

Evaluation of the level of service of the public transport operator of Thessaloniki before and after its nationalization

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Abstract. In this paper, the transition of the Organization of Urban Transport of Thessaloniki (hereafter OASTh) from private to public ownership is examined, with a short questionnaire survey among users of OASTh, who answered simple questions such as when they think that the level of service was better, if they see tickets inspectors as often as they did before the nationalization, how they would describe their trips, qualitative questions, etc. The questionnaire was answered by 213 passengers. The main problems that were detected were the following: 1. After the nationalization, the number of operational buses and their frequency dramatically dropped. 2. Telematics started to have many problems, and the information provision was no longer valid enough. 3. There was a lack of ticket inspections that led to ticket evasion, thus increasing the deficits of the Organization. 4. Most buses were overcrowded, and this led to an increase in petty crime rates (e.g., pickpocketing). 5. Due to overcrowded buses, it was sometimes impossible to board at the bus stops. Many problems were identified, but there were also many problems before the nationalization. The results are interesting, but a long-term assessment will be more useful to derive safe conclusions.

1 Introduction

Humans, by nature and in order to meet most of their needs, are forced to move from various places to others. That is why, from the first years of their existence, they tried to find means to facilitate their necessary movements.

In ancient times, people mainly used animals as a means of transport, either donkeys or horses, which they tied to a carriage and thus carried out their transport. However, with the development of technology, transportation that used animals was slowly abolished, and motorized traffic took its place. Now almost every city covers the mobility needs of the people who live in them with public transport.

The Organization of Urban Transport of Thessaloniki (hereafter OASTh after its Greek acronym) [1], i.e., the public transport operator of Thessaloniki, Greece, faced many problems during the economic crisis, some of which had to do with the economic conjuncture. The level of service had dropped, and people expressed general dissatisfaction. OASTh was established as a private company in 1957, but as a public transport operator, it was a monopoly and had many state privileges, e.g., the state covered its deficits, and there was a guaranteed fixed profit for its shareholders. This was a hybrid state, and people could not understand where the problems came from, i.e., was it its private ownership status or the lack of competition and state privileges?

Given that it was a period of political tensions due to the economic conjuncture, the problem was politicized, and the Greek government decided to nationalize OASTh. This was an exciting experiment since the trend in Europe during the last decades is the opposite (i.e., to privatize publicly owned transport operators).

There will be a brief historical review of OASTh, and then an analysis of data will follow, which will also include data from a questionnaire survey, in order to determine the final state of OASTh after the change made in its status in 2017, i.e., from private to public ownership.

The aim of the paper is to present the disadvantages and advantages of the nationalization of OASTh both from the side of the Organization's managers and its employees but mainly from the side of the hundreds of thousands of passengers served by the Organization. After these data are presented, an attempt will be made to identify some problems and realistic proposals to deal with them.

After evaluating all of the above, the work will end with conclusions regarding the question if it was better that OASTh was nationalized or if it would have been better to remain private as it was or with some changes.

The following paper is structured per chapter as follows: i) 2: historical review, ii) 3: the operation of OASTh as a private company, iii) 4: the current state after OASTh's nationalization, iv) 5: methodology, v) 6: results, vi) 7: discussion with problems and proposals, and vii) 8: conclusions.

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2 Historical review

The historical development of Thessaloniki's urban transport went hand in hand with the city's history and its major events that marked the past century [2]. The creation of urban transport in Thessaloniki began at the end of the 19th century, in the form of some horse-drawn carriages and horse-drawn trams at that time, to meet the needs of people to be transported from one part of the city to another [3-7].

More specifically, the first attempt to create urban transport in the city was made in 1879 by a Belgian company, and people were transported in carriages of 4-5 seats. In 1905, the first carriages appeared on rails that could accommodate 15-20 people. In 1908, the Belgian Company that took over the electrification and organization of transport in the city organized and marketed the tramways under the name "Tramway and Electricity Company." The first tram lines in the city are the Apothiki (Exochon) – Port line and the Hirsch (now Ippokratio Hospital) – Beshchinar (26 Oktovriou) line. With the settlement of the refugees in the city, the creation of the refugee settlements, and the significant increase in the population, around 1927, the Ermou – Ano and the Ermou – Kato Toumba lines appeared for the first time. From 1930 to 1935, the first motorized buses were released, operating parallel to the tram, following their itineraries, but developing more competitive than cooperative relationships. Common directorates were established by law in 1936 and included bus lines. In 1940, the city already had 150 city buses with 40 seats belonging to private motorists. At the same time, the Belgian Company was acquired by the state, and the State Corporation of Railways and Electric Lighting of Thessaloniki was created. Unfortunately, in the war of 1940, during the period of occupation, all the buses were destroyed, and any needed transport was carried out by tram. In 1947, the Regional Bus Service (with the Greek acronym KTEL) was created and took over the service of Thessaloniki, dividing it into three sectors. Two hundred forty-three (243) old and repaired buses were in circulation, of which 170 were replaced with new ones in 1949. In 1952, the three existing bus owners' companies merged into one, the Joint City Bus Receipts Fund of Thessaloniki (with the Greek acronym KTEALTH), with a total force of 243 buses [2-7].

