VRIJE UNIVERSITEIT BRUSSEL

Thesis submitted in fulfilment of the requirements for the degree of
Master of Science in Urban and Spatial Planning (STeR*)

EXPLORING FARE-FREE PUBLIC TRANSPORT IN BRAZIL

Rationales and characteristics of *Tarifa Zero* policies in small Brazilian municipalities

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2020-2021

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This master's thesis came about (in part) during the period in which higher education was subjected to a lockdown and protective measures to prevent the spread of the COVID-19 virus. The process of formatting, data collection, the research method and/or other scientific work the thesis involved could therefore not always be carried out in the usual manner. The reader should bear this context in mind when reading this Master's thesis, and also in the event that some conclusions are taken on board.

Abstract

Mass manifestations in June 2013 put fare-free public transport (FFPT) in Brazil back on the political agenda. Since then, FFPT in Brazil (*Tarifa* Zero or *Passe Livre*) has been researched broadly from a variety of angles. The experiences of the different localities where FFPT was implemented, however, have remained largely understudied. Through a combination of desk research and informal interviews, this thesis aims to provide an overview of municipalities that have implemented full FFPT, exploring (a) *why* they implemented it, and (b) what the economic, financial and political aspects of the FFPT policies in place are. Preliminary results indicate that although each context is different, some patterns can be distinguished. FFPT is usually an unplanned policy, implemented out of necessity, at a moment when there was no or an insufficient PT service present in the municipality. Besides some exceptions, the FFPT system is usually financed directly by the existing municipality budget; no extra taxes are levied on local inhabitants or companies. The findings in this work are a first attempt to bring information about FFPT experiences in Brazil together, and hereby points to a variety of gaps and questions for future research.

Keywords

Public transport policies, urban mobility, right to the city

A utopia está lá no horizonte. Me aproximo dois passos, ela se afasta dois passos. Caminho dez passos e o horizonte corre dez passos. Por mais que eu caminhe, jamais alcançarei. Para que serve a utopia? Serve para isso: para que eu não deixe de caminhar.

Utopia is on the horizon. I move two steps closer; it moves two steps away. I walk ten steps and the horizon runs ten steps. No matter how far I walk, I will never reach it. So what is utopia for? It is there to make sure I never stop walking.

- Eduardo Galeano

Acknowledgements

I have to admit: this thesis topic was plan B. Plan A was carrying out research in Palestine. As this plan was quite literally cancelled by COVID-19 in March 2020, I had to shift gears and start anew, now with a completely different focus. I must also admit: I am very happy I did. This topic has reconnected me with the country that feels like my second home, a place where years ago I have met many lovely people, some of whom I consider as my dearest friends today. It is partly because of and thanks to them, I managed to carry out this research the way I did. Their contacts, their support, their inspiration, and their encouraging words have been of great value throughout this process. I would like to express a special thanks to Evelyn Araripe, Dayana Araújo, Silvia Stuchi Cruz, Tati Teles, Aline Cavalcante, Laura Sobral, JP Amaral and Guilherme Tampieri for being my eternal sources of enthusiasm and inspiration. Not part of the Brazilian, but of the 'Ecuadorian' gang: Louise Sträuli, it was a pleasure to re-meet you, and be inspired by your knowledge about this topic (and other things that are important in life).

I would like to express my enormous gratitude to all the Brazilians I was in touch with, and who gladly supported me (us) in this challenge. Thank you Daniel Santini and Rafael Calabria, for getting this research started, and for providing us with very useful resources and information. Thanks, Daniel, for your trust in me to give a presentation about Brazil to an international audience. A special thanks to Team Mobilize, mainly to Marcos de Sousa and Marília Hildebrand, for your professional and personal support. Thank you, André Veloso, for sharing your knowledge and research, and for putting me in touch with Marcos Fontoura, who has also taught me so much in so little time. Thank you Vitor Mihessen, for teaching me more about Rio, and for your enthusiasm. Merci, Daniel Caribé, for your time and for sharing your passion with this topic. Your insights have brought this thesis to a 'next level'. Neiva Lopes, I do not know what this thesis would have become without you, either. I was blown away by your dedication and analysis, which have provided me with great inspiration. I am looking forward to working together with you in the future. Rafael Pereira, thank you for pointing me towards an important social justice angle, and for the triangulation. Obrigada, também, ao Marcel Oliveira, for taking the time to respond to my questions about Morungaba, and for the inspiration I drew from your thesis (including Eduardo Galeano's quote). It was a pleasure to exchange with you.

Of course, this thesis would not have existed nor be what it is without the time and dedication of global FFPT expert Wojciech Kębłowski. I am really grateful for our frequent exchanges, our chats and e-mail conversations, as well as for your enthusiasm. I was very glad to become part of the LiFT team – special thanks to Dori and Daniel for their feedback – and I am looking forward to our future project(s). A great thank you as well to Kobe Boussauw and Koos Fransen. It was a true pleasure working and exchanging with you, and learning from you. Thank you for the support, faith and trust. Of team Cosmopolis I would also like to express my gratitude to Kandice for the cheers every time I had to give a presentation, and to Eva Van Eenoo for the fun and learnings while working together, for keeping in touch afterwards, for the lifesaving writing tips and tricks, and for the very helpful feedback.

A very very special thanks to Wim who took the effort to proofread this entire (!) thesis, and improving the text overall. I am sure also the readers will be grateful to you.

And last but not least, I thank my homies and my family for their support and patience, for understanding my lack of time because "die thesis gaat zichzelf niet schrijven". I am looking forward to spending more time with you soon.

Table of contents

List of Tables

List of Figures

List of abbreviations

FFPT – Fare-free Public Transport

MPL – *Movimento Passe Livre* (Free Pass Movement)

PT – Public Transport

Brazilian states (mentioned in this thesis)

BA - Bahia

CE – Ceará

GO – Goiás

MG – Minas Gerais

PR – Paraná

RJ – Rio de Janeiro

RS – Rio Grande do Sul

SP – São Paulo

1. Introduction

In June 2013, millions of Brazilians took to the streets. These protests, also known as '*Jornadas de Junho*' ("The June Days") or '*Manifestações dos 20 centavos*' ("20 cents protests"), are also sometimes called the '*Nova Revolta do Vintém*' ("the new Vintém revolt"). The original *Revolta do Vintém* took place in 1879-1880 in Rio de Janeiro city, and is often referred to as the first public transport (PT) related uprising in Brazil. When the population of the city learned that a tax of 20 réis (i.e. a '*vintém'*) would be levied on PT users, a series of protests – including acts of civil disobedience – took place: citizens marched in the streets, occupied squares, and negotiated with parliamentarians, transforming the city's political culture (Fernandes, 2009). Between then and June 2013, many other PT related protests took place throughout the country, such as the '*quebra-quebra'* in 1947 in São Paulo, the '*Revolta das Barcas'* in 1959 in Niterói, the '*Revolta do Buzu'* in 2003 in Salvador, and the '*Revolta da Catraca'*[1] in 2004 and 2005 in Florianópolis (Gregori, 2018; Santini, 2019). According to de Lima & Wisentainer (2019), in the beginning of the 2000s a shift happened in the struggles for PT. From previously being fairly spontaneous and decentralized, the movement started to organize their actions beforehand, and communicate about them widely. The main actors within this movement, fighting for just and decent PT, were no longer workers, but students. The topic gained importance within militant student groups throughout the country, and during the *Revolta do Buzu* in Salvador students expressed a demand for fare-free public transport (FFPT) for the first time. Two years later, at the World Social Forum in Porto Alegre, '*Movimento Passe Livre'* (MPL) ("Free Pass Movement") was born. Today, the movement defines itself as an "autonomous, nonpartisan, horizontal and independent social movement that fights for a truly public transport, which is free for the entire population and out of private hands"[2] (Movimento Passe Livre, n.d.).

[1] '*Catraca'* ("turnstile"), is a mechanism through which one has to pass after having paid for bus or metro. *Catracas* have become a symbol for the barriers to (the right to) the city in Brazil, the expression of transport as a profit-generating business rather than a public good (e.g. Gregori et al., 2020; Harvey et al., 2015). As mentioned by D'Andrea (2018) the '*catraca'* is something unique to Brazil. He cites a variety of examples of European and Latin-American cities where turnstiles in buses, and even in trains (e.g. Buenos Aires) do not exist.
[2] Many of the sources of this thesis are in the Portuguese language. All translations are done by myself, to the best of my abilities.

