater extent.

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