In 1957, with the Legislative Decree 3721/1957 OASTh was founded, which exclusively undertook the city's urban transport service, with the signing of a relevant contract with the state. At the same time, the tramways were abolished. OASTh owned 283 buses of 60 and 80 seats. From 1963 until 1977, 283 new buses of 100 seats were placed in circulation. In 1978 OASTh acquired the first articulated buses in Greece, with 150 seats. In 1979, OASTh expanded to the suburban area of Thessaloniki, following the contract of Law 866/79, and beyond that, it also extended its operating contract with the state until 2000. As a result, the small boats connection of Thessaloniki with Aretsou – Peraia – Agia Triada was interrupted as now these areas too would be served by the OASTh [2-7].

On April 30, 2001, with Law 2898/2001, the third Financial Agreement was signed between the Greek state and OASTh, which was valid until 2009. In 2003, a supplementary financial agreement was signed between the Greek state and OASTh, which was also valid until 2009, and the area of service of OASTh was expanded. In 15 new municipalities, 12 new bus lines were established, and 48 additional buses were added to the fleet of OASTh. On January 11, 2008, the fourth financial agreement was signed between the Greek state and OASTh, through which the number of OASTh buses increased by 64, amounting to a total of 600, and the urban transport concession was extended up to two (2) years from the completion of metro construction and its extensions. On April 8, 2010, the supplementary financial agreement between the Greek state and OASTh was signed and ratified by Law 3897/2010, by which the number of OASTh buses was increased by 18, and at the same time, the service of nine (9) Municipalities of Langadas Province was ensured through the combined use of buses of OASTh and KTEL Thessalonikis SA, with a significant reduction in travel costs (urban ticket, or 50% of the KTEL ticket) [2].

Since the end of 2017, OASTh has been transferred from private to public ownership.

3 The operation of OASTh during the period of its private exploitation

The nationalization of a company is done by transferring the ownership of its shares from its private shareholders to the state and compensating its shareholders for the property loss they suffered for reasons of public interest. OASTh, which had the monopoly of the public transport service for the passengers of the wider metro area of Thessaloniki, was assigned the public transport operation against the obligation of the state to cover the costs to which the OASTh would be subjected to carry out this work until the end of the contract, which was signed in 2001, and it was included in Law 2898/2001. According to the contract, as expenses, the contract recognizes the following [8]:

1. The so-called fixed expenses include the rents of depots and administrative offices, all kinds of expenses for the employment of staff, and the fixed expenses for the purchase of spare parts, office materials, staff uniforms, etc.
2. The so-called variable expenses include expenses for fuel, lubricants, and tires.
3. The business profit of the shareholders of OASTh is included in the expenses and is not derived from the difference between expenses and revenue.
4. The depreciation of means of transport, real estate, machinery, and tools. In fact, the contract also defined a depreciation period for the three categories of these assets [8].

On the other hand, as revenue, the contract recognized "fares and other sources (receipts from tickets, cards, etc., revenue from leased buses, from the state for reduced fares, advertising revenue, interest from deposits of revenue sources and other" [8].

According to the contract, if the one-year revenue fell short of the expenditure, then the state was obliged to pay the so-called “compensatory payment” to OASTh, which is equal to the difference between expenses (including the business profit) and revenue [8].

In 2001, however, those who signed and ratified that contract realized that its status could not be perpetuated. Therefore, they set an upper limit for the life of the new contract until December 12, 2009, when OASTh should come under the ownership of the state “without compensation.” Specifically, according to Article 2 of the contract: “Buildings, facilities of all kinds, machines, tools, materials, accessories, devices, depots, garages, buses, other means of transport, and in general any movable or immovable property, as they will have been formed on December 12, 2009, automatically, on January 1, 2010, will be transferred to the Greek state, without compensation, since their value will have been depreciated [8].

In the event that the assets were not fully depreciated on December 12, 2009, during their compulsory transfer to the Greek state, the Greek state will pay OASTh an underappreciated value.” Two years before the expiration of the 2001 contract, the Greek state extended it. Indeed, at the beginning of 2008, a new contract was signed between the state and OASTh, which amended the 2001 contract (Law 3652/2008) [8].

Table 1. Total revenue, total expenses, compensatory payment, and business profit for years 1990-2016 of OASTh [9].