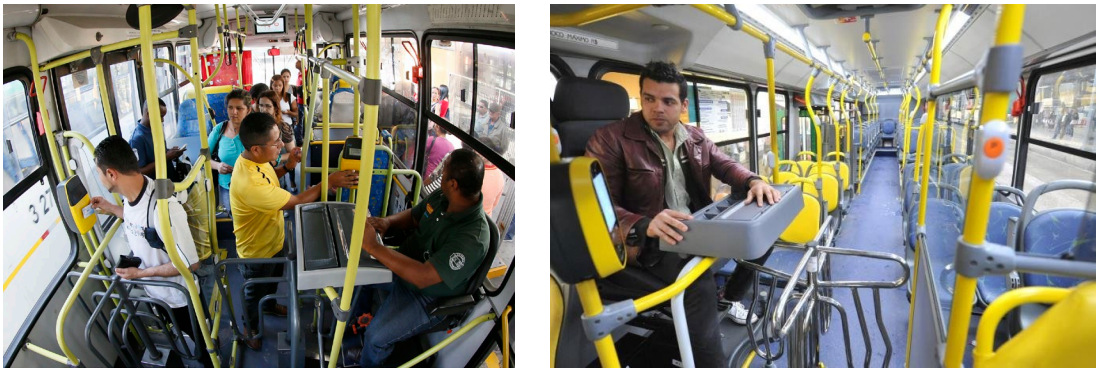

Figure 1: Fee collectors and turnstiles in Brazilian urban buses
Image credits: César Ogata/Secom (left) and Mauro Schaefer/CP Memória (right)

Manifestations triggered by PT related discontent are thus not uncommon in Brazil. The June Days were probably the largest the country has seen so far. A fare increase from R$3[3] to R$3,20 woke up a wave of indignation in the population. For many Brazilians, PT is the only means to reach their jobs, public services such as health, education and culture, and also leisure. The country's PT systems are mostly limited, precarious and overcrowded (de Lima & Wisentainer, 2019; Gregori et al., 2020; Sampaio in Ramos et al., 2019). To raise PT fares, therefore, was yet another slap in the face of those already having troubles making ends meet. The first 2013 protests were organized by MPL, represented in many cities throughout the country. These acted as a "spark that started the prairie fire" (Rolnik in Harvey et al., 2015) of mass protests that followed (de Lima & Wisentainer, 2019; Gregori et al., 2020; Harvey et al., 2015).

During its first years of existence, MPL's demand was FFPT for students (Gregori et al., 2020). Claiming FFPT for a specific group of the population is very common in Brazil. Throughout the country's history many movements (e.g. students, unemployed, etc.) have campaigned for *partial* FFPT, and many law projects have been drafted to meet these demands (Domingues, 2020). The '*Tarifa Zero*' ("zero fare") project (discussed in 2.4), formulated in 1989 for the city of São Paulo, was

[3] All the monetary values in this thesis are mentioned in Brazilian Reals (BRL). They have not been converted to another currency, as its value has fluctuated a lot since the 1990s: in 01/01/1994 1 EUR would convert to 1.34 BRL, while on 01/01/2021 1 EUR buys 6.37 BRL (calculated at https://fxtop.com/en/historical-currency-converter.php).

the first law project in the country proposing *universal* FFPT. It started from the premise that in the current Brazilian PT system, when one group is subsidized, it means the fare rises for those who still have to pay. After understanding the philosophy behind this project, the idea of FFPT *for all* became backed by the movement in 2005 (Gregori et al., 2020). Its discourse therefore shifted towards fighting for PT as a right, one that is fundamental to guarantee access to other public services, and the movement joined forces with other social (urban) movements, fighting for the right to housing, culture, health, etc. (Harvey et al., 2015).

Movements around the world that fight for FFPT indeed do not do this in a vacuum. The demand for FFPT is usually imbedded in a broader context, a call for change on a more holistic level, such as the right to the city[4] (see e.g. Brie et al., 2019; Fix et al., 2015; Vangeest, 2020), right to mobility (see e.g. Brie et al., 2019; Verlinghieri & Venturini, 2018), transit justice, spatial justice, racial justice (see e.g. Enright, 2019), freedom of movement, transport poverty (see e.g. Brie et al., 2019), etc. Some movements challenge PT fares in order to push back against broader systems of power. The Swedish movement Planka.nu, for example, deeply criticizes today's mobility structure, and connects it to existing power relations (e.g. automobile industry lobbying and governments) and the security-industrial complex (where similar tools, such as cameras and turnstiles, are used to control populations) (Planka.nu, 2016; Vanoutrive, 2017). Larrabure (2016) further argues the Brazilian free transit movement of June 2013 challenges neoliberalism and envisages a postcapitalist future.

In Brazil, these protests and movements emerge in a context of particularly stark social inequality. According to World Bank data available in 2020, Brazil was the

[4] The idea of the 'right to the city' is a term first coined by Henri Lefebvre in his 1968 book '*Droit à la ville'*. Today a variety of social movements around the world fight for the right to the city. In his 2013 essay, David Harvey describes the right to the city as "a right to change ourselves by changing the city more after our heart's desire (…). To claim the right to the city (…) is to claim some kind of shaping power over the process of urbanization, over the ways in which our cities are made and re-made (…) the right to the city is constituted by establishing democratic control over the deployment of the surpluses through urbanization (…) The right to the city, as it is now constituted, is far too narrowly confined, in most cases in the hands of a small political and economic elite who are in the position to shape the city more and more after their own particular heart's desire" (Harvey, 2013).

9th most unequal nation globally and likely[5] the most unequal nation in the Americas, with a GINI index[6] of 53,4 (compared to 63 in South Africa, at the bottom of the list, and 27,2 in Belgium, the 10th most equal nation in the list) (World Bank, 2020). Following Gregori and colleagues (2020) the PT system exacerbates the existing exclusion, racism, sexism and precarity that characterize Brazilian society. In 2015, research carried out by economists Samy Dana and Leonardo Lima shows how many minutes an average Brazilian worker needs to work in order to pay for a bus fare. They considered the 27 Brazilian state capitals and 12 large global cities. Most Brazilian capitals are at the top of the list with 15,50 minutes in Maceió (AL), 14,80 in Belo Horizonte (MG), and 13,30 in São Paulo (SP), compared with 11,3 minutes in London, 5,8 in New York, and 4,5 in Paris. At the bottom of the list is Buenos Aires with 2,6 minutes (Magalhães, 2020). At the same time, Brazilians spend a lot of time in transit. For example, an average trip in São Paulo in 2007 was 2 hours and 42 minutes long. For one third of the population, this exceeds 3 hours. '*Paulistas'* (São Paulo inhabitants) spend this time either in their (luxury) cars or in overcrowded buses or trains. The latter is more common, and characterizes the journey of the city's poorest inhabitants, who – due to real estate speculation and other forces – were pushed more and more to live in the "periphery of the periphery" (Maricato in Harvey et al., 2015).

These popular movements – fighting for FFPT from a broader understanding of the right to the city, and spatial, racial, class, etc. justice – have served as a source of inspiration and point of departure for this thesis.

[5] For some countries the World Bank does not provide a Gini Index.
[6] "Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution (…) a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality" (World Bank, 2020).

1.1 Why study FFPT (in Brazil)?

Although FFPT can be seen as a 'niche' policy, its implementation is growing throughout the world (Kębłowski, 2019). At the same time, it remains controversial and under-researched. In order to improve the understanding of this policy on a global scale, the LiFT ('From Low Fares to No Fares')[7] research project was established: a collaboration of the Free University of Brussels (VUB) and the Luxembourg Institute of Socio-Economic Research (LISER), aiming to unpack both the transport-related (economic, operational) and urban (social, spatial and political) dimensions of FFPT. This thesis can be seen as a part of this broader research effort, a point of departure to increase the understanding of the reality of FFPT in Brazil.

FFPT – locally mostly referred to as *Tarifa Zero* or *Passe Livre* – is currently an intensely debated topic throughout the country, and the implementation of FFPT was promised by multiple candidates during the last municipal elections in 2020 (including in São Paulo, Curitiba and Belo Horizonte). Interestingly, in academic literature, Brazil is so far the only registered country in Latin America (see Kębłowski, 2019) where some municipalities offer FFPT to their residents. The first municipality, Monte Carmelo (MG), implemented FFPT in 1994, four years after the proposal for *Tarifa Zer*o in São Paulo was wiped off the table. Between then and today, about 30 municipalities followed.

However, in most discussions held throughout the country about urban mobility policies and *Tarifa Zero*, municipalities with FFPT seem to go unnoticed. Further, the motivations behind why they implemented FFPT have so far not been investigated in detail. In a recently published PhD thesis on FFPT and the right to the city in Brazil by Daniel Andrade Caribé, the author states "never a study was done of the motivations which led Brazilian cities to adopt gratuity in collective transportation, for how long they managed to keep it and which were the impacts

[7]https://www.cosmopolis.be/research/low-fares-no-fares-analysis-economic-operational-socio-spatial-and-political-dynamics-fare

(specifically the budgetary, social, economic and ecological impacts)" (Caribé, 2019, p. 190).

The main goal of this master's thesis is to look into that 'why' question. The process towards finding answers to this question revealed a first gap in the literature: a complete overview of which municipalities in Brazil have adopted FFPT does not seem to exist. As PT in Brazil is a municipality responsibility, often outsourced to private companies, information regarding (fare-free) PT in Brazil is not centralized nor particularly transparent. Information about FFPT is scattered, not always up to date, and sometimes contradictory. Therefore, the first research question put forward for this thesis is: *where in Brazil has FFPT been fully*[8] *applied, and why?* (RQ1) Further, this research explores the available information to find some preliminary answers to the second research question: *what are the operational, economic and political aspects of FFPT in Brazilian municipalities?* (RQ2) This thesis thus seeks to obtain data in order to address the formulated research gaps, and aspires to discover what we – in Belgium, in Europe – can learn from *Tarifa Zero* movements and experiences in Brazil.

The remaining part of this thesis proceeds as follows: in chapter 2, the literature review first provides a definition for FFPT in the framework of this thesis, and then discusses a variety of rationales for its implementation. Next, the context of PT in Brazil is discussed, highlighting how the various PT systems currently function, and how they are financed. This is followed by the story of the first large-scale call for universal FFPT in the country, and a short summary of existing literature on FFPT localities in Brazil. Chapter 3 then sets out the broader framework of this research, and the methodology applied in order to obtain the results, discussed in chapter 4 and 5. While chapter 4 focuses specifically on characteristics of the experiences of Brazilian municipalities with FFPT, chapter 5 brings different elements together, including results from interviews with researchers and experts in the field of (fare-free) public transport and urban mobility in Brazil. Concluding remarks are formulated in chapter 6.