Year	Total revenue (€)	Total expenditure (€)	Compensatory payment (€)	Business profit (€)
2016	51,954,658.18	146,448,546.07	94,493,887.89	16,450,000.00
2015	57,301,724.07	150,858,976.73	93,557,252.66	16,450,000.00
2014	59,437,504.34	166,525,783.39	107,088,279.05	16,450,000.00
2013	58,079,307.42	176,441,417.66	118,362,110.24	16,877,275.06
2012	57,735,919.71	183,997,481.74	126,261,562.03	16,903,937.30
2011	60,769,140.26	181,949,727.84	121,180,587.58	16,884,544.23
2010	50,668,101.31	170,641,591.57	119,973,490.26	15,942,077.20
2009	48,618,023.24	167,086,326.42	118,468,303.18	16,183,308.88
2008	50,635,692.95	159,725,668.26	109,089,975.31	15,919,482.52
2007	51,475,342.56	149,761,336.32	98,285,993.76	13,946,765.09
2006	51,130,591.08	144,277,411.44	93,146,820.36	13,051,756.34
2005	50,554,577.04	132,841,384.15	82,286,807.11	12,125,910.01
2004	50,707,122.95	124,949,132.54	74,242,009.59	11,434,054.63
2003	50,000,450.72	108,825,713.47	58,825,262.75	10,278,736.94
2002	50,133,791.88	102,240,843.53	52,107,051.65	9,027,714.12
2001	35,035,138.29	101,485,628.77	66,450,490.47	8,891,919.48
2000	36,530,034.50	100,767,292.55	64,237,258.05	13,244,184.08
1999	35,939,166.05	100,587,010.79	64,647,844.74	12,625,547.07
1998	31,707,856.36	97,315,787.31	65,607,930.95	12,052,756.58
1997	28,604,288.22	92,738,299.06	64,134,010.83	11,078,386.56
1996	27,153,514.21	85,146,304.00	57,992,789.79	10,156,811.75
1995	25,466,383.05	75,206,751.11	49,740,368.07	8,792,644.15
1994	25,132,581.83	66,505,496.28	41,372,914.45	7,864,714.96
1993	24,629,318.00	58,966,174.70	34,336,856.70	6,957,819.55
1992	22,307,295.84	50,773,764.53	28,466,468.69	5,935,920.33
1991	16,638,568.58	43,130,613.13	26,492,044.55	26,492,044.55
1990	12,762,831.72	36,238,886.63	23,476,054.91	4,020,562.59
Totals	1,121,108,924.36	3,175,433,349.99	2,054,324,425.63	324,454,565.20

From 1990 to 2016, the shareholders received a business profit of 324,454,000 €, and in the same period, the compensatory payment of the state, i.e., the loss that the state was asked to pay, amounted to 2,054,000,000 €. All this resulted from the agreement of the private OASTh with the state and with the help of arbitration [9].

This agreement ensures the business profit regardless of the result and regardless of how rational or not the management of OASTh’s operations is. Therefore, the shareholders of OASTh from 1990 – 2016 got a business profit of 324,454,000 € not because they achieved profits but because they burdened the Greek state with a loss of 2,054,000,000 € in the corresponding period [9].

In 2016, i.e., one year before the nationalization of OASTh, the total staff of OASTh amounted to 2,330 employees, while the organizational positions were 2,524. Of the 2,330, 1,469 are drivers, 226 technicians, 125 administrators, 79 ticket inspectors, and so on. From 2011, when OASTh had 2,674 employees, until 2016, the number of employees has been decreasing. The biggest decrease concerns the specialty of drivers, who decreased by 18.08% (from 1,793, 1,469 remained). In contrast, administrative employees increased by 4.9% during 2011-2015, while in 2016, they showed a decrease of 1.57% compared to 2015. The bus fleet had remained stable at 622 vehicles since 2012, when the last 26 vehicles were purchased. Of these, 90 were aged 18-19 years old, 327 were aged 10-13 years old, 175 were aged 5-9 years old, and 26 were aged four (4) years old. Given that the lifetime of the buses gradually increased from 12 years to 20, this means that within the next two (2) years, 2018-2019 OASTh would have to proceed with the replacement of 90 buses, i.e., 14.54% of its fleet, which of course did not happen. In addition, an on-site inspection in September 2016 at the depots found that approximately 15% of the vehicles were out of service due to a breakdown. Also, four (4) vehicles were reported to be immobilized due to a breakdown and were utterly destroyed [10].

The inspectors also checked whether the itineraries planned under the contract were implemented. The inspections that took place at the beginning of September and in the middle of October found that about 1/5 of the scheduled routes were not executed “in derogation of the written provisions.” Specifically, based on the contract, OASTh was obliged to put 520 (+ - 4%) buses on the roads during winter. Instead, the inspectors found that the running buses were from 421 to 462. Also, one of the mandates that the inspectors had was to check whether OASTh complied with the agreement made on August 25, 2016, between the Ministry of Transport and OASTh for payment of accruals to employees from the payment of the government subsidy. From the control which was carried out for the period from 1/1/2016 to 12/10/2016, it emerged that the Greek Government paid OASTh’s compensatory debts of 84,147,419.12 €, of which 24,535,364.82 € were related to balances from 2013, 17,386,982.10 € balances of 2014, and 42,225,072.20 € the compensatory debt until 12/10/2016. In particular, after the agreement of August 25, OASTh received 10,864,297.64 € and returned 9,088,400.25 € to the employees. The full payment of the workers took place at the end of December with the payment of the balance of the state grant for the two months of November – December, as well as the 9.7 million euros from the first installment of the dues to OASTh from the Value Added Tax (VAT) difference [10].