[8] FFPT here refers to 'full' FFPT, as set out in paragraph 2.1 What is Fare-Free Public Transport (FFPT)? below.

2. Literature review

To analyze the research questions put forward, and to start exploring FFPT in Brazil, I rely on three bodies of literature. First, paragraph 2.1 provides a definition for 'Fare-Free Public Transport'. Second, section 2.2 gives an overview of the main motivations behind the implementation of FFPT throughout the world. The third and last part of this chapter introduces the Brazilian PT context, and shortly describes the existing research on Brazilian localities with FFPT. The goal of this section is to support the reader with the understanding of the broader political context, and of the analysis of the specific cases of FFPT that will be discussed later.

2.1 What is Fare-Free Public Transport (FFPT)?

First, it is important to clearly define how FFPT can be understood in the framework of this thesis. For this purpose, I draw on Kębłowski's (2018) argument that even though FFPT seems like a simple and straightforward concept, it has been implemented in a variety of ways. The main distinction he makes is between 'full' and 'partial' FFPT. He speaks of 'full' fare abolition when "fares do not apply to (a) the great majority of transport services, to (b) the great majority of its users, (c) most of the time" and that it should "(d) be in place for at least twelve months" (Kębłowski, 2018, p. 1). 'Partial' fare abolition, then, can be divided into three main forms. First, FFPT can be limited in terms of who benefits from it (e.g. children, students, elderly, people with reduced mobility (and their caretakers), low-income residents, etc.). Second, FFPT can be restricted to certain locations or transport lines (e.g. local ferries, short-distance buses, etc.). Third, it is possible that one can only travel for free at certain moments of the day (e.g. before 7:00am), of the week (e.g. on weekends) or of the year (e.g. January 1st or the first day of every month) or temporarily because of a specific event (e.g. car-free days, high air pollution levels, etc.). 'Partial' FFPT systems are thus socially, spatially or temporally limited. Particular situations where only one or two fare-free routes are available are not counted by Kębłowski (2018) as 'full-fledged

public transport systems'. In Brazil, however, there are some municipalities whose PT 'system' only consists of one or two routes, sometimes sufficient to serve most of the local inhabitants. Therefore, these smaller systems will also be considered in what follows. Further, municipalities where FFPT was implemented only recently (less than one year ago) are also touched upon, in light of the exploratory nature of this thesis.

2.2 Rationales behind FFPT implementation

The reasons why municipalities implement FFPT tend to follow certain regional patterns (Kębłowski, 2019). In the United States, for example, the rationale is often economic. The goal of the policy is to increase under-used PT networks, stimulate the local economy, reduce operational costs, etc. In Europe, motivations are usually more ecological and/or socio-political in nature: reducing car use or considering collective transport as a common good, to which everyone should have unconditional access. In what follows, various rationales for FFPT are discussed in more detail and categorized as either ecological, economic, social or political.

Ecological motivations are usually related to modal shift. The belief is that making PT fare-free could motivate car users to switch to PT. As a consequence, there would be fewer cars in the city, and thus less greenhouse gases and air pollution. This generates positive environmental effects on both local (cleaner air for inhabitants) and global (reducing the impact on climate change) scale.

Previous research has shown that PT use depends on a variety of factors (Cats et al., 2017; Cervero, 1990; David et al., 2018), and that increasing automobile prices has significantly greater effects on modal shift than decreasing fares (Cats et al., 2017; Cervero, 1990). Consequently, eliminating fares as a standalone policy will not necessarily have the desired impact on modal shift. Bull and colleagues (2019) carried out a randomized control trial in Santiago, Chile, where individuals were given a public transportation pass allowing them FFPT for two weeks. The authors did not find an impact of FFPT on car trips. They did, however, register a 21% increase in off-peak PT trips. They conclude that FFPT

implementation does not lead to modal shifts, but rather to an increase in the number of trips. In Stavanger, Norway, a FFPT experiment in 2011 found no evidence for reduced car use (Cats et al., 2017). After a research carried out in Paris showed that only 5% of car users would switch to PT, mayor Anna Hidalgo decided not to implement FFPT in the city (Gregori et al., 2020).

Private vehicle users usually possess higher travel standards. In order for them to switch to PT, an improvement in its service level is necessary (Grzelec & Jagiełło, 2020). Further, alongside this 'carrot', also 'stick' policies restricting car travel are required. Examples of such policies are Low Emission Zones, congestion charging or higher parking costs. At the same time, 'carrot' policies are needed for those who travel by foot or cycle. The implementation of FFPT can indeed lead inhabitants to substitute walking or cycling by PT (David et al., 2018; van Goeverden et al., 2006).

Economic arguments, then, are mostly efficiency-related. In the United States, for example, fare prices are often lowered in order to increase the number of passengers, with the goal to decrease the cost per person for the PT companies (Ray, 2019). In the past much research has been dedicated to the expected effects of fare price changes on ridership (also called 'price elasticity') (e.g. Baum, 1973; Cervero, 1990). More often than not, fare changes happen simultaneously with other changes in the service. As a consequence, it is not always straightforward to statistically isolate the effect of price changes from the effect of other changes. Results of fare elasticity research have been mixed (Cervero, 1990) and have shown differences in elasticity between travellers groups (e.g. depending on age or income) (Cats et al., 2017). The impact of FFPT on ridership will thus depend on a variety of factors, amongst which the (composition of the) population.

In some cases FFPT is introduced in order to increase consumption or productivity. The first places where FFPT was offered were city centers in the United States losing customers to shopping centers in the suburbs. Fares were abolished in order to encourage people to return to shopping in the city center (Ray, 2019). In cities like Rome or Bologna, the introduction of FFPT (now abolished) was to facilitate

PT for workers and students. The French '*Versement Transport'* tax - one third of the cost of the urban transport system is financed by a tax levied on business establishments in the city (Gregori et al., 2020) – is also based on the idea that PT plays a vital role connecting workers and employers (Gillies, 2019). If PT is free, it is easier for workers to reach jobs and job opportunities. Modal shift and thus reducing traffic congestion – i.e. less economically valuable time spent in traffic - was also a main motivation for the Grand Duchy of Luxembourg, where fares were zeroed on national level on February 29th 2020 (Le Gouvernement du Grand-Duché de Luxembourg, 2020).

Another economic argument is that charging fares also costs money: the infrastructure of bus or metro stations with turnstiles, publishing tickets, staff that sells tickets, controls tickets, handles customer processes, etc. needs to be paid for. In some cases, like e.g. in Dinan, France, it can be more costly to run a system with fares than one without (Gillies, 2019). Especially in small systems of PT, avoiding ticket-related costs can lead to significant savings (Štraub, 2020). These savings can be offset, however, by an increase in demand (Storchmann, 2003). In Brazil, the cost of the fare collection system is estimated to be 20% of the total cost of PT. Additionally, the current system with turnstiles and fee collectors on the bus takes up space inside the bus of two to four seats (Gregori et al., 2020), decreasing the bus capacity and thus the overall efficiency of the system (see Figure 1 for how this looks like).

Some authors argue that FFPT could financially harm PT networks and generate what they call 'useless mobility' (e.g. Baum, 1973), for example by 'joy-riding kids' or 'intoxicated passengers', or people who would otherwise have walked or cycled instead. When FFPT was implemented in Templin, Germany, only a limited amount of car drivers shifted to PT, while a rather large shift took place among pedestrians and bicycle riders. Even though this effect was not desired, it did lead to a decrease in traffic fatalities and causalities (Storchmann, 2003). These examples remind us that a policy can have a variety of (side) effects and that a combination of policies in different fields is necessary to tackle a variety of (interrelated) issues.

Arguments of **social** nature, then, are often inspired by concepts such as social justice, transport poverty and/or right to the city. The goal of making the PT network fare-free is to facilitate mobility for all, so the city and the services it offers can be reached by everyone. There is a distinction, however, amongst full FFPT schemes, in how this 'everyone' is defined. In some cases (e.g. Tallinn, Estonia) only (registered) inhabitants can use the PT system for free. In other cases PT is free for everyone, including e.g. visitors, commuters, and undocumented residents. In the latter case one could say the city is more accessible, and thus claiming one's 'right to the city' becomes more straightforward. Following Štraub (2020) this type of rationale – where FFPT is seen as "an urban welfare policy which is opening our urbanities equally to everyone, no matter their income, race, gender, ethnicity, social status, place of residence or car possession" (p. 3) – is somewhat recent and is part of a broader debate on PT as a common good.

These social justice-inspired arguments play an important role in demands by citizen movements who fight for FFPT in localities where it has not been implemented yet. Examples are Free Transit Toronto in Canada, Black Lives Matter in the San Francisco Bay Area in the United States, *Movimento Passe Livre* (Fare-Free Movement) in Brazil and Planka.nu in Sweden (Caribé, 2019; Enright, 2019; Planka.nu, 2016; Schein, 2011).

Dunkirk, France, can serve as an example of a city where this social aspect played an important role in the implementation of FFPT in 2018. Before the implementation of FFPT, there was already a system in place through which low-income households could profit from lower prices for monthly PT subscriptions. The most precarious families did not always profit from it, however, because of two reasons. First, they did not necessarily use PT often enough so that buying a subscription would be worthwhile. They would thus buy single tickets without price reduction. Second, they are not always able to predict how often they would need PT per month, and would end up buying single tickets. The sum of the values of the single tickets often turned out to be more expensive than the reduced-price subscription (Briche, 2017). Literature on the impact of poverty on economic

decision-making indeed confirms that people with limited financial resources often take short-term rather than long-term decisions (see e.g. Laajaj, 2012), indicating that making the system fare-free for all might be a more effective way to reach low-income groups.