According to newspaper articles [11], even in 2019, the largest share of the shareholders of the old private OASTh continued to siphon off public money through “Heraklis,” the supply cooperative, which was essentially the alter ego of OASTh. And this was because Heraklis owned the properties used by OASTh, i.e., its administrative offices on Papanastasiou and the two depots in Foinikas and Stavroupoli. For all this, it was paid an amount of over 1.5 million euros. The story of Heraklis is inextricably linked to that of the private OASTh and, therefore, equally sinful, according to newspaper articles [11]. The supply cooperative was set up by OASTh shareholders and essentially functioned as a tool to increase their profits. Although the founding Law 3721/1957 of OASTh expressly provided that the Organization must install the necessary depots, bus repair and maintenance workshops, and fuel distribution facilities “exclusively for its needs,” this was never done and probably not by accident. The same law even imposed an additional 13% on the price of the ticket for the depreciation of the buildings and housing facilities and other needs since OASTh would allocate equity funds “for such facilities, buildings, and machinery,” and all this would be perambulated with the termination of the contract in the ownership of the state free of charge if they had been depreciated or with the payment of compensation equal to the underappreciated value. That additional 13% was collected, but this money was never used for the purpose required by law. The shareholders of OASTh preferred that the Organization not have its own buildings and facilities, and they created Heraklis, which they loaned from OASTh to buy the required land for the depots, which they then rented. Heraklis had also signed a contract with OASTh that would be the only fuel supply unit to the Organization. In fact, Heraklis sold these fuels to the OASTh at retail prices. Somehow the supply cooperative acquired a fortune with the money of OASTh, its shareholders and OASTh shareholders collected in addition to the dividends of the Organization and additional profits from their shares in the permanently profitable Heraklis [11].

4 The current state of OASTh after its nationalization

After many thoughts and negotiations in 2017, the decision was made by the then government of Greece to change hands on the management of the OASTh and nationalize it. This change and the corresponding Law 4482/2017 that confirmed it was passed by the Greek Parliament in about the middle of the year 2017, and thus, the nationalization of the OASTh took place. The government’s goal was to liquidate the Organization and avoid scandals, increase the profits, improve the mobility of the people of the city, and better quality and more comfortable living conditions in the means of transport, but mainly the government’s goal in 2019 was to abolish OASTh and a new public company to take its place, Urban Transport of Thessaloniki (hereafter ASYTh, after its Greek abbreviation) [12-13].

All this would be carried out with the liquidation and valuation of the value of OASTh by an accounting firm and some employees of OASTh, and then the project would be undertaken in accordance with the founding Law 4482/2017 of the Transport Authority of Thessaloniki (hereafter OSETh, after its Greek acronym) and its subsidiary ASYTh. Nevertheless, there were many delays in the process [12-13].

The plans, studies, and planning of this new management and change envisaged the purchase of new buses so that the public transport operator would have a fleet of approximately 400 buses to serve the entire city. Despite the studies and promises of the government at that time, buses failed to be purchased. In order to meet the need to serve the city and not leave Thessaloniki without buses, it was decided to extend the lifetime of vehicles from 20 to 23 years. However, instead of increasing, the number of buses decreased again, and from the 400 buses that should circulate in the city, there were just 350 and, on many days, even 320 in 2019 [12].

The lack of buses was a big problem as it had many consequences for the city’s mobility. OASTh, in 2019, had less than 50% of its fleet in operational readiness (it has approximately 600 vehicles) and is, therefore, unable to offer quality services. A natural consequence of all of the above was the less frequent routes, which in turn resulted in greater overcrowding. It was a common phenomenon, especially during peak hours (morning and evening hours), that buses fill up from the first three or four bus stops, resulting in not picking up other passengers on the rest of their route [13].

Another severe problem that afflicted bus passengers after the nationalization of OASTh concerned telematics, i.e., the electronic information provision on routes and arrival times of buses at bus stops. The quality indicator regarding telematics was collapsing. Many “smart” stops were under-functioning or out of order, while dozens of buses did not communicate with the “smart” stops, resulting in incorrect information being given to the passenger public. The maintenance of the telematics systems, after two tenders, was undertaken by a security company that was considered difficult to cope with OASTh’s needs [13-14].

As far as the financial side of things is concerned, OASTh received about 40 million euros from the state grant provisioned by a Joint Ministerial Decision of 2014, plus several million more from money owed to OASTh from past years, from various ministries (Labor, Education, National Defense) but were paid later. At the same time, the operating costs of the OASTh were reduced as the dividends, amounting to approximately 16 million euros, were no longer paid to the shareholders, while significant savings were also made by reducing the salaries of the 2,300 employees by approximately 18%. Nevertheless, it is unknown whether OASTh, despite these brave cuts, has recorded a primary surplus, as, in the meantime, there has been a drop in revenue due to the escalation of ticket evasion. It is a common secret that, at least in 2019, most passengers refused to buy a ticket citing the awful transport conditions and the lack of inspections [13].

5 Methodology

In order to find out what the passengers OASTh think regarding the nationalization of the Organization and the level of service, a questionnaire survey was conducted in 2019 that was developed with the use of the Google Forms online platform. The questionnaire was disseminated through social media, using a modified snowball sampling technique, i.e., those who answered it were kindly asked to disseminate it even further.

In 2019, “economic passengers,” a size approximating passenger traffic, stood at 102,612,781 [15], but this number is not accurate due to massive fare evasion, and it corresponds to trips and not users, the number of whom is unknown. Therefore, it cannot be considered the population of the sample.

6 Results

The questionnaire was answered by 213 respondents.

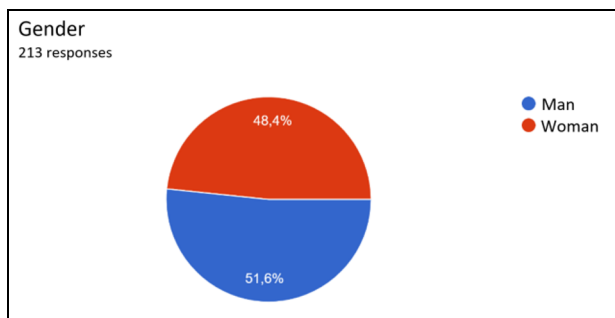


Fig. 1. Gender.

As seen in Fig. 1, the sample consists of 110 (51.6%) men and 103 (48.4%) women.

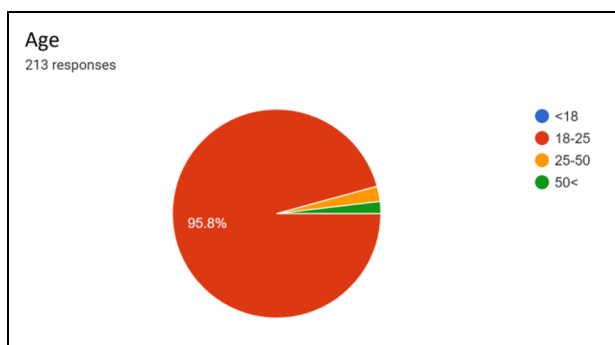


Fig. 2. Age.

As seen in Fig. 2, the sample consists of 204 (95.8%) of the age group 18-25 years old, 5 (2.3%) of the age group 26-50 years old, and 5 (1.9%) of the age group >50 years old.

The sample seems not to be representative, but considering the fact that Thessaloniki has a large student population and the fact that pupils and students usually do not own private means of transport and, therefore, are public transport users out of necessity, the sample is not very far from the population of the passengers, especially considering the very low level of service of OASTh during the period of the survey [16].

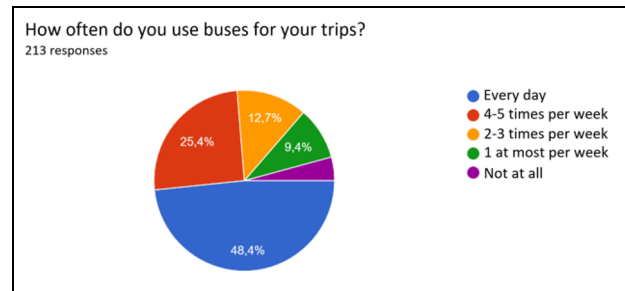


Fig. 3. How often do you use buses for your trips?

In regard to the question “How often do you use buses for your trips?”, 103 (48.4%) answered every day, 54 (25.4%) 4-5 times per week, 27 (12.7%) 2-3 times per day, 20 (9.4%) one (1) times at most per week, and 9 (4.2%) not at all (Fig 3).

The often use of public transport by the respondents shows that most of them are public transport users out of necessity, given the very low level of service during the period that the survey was conducted.

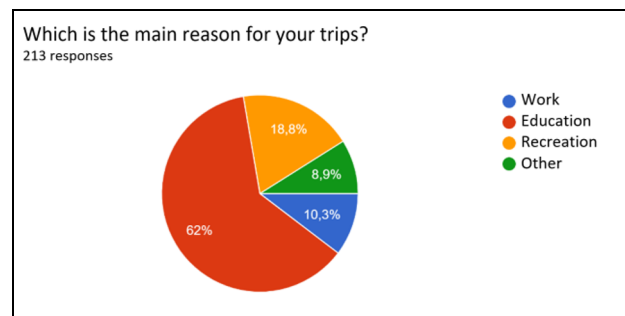


Fig. 4. Which is the main reason for your trips?

In regard to the question “Which is the main reason for your trips?”, 132 (62.0%) answered education, 40 (18.8%) recreation, 22 (10.3%) work, and 19 (8.9%) other (Fig. 4).

These results confirm that most respondents are students who use public transport for daily commuting.

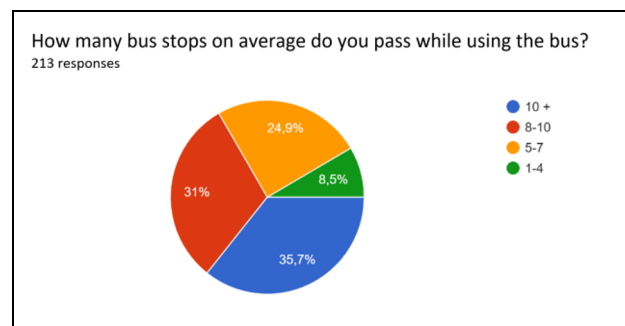


Fig. 5. How many bus stops on average do you pass while using the bus?