A municipality can also choose for FFPT as a mobility solution because of a **combination** of issues and goals. In Hasselt, Belgium, for example, the city suffered from a variety of traffic related challenges, from high accident rates and air pollution to limited mobility for seniors and poor accessibility of the city center. To confront these challenges the construction of a third ring road and behavioural campaigns were considered. Eventually, the municipality worked out a comprehensive mobility policy, integrating institutional, infrastructural and urban design interventions, facilitating the use of alternative transport modes. Offering FFPT was one of these measures (see e.g. Brand, 2008).

One type of rationale that is often not (openly) mentioned is **political**. As Kębłowski and colleagues (2019) demonstrate, the idea of fare abolition in Tallinn, Estonia, "originated as an electoral strategy helping the ruling political party to consolidate its power" (p.13). Officially, the project's goal was to improve mobility for all inhabitants (socially inspired argument) while stimulating the economy through increasing labour mobility (economically inspired argument). The idea of the policy, however, originated in the mayoral office and a referendum was launched before any local transport experts were consulted. One of the FFPT policy implementation's main effects was an increase in municipal registrations in the city and thus more federal tax income flowing to Tallinn, and less to neighboring municipalities where inhabitants cancelled their registrations. Although FFPT did improve PT accessibility for Tallinn residents, and the use of PT increased, the project was mostly political in nature.

One could also say that PT-related policies are always political in nature. Indeed, the way the PT system in a certain locality is engineered and organized directly or indirectly impacts the level of access for (certain groups of) inhabitants to the city. Further, the lack of finances to implement FFPT is often presented as a technical

issue: the municipality has no money, and can thus not offer FFPT. However, it is also a political choice to for example decide to tax certain companies or inhabitants (more) in order to finance the system. As Gregori and colleagues (2020) write: "the political decision is the one that needs to establish the conditions under which the technicians need to work" (Gregori et al., 2020, p. 66).

In summary, if the goal of the policy is to reduce car travel or increase ridership, implementing FFPT without complementary policies might not lead to the desired goal. If the objective is more socially oriented, from a 'right to the city' point of view, implementing FFPT can be an interesting step towards increased accessibility to the city for all.

When it comes to the Brazilian context, literature on motivations behind the implementation of FFPT is strikingly absent. As Caribé (2019) pointed out, hardly any research was done to understand *why* Brazilian municipalities have implemented FFPT. His research found that municipalities usually implement FFPT from a competitive point of view, with the goal to attract companies and jobs. It is also motivated by a wish to restore local businesses, especially in the city centers. This differs from movements like MPL, who look at FFPT from an anticapitalist point of view (Caribé 2019). Following Brinco (2017) the implementation of FFPT is often justified by the necessity of all inhabitants, and especially the poorest ones, to be able to move around the municipality. Gregori and colleagues (2020) distinguish between the motivations of European *movements* for FFPT and the Brazilian ones. In Europe, the authors state, it is more a fight *against* the car (from an environmental point of view) rather than a fight *for* collective transport (from a social point of view). In Brazil, "the *Tarifa Zero* proposal has a strong social justice component and one of overcoming [Brazil's] conservative and slavery-based model" (Gregori et al., 2020, p. 62). The next chapter dives deeper into the Brazilian context of urban PT.

2.3 Urban Public Transport in Brazil

In the introduction of this thesis I shortly touched upon why the topic of PT moves so many Brazilians. What follows is a broader description of the context of PT in Brazil, which in many aspects is different from for example the European or North-American context. It aims to support the reader to understand better the rationales behind the adoption of FFPT in Brazilian municipalities, and the (political and social) context in which this takes place.

2.3.1 Legal framework

The two main legal frameworks for PT in the country are the Federal Constitution (1988) and the Federal Urban Mobility Law (2012). According to the Brazilian Federal Constitution (Art. 30, item 5) municipalities are responsible for "organizing and providing, either directly or by concession or permission, public services of local interest, including public transport, which is essential" (Jusbrasil, n.d.). PT can thus be organized either by the municipality but provided by a private company (through a concession) or provided by the municipality itself. In the latter case, a public company or local authority organizes and implements the service (idec, 2019b). In most Brazilian municipalities it are usually concessionaries in charge of controlling the entire system (Bernardes et al., 2013). It is mainly in smaller municipalities that the local authority owns and/or manages the PT system (idec, 2019b).

In 2015 an amendment to the Brazilian constitution was passed by the national congress, including the right to transport. It was proposed by federal representative for the state of São Paulo, Luiza Erundina. She was the mayor of the city of São Paulo when the *Tarifa Zero* project was written. Since 2015, the right to transport stands on the same foot as the right to education, health, nutrition, labour, housing, leisure, security, social security, protection of motherhood and childhood and assistance to the destitute as a social right (Lopes, 2017).

As mentioned earlier, in the past many movements have campaigned for *partial* FFPT, and these demands have often been complied with. As a consequence, the current Brazilian PT system is characterized by many *partial* FFPT schemes. The term 'gratuities' will be used in this thesis to refer to these partial schemes. For instance, elderly persons (more than 65 years old) are guaranteed fare-free access to PT by Article 230 of Brazil's federal constitution. Since 2003 this benefit can be expanded on a local level to include passengers from age of 60 and up. Furthermore, there are localities or regions where students, people with disabilities, individuals from low income households, and/or those from a certain professional category (such as mail carriers, police officers and fire-fighters) have the right to travel for free (Santini, 2019).

2.3.2 Individual versus Public Transportation

In 2016, in Brazilian cities with more than 60,000 inhabitants, on average 41% of the trips were done by foot, 29% by individual motorized vehicles (cars and motorcycles), 24% by bus, 4% by rail (metros and urban trains), and 2% by bicycle. The Socioeconomic Studies Institute (*Instituto de Estudos Socioeconômicos* - *Inesc*) affirms it is worrying to recognize that now the share of trips by individual motorized vehicles has surpassed the share of trips by PT. Throughout the last two decades, the use of individual transport in Brazil has increased to a great extent. Stimulus policies in the 1990s attracted large numbers of car and motorcycle factories to establish themselves in the country, tripling the production capacity of motorized vehicles. Other policies made sure these cars and motorcycles were also sold throughout the country, despite the intensification of externalities in the urban centers. Since then, PT has continued to lose passengers to individual transportation modes (Inesc, 2019).

Not only did cars become more accessible, but also PT became more expensive (Inesc, 2019). While the growth of the cost of products related to individual transport remained below the inflation rate, urban bus fares were growing above the inflation rate (Carvalho et al., 2013). As a consequence, passengers who continued to use PT ended up paying more. The increase in the use of individual

transport also increased urban congestion, which heightened the costs of the PT system. These costs were further translated into even higher fares: a vicious cycle of both cost and fare increases was thus established (Inesc, 2019). This cycle led to a significant reduction in passenger numbers in the main Brazilian capitals. Between 1995 and 2000 passenger volumes decreased across Brazilian cities, from -4,8% in Salvador to as much as -43,4% in São Paulo (Gomide, 2003). Since 2003, average household incomes have been recovering, and the number of paying passengers in large Brazilian cities has been rising again (Carvalho & Pereira, 2015). However, following Gomide (2003) these numbers reflect a progressive expulsion of the poorest inhabitants of access to PT, leading to higher levels of urban poverty and social exclusion in the country. The combination of a precarious system and stimulus policies for the purchase of private vehicles have led the poorest inhabitants to become the most dependent on PT; at present they still represent the largest share of users (Gomide, 2003; Pereira et al., 2015).

2.3.3 The PT system exacerbates existing inequalities

Following Caribé (2019) one can locate models of financing PT systems on a continuum with two extremes: at the one end PT is completely subsidized and at the other end the system is completely financed by the fares users pay. In the first model, the system is free for all its users, and its costs are shared amongst a variety of social groups and classes. On the other end, which is the model applied in most of the large Brazilian cities, the costs are only borne by the users of the system. In between these two extremes, there are a variety of ways to finance and share the costs of the system (Caribé 2019).

In most Brazilian municipalities, the bus fare is calculated based on the total operational cost of the system divided by the amount of paying users. This means that as the costs go up (e.g. due to higher fuel prices) or when the amount of users go down (e.g. because they cannot pay the fare anymore, or have switched to car, ..) the price goes up for the paying users who continue to make us of the system (Carvalho et al., 2013; Gomide, 2003). This dynamic further feeds the vicious cycle of increasing fares. This way of calculating the fare also means that in the case of most gratuities, there exists a system of 'cross-subsidies': paying

passengers are charged for the costs of the gratuities. In the Brazilian state capitals, these gratuities have an average impact of about 20% on the fare (Carvalho et al., 2013). This exacerbates social inequalities, for example when informal workers – who are among the poorest urban inhabitants – end up paying for the right of wealthy elderly or students to travel for free (Caribé 2019).