In regard to the question “How many bus stops on average do you pass while using the bus?”, 76 (35.7%) answered more than 10, 66 (31.0%) from 8 to 10, 53 (24.9%) from 5 to 7, and 18 (8.5%) from 1 to 4 (Fig. 5).

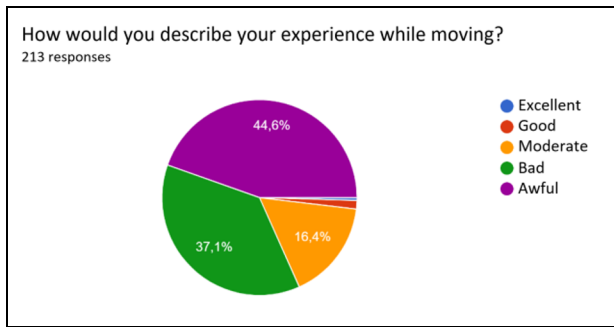


Fig. 6. How would you describe your experience while moving?

In regard to the question “How would you describe your experience while moving?”, 95 (44.6%) answered awful, 79 (37.1%) bad, 35 (16.4%) moderate, 3 (1.4%) good, and 1 (0.5%) excellent (Fig. 6).

It is indicative of the situation that only 1.9% answered that their experience was good or excellent, results that describe a collapsed public transport system.

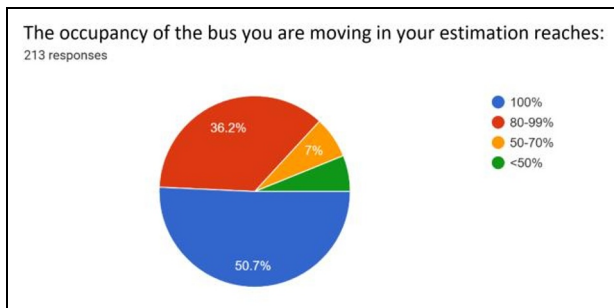


Fig. 7. The occupancy of the bus you are moving in your estimation reaches?

In regard to the question “The occupancy of the bus you are moving in your estimation reaches?”, 108 (50.7%) answered 100%, 77 (36.2%) 80-99%, 15 (7.0%) 50-70%, and 13 (6.1%) less than 50% (Fig. 7).

The reader should keep in mind that for passengers, 100% means that the bus is full to the point that the passenger cannot enter, and not that all the seats are occupied, as the respective indicator is used by transportation engineers.

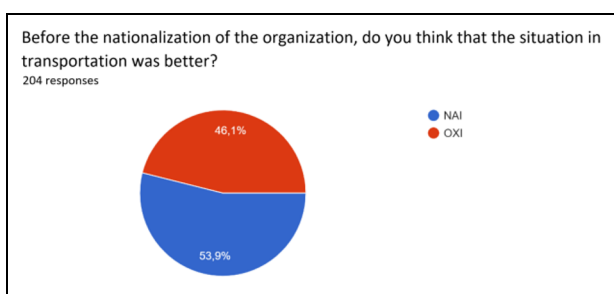


Fig. 8. Before the nationalization of the organization, do you think that the situation in transportation was better?

In regard to the question “Before the nationalization of the organization, do you think that the situation in transportation was better?”, 110 (53.9%) answered yes, and 94 (46.1%) no (Fig. 8).



Fig. 9. Do you think that the price of the ticket you pay corresponds to your fast and comfortable passenger travel?

In regard to the question “Do you think that the price of the ticket you pay corresponds to your fast and comfortable passenger travel?”, 175 (82.2%) answered no, and 38 (17.8%) yes (Fig. 9).

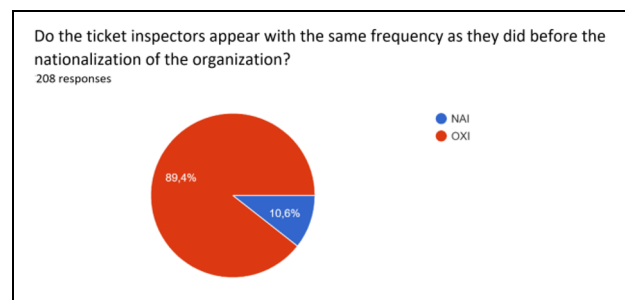


Fig. 10. Do the ticket inspectors appear with the same frequency as they did before the nationalization of the organization?

In regard to the question “Do the ticket inspectors appear with the same frequency as they did before the nationalization of the organization?”, 186 (89.4%) answered no, and 22 (10.6%) yes (Fig. 10).

7 Discussion

7.1. Problems

The biggest problem that emerged from the questionnaire survey was that OASTh, after its nationalization, has, according to the people who filled out the questionnaires, greatly reduced its itineraries and the buses that operated them. In addition to the fact that most buses are full, this results in delays for passengers in their obligations as itineraries were very sparse, even on the most important lines. The line with the biggest problem appears to be the one that transports the students from the New Railway Station (NRS) to the Alexander Technological Educational Institute of Thessaloniki of Sindos, today the Alexander campus of the International Hellenic University. Due to the heavy load, the bus is overcrowded, resulting in many students missing their classes and laboratories as they have no other means of transport. Similar problems also occur in the area of Ano Toumpa, as the area is served only by line 14, which in the morning peak hours was filled from the first stop.

Another problem on the part of passengers was found in the OASTh telematics system. Unfortunately, after the nationalization of OASTh, the system collapsed. The itineraries listed in the application were incorrect; therefore, the buses were never on time. The Variable Message Signs (VMS) at the smart stops often showed false arrival times, and either the passenger was forced to wait much longer than the indicated time or did not catch up.

Passengers also considered a significant problem to be the reduction in ticket inspections. The frequency of inspections by ticket inspectors had decreased noticeably, with the result that many passengers were traveling without paying the corresponding fee, and thus, the organization was losing lots of revenue. It is now clear that there were more ticket inspections before the nationalization of OASTh.

Another problem that made it difficult to travel by bus was the increase in petty crime on buses. Taking advantage of the fact that most buses were overcrowded, many fraudsters and thieves boarded the buses solely for this reason.

Finally, after the nationalization of OASTh, many passengers, mainly from southern Thessaloniki, have complained about the modification of urban lines. A typical example is the deletion of the route performed by line 8. According to them, this caused overcrowding on the other lines that ran parallel to line 8, as it was not replaced with something worthy.

However, an important problem that existed and was not mentioned when OASTh was private was the many work strikes made by the employees claiming their earnings. This resulted in a large city like Thessaloniki being left without public transport for many days, with the consequence that people could not be transported, or it was challenging to transport them to different parts of the city.

All these problems led the inhabitants of Thessaloniki to have a bad opinion about the public transport system of the city [17].

7.2 Possible solutions

One of the main ways by which OASTh will recover its level of service is funding from the state and the European Union in order to maintain the old buses and buy or lease new ones. During the questionnaire survey, OASTh had a fleet of approximately 600 buses, out of which less than 320 were used during the questionnaire survey. Currently, the situation has been improved, as OASTh leased new buses and has started a public procurement of new electric buses, as the European Union demands.

Now that OASTh is in state hands, the state and those responsible for its operation should give it more attention. It is essential to create a renewed information provision service in which the passengers will be able to evaluate the drivers and the bus lines so that each route is executed correctly and, above all, at the time indicated in the relevant application.

Another more extreme solution is to “break” the monopoly of OASTh in the operation of the public transport in the city so that those in charge start thinking about what went wrong in the planning of the Organization or OSETh launches a bidding process for the public transport operator of the city; a requirement that would be valid in case OASTh remained a private organization. Greeks believe the quality of infrastructures will be improved after privatization, but prices will be significantly increased [18], given the economic crisis [19]

The metro, for better or for worse, will bring many changes to the mobility of the city, but buses will always be needed to feed the metro and service the areas in which there will be no metro. The creation of a tram or a Bus Rapid Transport (BRT) system could greatly help the city decongest and help many areas without a metro.

A final solution proposed by bus passengers is the mandatory ticket charge for each passenger so that the Organization does not lose revenues and thus improves and becomes better. This could be achieved with special machines which would be placed at each door so that the passenger cannot enter them without being charged the corresponding price, or even better the implementation of an electronic ticket system.

Apart from the solutions mentioned above, new technologies and innovative public transport solutions can be applied to make public transportation more attractive [20-25].

8 Conclusions

It is easy to conclude that during the period of the questionnaire survey, the people were outraged by the poor operation of OASTh. There were many problems that passengers faced on a daily basis. A large percentage of the people believed that OASTh operated much better before it was nationalized. From the evidence we collected for this paper, we conclude that this is right. OASTh operated more smoothly before its nationalization.

In order for an urban transport organization in a city to function properly, there must be an organized plan that is followed faithfully, and there must be adequate supervision that will control the operation of the public transport operator. While private, OASTh had larger revenues because passengers were forced to buy a ticket, nevertheless, not as much as they would in case the state did not guarantee the profits of OASTh.

Perhaps due to the difficult economic conjuncture of the Greek state, it would be better for both the state and the passengers for OASTh to become private again; nevertheless, such a proposal cannot be realistic without a proper feasibility study and without eliminating all the ailments of the past. Another solution would be to follow the initial plan. After the completion of the metro construction works, its operation, the liquefaction, and the assessment of OASTh value, all the public transport of Thessaloniki would be operated by ASYTh, but this never happened.

The creation of other means of urban transport in the city, apart from the metro, would greatly facilitate the mobility of passengers and could give different options to them. Such a means could be, apart from the metro, a tram, or a BRT system. For example, the area of Ano Toumba is currently served by a single bus line.

Finally, by the end of 2019, all the necessary procedures should have been completed so that OASTh would be replaced by ASYTh. This plan has been abandoned, which is another indication that the nationalization of OASTh was not well planned.