Today, about 90% of the urban PT systems in Brazil is paid for by its users.[9] Of the R$59 billion necessary, Inesc (2019) estimates about R$53 billion is collected through fares (including '*vale-transporte'*[10]). Moreover, as there are hardly public subsidies to urban PT from federal, state or municipal authorities[11], paying users end up paying more, exacerbating further the existing inequalities (Inesc, 2019; Veloso et al., 2021). The ever higher PT prices put workers in precarious positions. Dependent on the PT system to reach their jobs, they sometimes risk their lives (e.g. by hanging off the train) to evade paying the fare (Mihessen, personal communication, 14 April 2021). A research carried out by Casa Fluminense (2020) – a Rio de Janeiro based NGO working on public policies – found that 82,4% of the victims of railway accidents in the metropolitan region of Rio de Janeiro in 2018 were black (compared to 52,78% of the population).

Currently, PT is mainly used by people living in the city's peripheries, people of colour, and less by the higher income population. Following Veloso et al. (2021), in the Brazilian context, the actual urban PT system can only be lucrative when it is overcrowded and mainly focuses on the travel patterns of the working class. In general, the Brazilian PT system is designed as a lucrative business, with paying passengers, rather than a (subsidized) service to the population. Its main aim is to bring workers (from the peripheries) to their jobs (in the centers), in order to serve the urban capitalist production system. As a consequence, the already

[9] In comparison: in the region of Flanders (Belgium), fares paid by users make up about 15% of the public PT company's income (Beeckman, 2019).
[10] *Vale-transporte* is a legal system, implemented in 1985. It obliges employers to pay a transportation allowance to their employees. The employer must reimburse the complete value of the employee's PT trips between home- and workplace. In order to do this, the employer has the right to substract until 6% from the employee's salary. This policy is limited to formal low-income workers, which leaves a very large share of workers without reimbursements. It further does not reach the poorest workers, who would technically need this benefit most (Carvalho et al., 2013).
[11] Brasília (DF) and São Paulo (SP) are cited as the only two large cities where subsidies for PT represent a significant share of the city's budget. The city of São Paulo receives subsidies from the state, covering about 20% of the costs of the system (Pereira et al., 2015).

marginalized population – poor, from the periphery, black, and female – pays the largest share of a bad transport service in order to work for the city elite[12] (Veloso et al., 2021). Further, in most Brazilian cities, PT is organized by private companies or consortia, who do not provide transparent information about the costs of the system, which allows them to decrease service quality[13] while increasing profit margins (Inesc, 2019; Veloso et al., 2021).

The graph below (Figure 2), based on 2009 data from Brazilian metropolitan regions, sets out the share of an income decile of the population that spends money on PT (green, upper line) and the share of their income that goes to PT expenses (blue, lower line). The trend shows that the lower a household's income, the larger the share of that income they spend on PT (Inesc, 2019). The poorest households that do not have the income to pay for PT – about 30% of the lowest income decile (Carvalho et al., 2013) – are not included here, nor are groups that travel for free. Further, the averages in the graph do not show the reality that exists for some of the poorest households. Some families spend up to one third of their income on bus fares (Casa Fluminense, 2020; Veloso, 2017). This means that taking PT limits their spending for other essential needs such as food and housing, and that the PT fare is a barrier for them to reach basic facilities such as schools, hospitals and job opportunities.

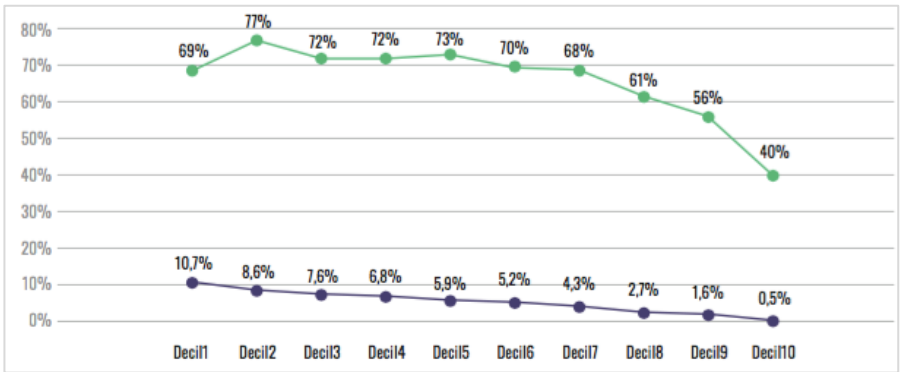

Figure 2 Share of income spent on public transport per income decile (Inesc, 2019, p.8)

[12] In short, the 'urban elite' can be understood as a small group of people with the political, economic and socio-cultural power to shape decisions of societal importance and the living environment to benefit their own interest (see alo Vanin, 2019 for a description of urban elites in Porto Alegre, one of the country's state capitals).
[13] Throughout this thesis, PT 'service quality' refers to a range of characteristics of PT systems, from the condition and occupancy rate of the vehicles, to the spatial distribution of the stops, the frequency of the lines, etc.

After having discussed the broader context of PT in Brazil, and *partial* FFPT policies, the next section tells the story of the first (registered) proposal for *full* FFPT in the country.

2.4 '*Tarifa Zero'*: the first call for universal FFPT in São Paulo

Although the policy of FFPT had already been applied elsewhere in the world – the first registered case is the town of Commerce in the suburbs of Los Angeles (USA) in 1962 (Kębłowski, 2019) – the idea of *Tarifa Zero* in Brazil was probably first formulated by engineer Lúcio Gregori, inspired by the way the municipality of São Paulo dealt with other public services. During the mandate (1989-1992) of Luiza Erundina (the first female mayor of São Paulo, back then member of PT, the Brazilian workers' party) Gregori was first Municipal Secretary of Services and Works and later became Secretary of Transport.[14]

The idea of *Tarifa Zero* came to Gregori when he realized that for many municipal services, such as waste collection, the users of the service are not charged at the moment the service is provided. This means that it is possible to separate the price (fare) from the cost (service), and that the same level of service could be maintained independently from the fare charged to users. The service indeed would not be 'free' as such; it would have to be financed somehow. The underlying question here was who *should* pay? Inspired by the French *Versement Transport*, Gregori and his colleagues came up with a setup that would make *Tarifa Zero* economically feasible. The operational costs of the PT companies would be financed by a proportional municipal tax, meaning wealthier citizens would contribute more. The new proposal thus started from the understanding that PT does not only benefit its users, and that the right to the city should not be reserved to those who can pay for it. This way, "the buses were given back their truly collective character of responsibility of the entire society, revealing their political and social dimension, while (…) the despicable symbolic object of the turnstile was taken away" (Gregori et al., 2020, p. 60).

[14] Unless stated otherwise, the information contained in this paragraph was gathered from the book '*Tarifa Zero: A Cidade Sem Catracas*', written by various public officials who were involved at the time of the project proposal (Gregori et al., 2020).

As stated by the project's proponents, *Tarifa Zero* would democratize the use of services in the city; it would have an important impact on the share of income spent on transport by the poorest households[15]; the total costs of the service would be 24% less as the costs of fare charging and control would no longer exist; and the system would be paid by the taxpayer instead of directly (and only) by its users. Therefore, the tax would help to slow down the increasing income inequality in the city.

Both within the workers' party and outside of it, the 'radical' proposal faced a series of fears and criticisms. For example, the fare can be seen as having the economic function of regulating demand for PT. Without a fare, anyone would be able to take PT – some even 'for the fun of it' – and the system would quickly be overcrowded (and collapse). Also, media framed the proposal as dangerous, assuming it would lead to "the invasion of the buses by unemployed and intoxicated people, as well as vandalism, given that what is 'free' is not valued" (Gregori et al., 2020, p. 68). Further, some urban planners feared that with a fare-free system, the city would sprawl uncontrollably (ignoring other forces of urban commodification and real estate speculation that were already causing certain effects). Others worried that subsidies would be taken away from other essential services in order to pay for the PT system, or that the service would be bad, simply because it is free.

Despite a considerable share of the population supporting the proposal, it did not make it to be voted in the city council, and was thus never implemented in São Paulo. Today, 30 years later – the topic has gained importance again. Groups like *Movimento Passe Livre* and *Tarifa Zero* are present in many cities throughout the country, campaigning for FFPT and the right to the city, and the implementation of *Tarifa Zero* was high on the agenda of some candidates of the 2020 municipal elections.

[15] In 1986, a São Paulo inhabitant spent about 22% of their salary on transport (Brinco, 2017). Today, poorest households can spend up to one third of their income on the bus fare (Veloso, 2017). By comparison: in 1999 Belgians spent 12,4% and in 2018 11,4% of their income on transport (Statbel, 2019). The average for the 27 European Union countries in 2019 was 13,1% (Eurostat, 2020).

2.5 Localities with FFPT in Brazil

During the last decades - and mainly since the 2013 wave of protests - FFPT has been studied and debated intensely in Brazil, mainly from economic and social/political angles. In 2019, the Institute for Socioeconomic Studies (Inesc) published a report indicating that FFPT or PT with lower fares should be possible in most Brazilian cities. The Institute proposes to finance the system by levying taxes on individual motorized transport. The collected resources could be progressive (who owns more, pays more) and reduce the appeal of individual transport as it gets more expensive (Inesc, 2019).

When it comes to the existing cases of FFPT in Brazil, it must be noted that many of them had already implemented the policy before the wave of protests in 2013. According to Costa (2018) there is no reason to believe that municipalities that have implemented FFPT did so because of the 2013 protests or because of the insertion of the right to transport in the constitution. Every municipality has its own model of *Tarifa Zero*; some offer the service to all inhabitants, others are based on socio-economic aspects.

While there exists a very broad base of literature on the topic of '*Tarifa Zero*' in Brazil (mostly written in Portuguese), from a variety of research angles (economics, public policies, geography, law, etc.), there are hardly any (peer-reviewed) sources to find that discuss *all* cases where FFPT was applied. Brinco (2017), Lopes (2017) and Kębłowski (2019) are the only peer-reviewed articles found that provide an overview of FFPT cases in Brazil. They do not, however, cite the same cases, nor do they always provide the same implementation year for the cases they have in common. Journalist Daniel Santini (2019) and researcher André Veloso (2021, work in progress) also have produced overviews. Santini's (2019) is probably the most detailed overview so far, including information about discontinued cases of FFPT in Brazil. Annex I gives an overview of their lists combined, and cases that have been identified in the framework of this thesis.

3. Framework and methodology

Information about FFPT cases in Brazil (see Table 2 for an overview) is scattered and sometimes contradictory.[16] This thesis is therefore first and foremost of exploratory nature. It gathers information from different sources - academic and grey literature - in order to formulate preliminary answers to the research questions put forward. To the best of my knowledge, it is the first time an exploration and analysis of all the (known) existing cases of FFPT in Brazil has been done in such detail.

This thesis addresses two objectives. On the one hand, it can be seen as a part of a broader global research on existing and discontinued cases of FFPT. Within the framework of the **LiFT** research project[17], a survey is spread across the world in 2021, with the goal to reach as many municipalities as possible where full FFPT was or is in place. This survey was translated into Portuguese, adapted to the Brazilian context (changing, leaving out or adding questions), and the format was altered from an online survey to a fillable PDF.[18] An effort was done to spread this survey in Brazil. In order to reach respondents, the following steps were taken. First, the municipalities were contacted through e-mail or through the contact platform on their website.[19] Out of the 23 municipalities contacted, 4 replied. After several attempts, I managed to reach one official responsible for the local bus fleet by phone, which brought the total to 5. A sixth municipality was reached through personal connections of a collaborator at *Mobilize Brasil*. These six contacts were sent the LiFT survey (between the end of March and April 16th 2021). At the time of writing, five of six municipalities have indicated that they are either

[16] Examples are sources citing different years of implementation of FFPT for the same municipality (see Annex I), or one source describing a policy as existing, while other sources state it never came into effect.
[17] 'From Low Fares to No Fares: An Analysis of Economic, Operational, Socio-Spatial and Political Dynamics of Fare-Free Public Transport', funded by FWO and FNR. More information can be found on https://www.cosmopolis.be/research/low-fares-no-fares-analysis-economic-operational-socio-spatial-and-political-dynamics-fare.
[18] This survey can be found in Annex II of this thesis.
[19] In order to obtain data from municipalities, it is possible to go by the Brazilian Transparency Law (*Lei de Acesso à Informação – LAI*). However, this is only possible for Brazilian citizens, and despite it being obligatory (by law), an answer is not always guaranteed. The researchers I spoke tho who have tried, report very low response rates. For these reasons I opted to reach out to municipalities directly (by e-mail), rather than through the LAI platforms.

filling out the survey, that they cannot do it ("the questions are very specific and do not only depend on our sector") or have stopped responding. One municipality official made himself available for an interview, which focused on the research questions of this thesis.

Unfortunately, the response rate for the survey thus remained limited. This is probably due to a combination of factors. First, most municipalities with FFPT are small and have a limited amount of resources (both financial and human). Second, they usually do not gather data necessary to respond to many of the questions included in the survey. And finally, at the time of writing, the country is suffering from a multi-level crisis. The COVID-19 pandemic has hit Brazil particularly hard. In May 2021, it was listed as the 3rd country worldwide most affected by the virus (Johns Hopkins Coronavirus Resource Centre, 2021). The PT system was already unstable, and has now started to collapse completely. Because of this complex situation, early in my research it became clear that I would not be able to travel to conduct fieldwork. The pandemic has also severely affected the Brazilian population, including municipal officials, which further complicated establishing contact, and obtaining answers to the survey.

On the other hand, the framework of the thesis itself is limited to **two main questions**. First, where in Brazil has FFPT been fully applied, and why? And second, what are the operational, economic and political aspects of FFPT in Brazilian municipalities? In order to obtain answers to these questions, the following subquestions were formulated:

- What was the main reason for the municipality to adopt FFPT? Was this supported by an (objective) analysis of costs and benefits?
- What does the local public transport system look like? How does the system function? How many bus lines are there, where do they go, what are their frequencies? Can everyone make use of it (without paying the fare)? Should one be registered to make use of the system?

- How is the public transport system financed? Who is the owner of the bus network? Was the ownership structure changed by the introduction of FFPT? Did the funding sources change since the introduction of the system?
- Did the introduction of FFPT change the quality of the PT network? If yes, how?
- Did the introduction of FFPT change the (transportation, dwelling or other) habits of the local population? Did it influence the choice of localisation of (local or new) companies or organisations?

As pointed out earlier, there hardly exists academic literature on the experiences of Brazilian municipalities with FFPT, while the existing (academic and grey) literature focuses on different aspects of FFPT. Building on what was discussed in the previous chapters, the following hypotheses are put forward:

1. The motivations for the implementation of FFPT in Brazilian municipalities are heterogenous and context-dependent, and are of ecological, economic, social and/or political nature.
2. When considering to apply FFPT, municipalities are influenced to a greater extent by neighboring municipalities than by municipalities geographically further away.
3. There is no distinct connection between policy decisions in small municipalities and FFPT-related protests that have taken place in the country's bigger cities.
4. The *Tarifa Zero* idea formulated in 1989 in São Paulo was a source of inspiration for all municipalities with FFPT today.

As the work on this thesis progressed, it became clear that obtaining (trustworthy) data would become a challenge. First, Brazil is a federation with three levels of government: federal, state and municipalities. There are 5570 municipalities in Brazil (IBGE, 2017). As PT is a municipality responsibility, there is no official centralized data set that systematically collects data on PT systems and fares (Pereira, personal communication, 17 May 2021). In the past, there was the *'Ministério das Cidades'*, the Cities Ministry, which collected data on urban mobility

policies. However, this Ministry ceased to exist a couple of years ago. Today, the funding and coordination of urban mobility plans is centralized under the Ministry of Regional Development. At the moment, municipalities with more than 20,000 inhabitants are obliged to hand in an urban mobility plan (cf. indicated in the National Urban Moblity Policy of 2012) in order to obtain subsidies from the federal government. However, despite the promise of subsidies, the amount of municipalities handing in such a plan has remained limited. The deadline for municipalities to submit their plan has been postponed several times (Mihessen, personal communication, 14 April 2021), confirming the previously cited lack of resources in small municipalities.[20]

As the survey (strategy) did not provide any input, I applied two other strategies in order to find answers to the research questions, and to start exploring the hypotheses. First, I carried out desk research to find out which municipalities currently have full FFPT in place, and to obtain more information about the FFPT policy in each municipality. Besides several albeit limited academic studies, the main sources of input were online news outlets, blogs, municipal websites and laws. These sources provided *some* answers for every municipality; only exceptionally (preliminary) answers to *all* questions were found for one case. Throughout this thesis I have tried to always cite original sources. However, their originality cannot always be guaranteed, as the consulted sources themselves often fail to mention how they obtained their information. Unfortunately, due to the extensive scope of this thesis, it was not possible to confirm all the information provided. Further, it is important to bear in mind what Neiva Lopes, a local researcher who thoroughly researched the case of Monte Carmelo, points out: there is often a difference between the political discourse and the reality (Lopes, personal communication, 12 May 2021). While it might indeed be true a municipality official or mayor made a certain statement on why FFPT was applied, this does not necessarily mean that was the *real* reason behind the

[20] According to Guimarães (2019), between 2008 and 2019, only 13% of the available federal budget for urban mobility was used by the municipalities. In May 2020, the deadline for handing in urban mobility plans was postponed again, this time to 2023 for the more than 1800 municipalities between 20,000 and 250,000 inhabitants (Brazilian Government, 2020).

implementation. The challenge to obtain (trustworthy) data further characterizes the exploratory nature of this work.

Parallel to desk research, I reached out to researchers and journalists who have experience with FFPT research in Brazil. *Mobilize Brasil* - a journalistic platform publishing solely on mobility issues - published an article[21] on their platform, to support with the mapping of Brazilian municipalities with FFPT. Further, various informal interviews were held with researchers and campaigners with expertise in *Tarifa Zero* and urban mobility (see Table 1). They provided me with more information about the context of (fare-free) public transport in Brazil, and put forward relevant knowledge that explains why answers to my research questions are so challenging to obtain. These conversations brought new insights into the topic, and led to an adaptation of the initial framework of the thesis. Additionally, they supported carving out strategies on how this research could be tackled in the future.