References

1. Organization of Urban Transportation of Thessaloniki, *Homepage* (n.d.), <https://oasth.gr/>
2. Organization of Urban Transportation of Thessaloniki, *History* (n.d.), <https://oasth.gr/#en/history/>
3. D. Nalmpantis, K. Gioldasis, A. Matafia, *The evolution of Public Urban Transport systems in the city of Thessaloniki* (MSc thesis, Aristotle University of Thessaloniki [in Greek], 2000)
4. A. Naniopoulos, D. Nalmpantis, *Thessaloniki* **6**, 207–244 (2002) [in Greek]
5. A. Naniopoulos, D. Nalmpantis, *Thessalonikeon Polis* **3**, 37–58 (2000) [in Greek]
6. A. Naniopoulos, D. Nalmpantis, *Proc. of the International Conference “Contemporary Tram & L.R.T. Systems* 1–16 (2003) [in Greek]
7. A. Naniopoulos, D. Nalmpantis, *Thessaloniki highlight: Maps memories*, 227–240 (National Centre for Maps & Cartographic Heritage, Thessaloniki, 2008) [in Greek]
8. P. Gklavinis, *Why is it necessary to nationalize OASTh* (2016) [in Greek], <https://www.liberal.gr/apopsi/giati-epiballetai-na-kratikoipoiitheoi-o-oasth>
9. Parallaxi, *The incredible profits of OASTh in the period 1990 – 2016* (2017) [in Greek], <https://parallaximag.gr/thessaloniki-news/taxi-epistefi-kerdi-tou-oasth-tin-periodo-1990-2016>
10. Voria, *What the inspectors found in OASTh in the audit for 2016* (2017) [in Greek], <https://www.voria.gr/article/ti-vrikan-i-epitheorites-ston-oasth-ston-elegcho-gia-to-2016>
11. I Avgi, *Former shareholders of the Organization of Urban Transport of Thessaloniki, continue to drink to the health of the State* (2019) [in Greek], https://www.avgi.gr/koinonia/304836_proin-metohoi-toy-oasth-synehizoyn-na-pinovn-stin-yeia-toy-dimosioy
12. N. Iliadis, *One year of state Organization of Urban Transport of Thessaloniki: progress or regression?* (2019) [in Greek], <https://web.archive.org/web/20220625023912/https://www.voria.gr/article/enas-chronos-kratikos-oasth-proodos-i-opisthodromisi>
13. V. Mandravelis, *The nationalization derailed the public transport of Thessaloniki* (2019) [in Greek], <https://www.kathimerini.gr/economy/business/1014929/i-kratikoipoiisi-ektrochiase-tis-astikes-sygkoinonies-thessalonikis/>
14. A.-A. Papaioannou, *Transportation in Thessaloniki: problems and passenger behavior* (BSc thesis, University of Western Macedonia, 2019), <http://anaktisis.uowm.gr/id/eprint/10029>
15. N. Iliadis, *OASTh: How much has the pandemic affected routes and passenger traffic – The data* (2019) [in Greek], <https://www.voria.gr/article/oasth-poso-epirease-i-pandimia-sigkinoniako-ergo-ke-epivatiki-kinisi>
16. C. Braziotis, I.-E. Tsali, E. Genitsaris, A. Naniopoulos, D. Nalmpantis, *Advances in Intelligent Systems and Computing* **1278**, 445–454 (Springer, Cham, 2021)
17. D. Anastasiou, A. Tasopoulou, G. Gemenetzi, Z. Gareiou, E. Zervas, *Urban Des. Int.* **27**, 18–42 (2022)
18. E. Vougioukalakis, Z. Gareiou, E. Drimili, L. Vatikiotis, E. Zervas, *Proc. of ICED2020*, (Hellenic Open University, Patras, 2020), https://iced.eap.gr/wp-content/uploads/ICED2020/Posters/IDED2020_poster_37.pdf
19. E. Chita, E. Drimili, Z. Gareiou, C. Milioti, A. Vrana, S. Pouloupoulos, E. Zervas, *Promet* **32**(3), 347–360 (2020)
20. V. Gouni, F. Kehagia, D. Nalmpantis, *IOP Conf. Ser.: Earth Environ. Sci.* **1123**, 012052 (2022)
21. D. Nalmpantis, A. Roukouni, E. Genitsaris, A. Stamelou, A. Naniopoulos, *Eur. Transp. Res. Rev.* **11**, 22 (2019)
22. S. Tsafarakis, P. Gkorezis, D. Nalmpantis, E. Genitsaris, A. Andronikidis, E. Altsitsiadis, *Eur. Transp. Res. Rev.* **11**, 3 (2019)
23. E. Genitsaris, A. Stamelou, D. Nalmpantis, A. Naniopoulos, *Advances in Intelligent Systems and Computing* **879**, 526 (Springer, Cham, 2019)
24. A. Stamelou, E. Genitsaris, D. Nalmpantis, A. Naniopoulos, *Advances in Intelligent Systems and Computing* **879**, 496 (Springer, Cham, 2019)
25. E. Genitsaris, A. Roukouni, A. Stamelou, D. Nalmpantis, A. Naniopoulos, *Knowledge, Innovation & Growth* (ICEIRD, Thessaloniki, 2017)