[21] https://www.mobilize.org.br/noticias/12567/voce-conhece-alguma-cidade-com-tarifa-zero.html

Name	**Role**
André Henrique de Brito Veloso	Member of citizen movement '*Tarifa Zero BH*' (FFPT Belo Horizonte); author of '*O ônibus, a cidade, e a luta*' (The bus, the city, and the fight) (2017); PhD researcher on PT in Brazil
Daniel Andrade Caribé	Author of PhD thesis '*Tarifa Zero: mobilidade urbana, produção do espaço e direito à cidade*' (FFPT: urban mobility, production of space and the right to the city) (2019)
Vitor Mihessen	Executive coordinator at *Casa Fluminense*, a Rio de Janeiro based NGO in defence of public policies
Neiva Aparecida Lopes	Author of master thesis '*GESTÃO DE POLÍTICA PÚBLICA E MOBILIDADE URBANA: estudo de caso do processo de implantação do transporte coletivo gratuito na cidade de Monte Carmelo/MG*' (Public policy management and urban mobility: case study of the implementation process of FFPT in the city of Monte Carmelo/MG) (2018)
Rafael Henrique Moraes Pereira	Researcher and head of data science team at the Department of Regional, Urban and Environmental Studies and Policies at the Institute for Applied Economic Research (Ipea), Brazil. Author of PhD Thesis 'Distributive Justice and Transportation Equity: Inequality in accessibility in Rio de Janeiro' (2019)
Marcos Fontoura de Oliveira	Author of book '*Transporte, Privilégio e Política*' (Transport, Privilege, and Policy) (2002); Author of PhD thesis '*Ausências, avanços e contradições da atual política pública de mobilidade urbana de Belo Horizonte*' (Scarcities, progresses and contradictions of the current public policy of urban mobility in Belo Horizonte); post-doc researcher on accessibility with universal design in urban mobility; transport and traffic analyst at Belo Horizonte's PT provider BHTrans

Table 1 Interviewed researchers and experts in the field

4. Results: Brazilian municipalities with FFPT

The first research question put forward in this thesis asks *where in Brazil has FFPT been fully applied, and why*. Table 2 gives an overview of all known existing and discontinued cases of FFPT in Brazil, encountered during this research.[22] To my knowledge, this is the most complete compilation of Brazilian municipalities with FFPT that currently exists. For each municipality, the presumed year of implementation is indicated, as well as their population sizes.[23] The population and surface area sizes are those provided by the Brazilian Institute for Geography and Statistics for the year 2020 (*Instituto Brasileiro de Geografia e Estatística - IBGE*, 2020). The timeline in Figure 3 indicates the years of implementation – and cancellation – of full FFPT in the different Brazilian municipalities, as well as key dates of PT related campaigns, protests and policies (touched upon in the introduction). Figure 4 shows where the localities are situated.

The second research question asks *what are the operational, economic and political aspects of FFPT in Brazilian municipalities.* According to Santini (2019), the size and type of municipalities with FFPT vary from small rural ones with one or two bus lines covering relatively long distances, to larger cities in metropolitan regions. Following Caribé (2019) in most cases, the PT systems are managed by the municipality, and FFPT is universal, although there are exceptions. In most cases FFPT does not have a significant impact on the municipal budget (Caribé 2019). This chapter aims to explore these findings further. For all municipalities known to currently have full FFPT in place, this chapter brings together (preliminary) answers found to the following questions:

[22] Some cases were only mentioned by one source, and I only found very little information about their (fare-free) PT systems. They were integrated into this thesis as a starting point for future research.
[23] In some cases, various sources (including academic) cite different dates, or there is only one source available. Annex I provides an overview of the dates cited by five (academic) sources, and which other dates were mentioned by sources consulted in the framework of this thesis. Table 2 indicates the date that was selected for the timeline in Figure 3.

1. Why did the municipality implement FFPT?
2. What does the local public transport system look like? How does the FFPT system function?
3. What does the PT system cost? How is it financed?
4. Did the introduction of FFPT change the quality of the PT network?
5. Did the introduction of FFPT change the habits of the local population or companies?

Municipality	Population (IBGE, 2020)	Surface area (km²) (IBGE, 2020)	Year implemented[24]	
Monte Carmelo (MG)	47,931	1,343.035	1994	
Paulínia (SP)	112,003	138.777	1995-1997	discontinued
Abaeté (MG)	23,250	1,817.067	1997	
Potirendaba (SP)	17,516	342.492	1998	
Faxinal (PR)	17,316	715.943	2001	
Ivaiporã (PR)	31,935	431.502	2001	
Agudos (SP)	37,401	966.708	2003	
Macatuba (SP)	17,214	224.514	2004	
Aruanã (GO)	10,110	3,055.292	2008	
Wenceslau Braz (PR)	19,386	397.916	2008	
Eusébio (CE)	54,337	78.818	2010	
Holambra (SP)	15,272	65.577	2010	
Muzambinho (MG)	20,545	409.948	2011	
Porto Real (RJ)	19,974	50.892	2011-2017	discontinued
Pitanga (PR)	29,994	1,663.747	2012	
Maricá (RJ)	164,504	361.572	2013	
Anicuns (GO)	21,981	975.331	2014	
Dourado (SP)	8,878	205.874	2014	
Silva Jardim (RJ)	21,774	937.755	2014	
Tijucas do Sul (PR)	17,084	671.889	2015-2019	discontinued
Itatiaiuçu (MG)	11,252	295.145	2015	
Aquiraz (CE)	80,935	480.236	2018	
Pedro Osório (RS)	7,706	603.757	2018	
Arceburgo (MG)	10,883	162.875	2019	
Campo Belo (MG)	54,186	528.222	2019	
Morungaba (SP)	13,781	146.752	2019	
Vargem Grande Paulista (SP)	53,468	42.489	2019	
Cerquilho (SP)	49,802	127.803	2020	
Pirapora do Bom Jesus (SP)	19,178	108.489	2020	
Jaboticabal (SP)	77,652	706.602	2020-2021	discontinued
Assis (SP)	105,087	460.609	2021	only temporary
Cláudio (MG)	28,859	630.706	2021	

Table 2 Overview of FFPT localities in Brazil (existing and discontinued)

[24] See Annex I

In what follows, the results of the desk research are presented. When reading this chapter it is important to keep in mind that information about FFPT policies and systems in most of these municipalities is scarce, scattered and sometimes contradictory. Some, but not all the information provided was confirmed by different sources. At the same time, newspaper articles often cite public officials, whose political discourse might differ from the reality in the field. This chapter brings together the information that is 'out there', not pretending to present the 'full' story or the (complex) reality of every municipality.

This research indicates that FFPT has been implemented in municipalities in seven (of 27[25]) Brazilian states. The majority of existing cases (19) was found in the southeastern region, with ten cases in the state of São Paulo, seven in the state of Minas Gerais and two in the state of Rio de Janeiro. For the southern region, five cases were found, with four in the state of Paraná and one in the state of Rio Grande do Sul. The only state of the center-west region with FFPT is Goiás, with two cases. Geographically most distant from the other localities, two cases were found in the northern state of Ceará. In what follows, the municipalities with FFPT are grouped per state. First, the state of São Paulo is discussed. Next, an overview is given of municipalities with FFPT in Minas Gerais, followed by the southeastern region (the states of Paraná and Rio Grande do Sul), the state of Goiás, and finally the state of Ceará. Subchapters 0 and 4.8 shortly discuss FFPT cases implemented because of COVID-19 and discontinued cases.

For every municipality I bring together the information encountered that provides relevant information to start answering the research questions put forward. For five of these municipalities - Monte Carmelo (MG), Agudos (SP), Eusébio (CE), Maricá (RJ), and Morungaba (SP) - I found remarkably more information or interviewed a municipality official. They are therefore discussed in more detail.

[25] Oficially, Brazil has 26 states and 1 Federal District, in total 27 federative units. They are grouped into five geographical regions: north, northeast, center-west, southwest, and south (Mundo Educação, 2021).

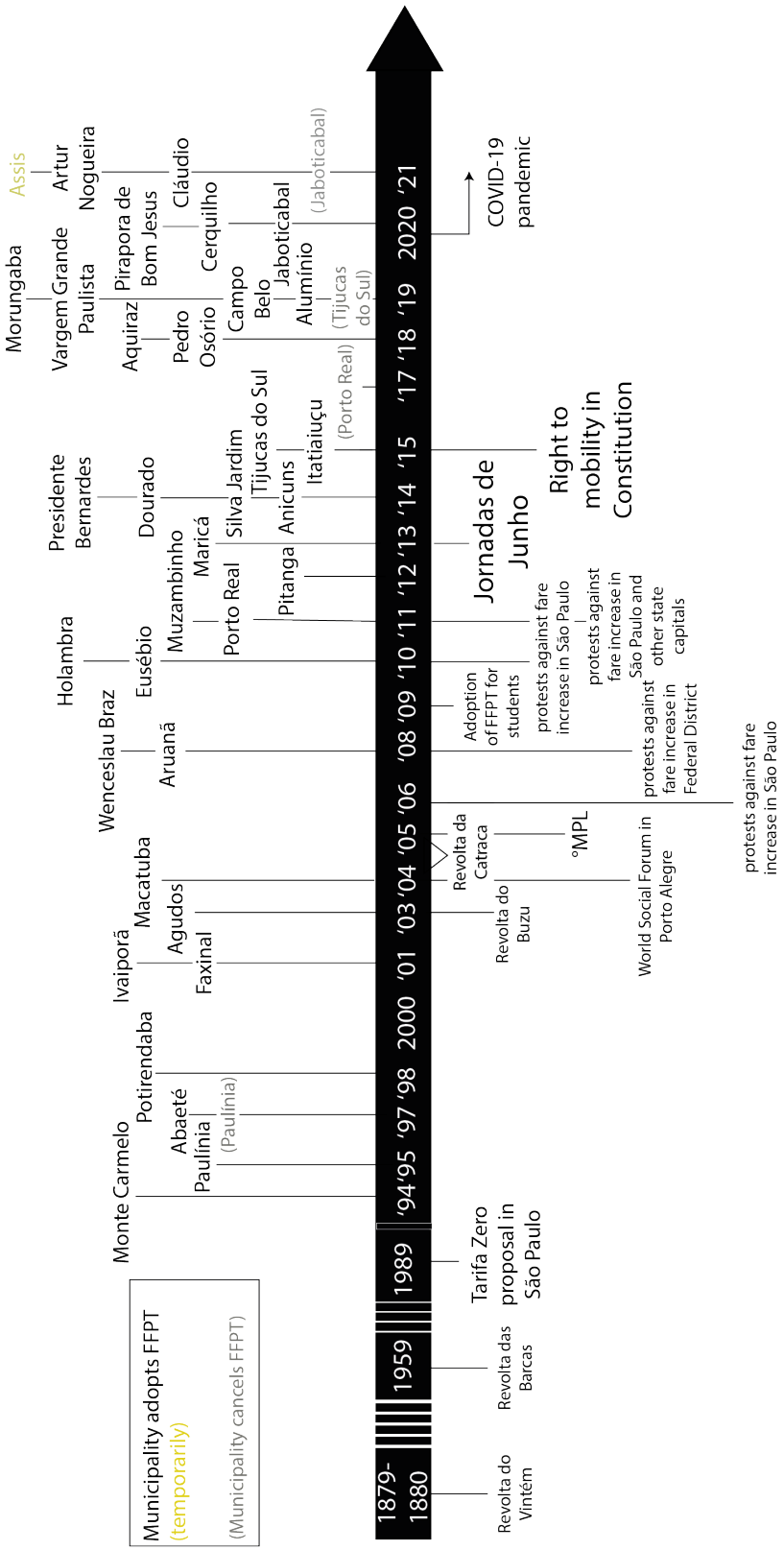

Figure 3 Timeline: Localities adopting (and cancelling) FFPT, key PT-related uprisings and policies (image made by author)

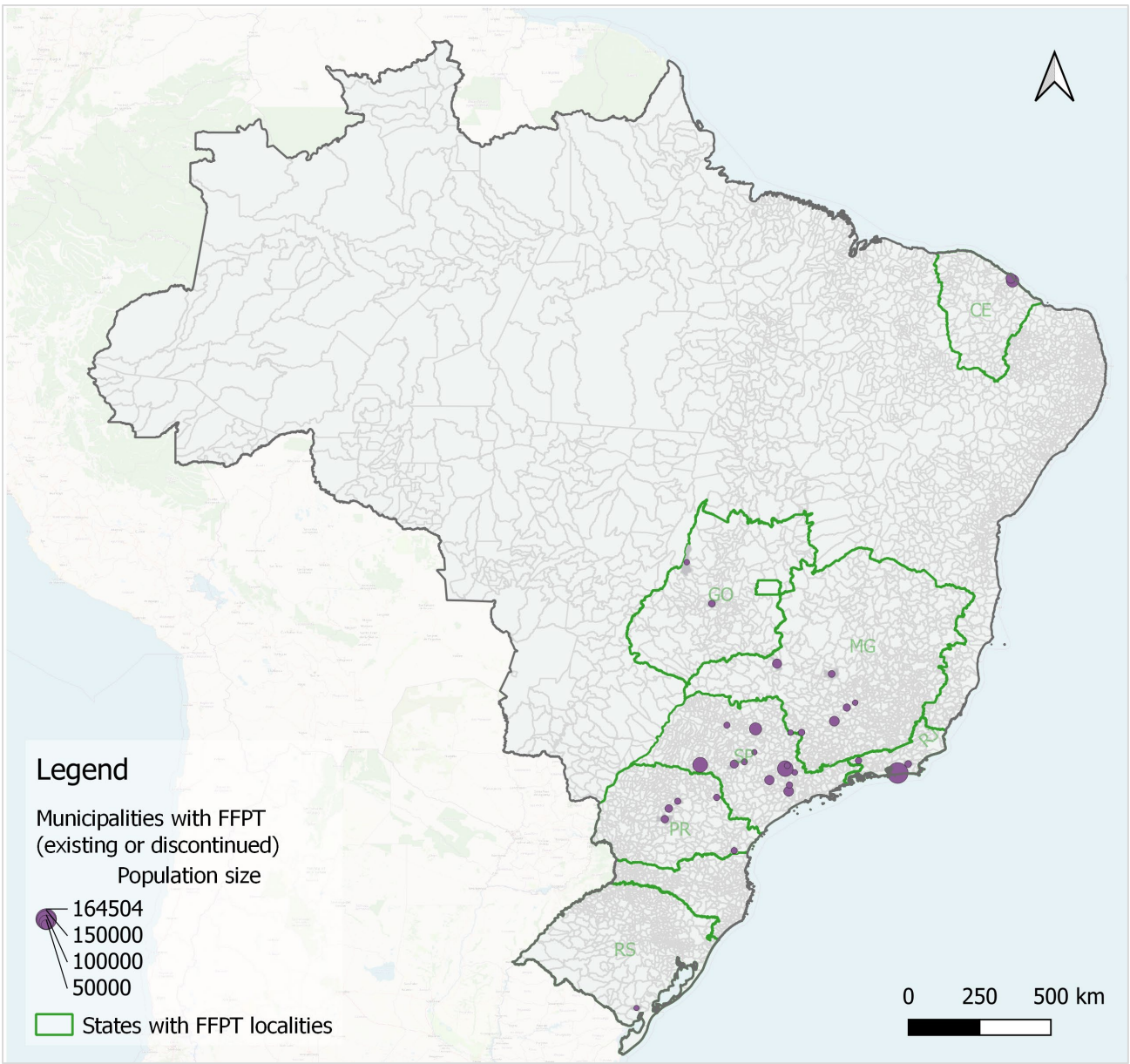

Figure 4 Localities with FFPT (existing and discontinued) in Brazil (image made by author)

4.1 Municipalities with FFPT in the state of São Paulo

In the state of São Paulo ten municipalities that currently have FFPT in place were identified, including Assis and Cerquilho, where FFPT was recently implemented because of COVID-19. These latter cases are discussed in 0. The (discontinued) case of Jaboticabal is touched upon in 4.8. This chapter discusses the municipalities in the state of São Paulo that have had FFPT in place for more than a year at the time of writing, with the exception of Paulínia. Even though Paulínia does not have full FFPT in place anymore, it is presented here because of its historical significance.

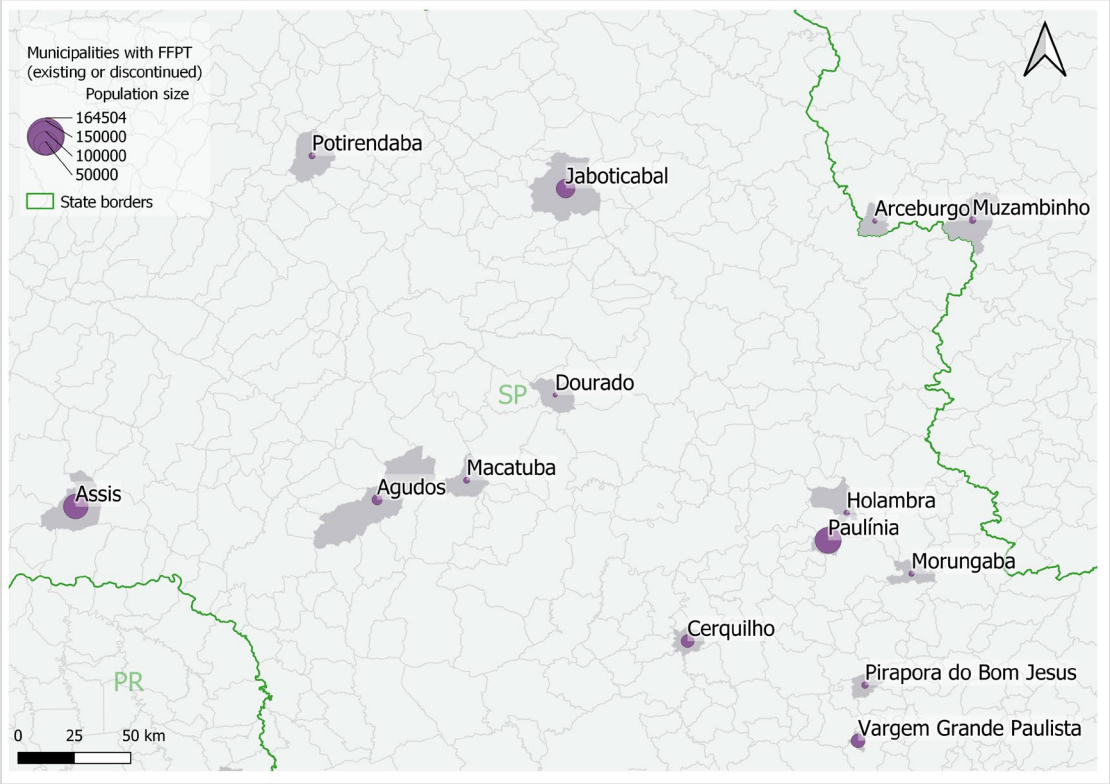

Figure 5 Map detail: FFPT localities in the state of São Paulo

4.1.1 Paulínia: a source of inspiration?

Even though municipalities that do not have full FFPT in place today are not the topic of analysis for this chapter, it is important to mention the case of Paulínia (SP) first. The FFPT experience in this municipality (between 1995 and 1997) seems to have been a source of inspiration for some municipalities implementing FFPT later (Santini, 2019). Besides Maricá (RJ),

it is the only city in Brazil with (today) more than 100,000 inhabitants to have ever had full FFPT in place. Also like Maricá, the city counts with a surplus budget because of the presence of the oil industry. Its yearly budget is R$ 1 billion per year, much higher than the Brazilian average. In 1995 the municipality decided to fully subsidize PT (Santini, 2019). A municipal law (N°1922/1995) was approved, which authorized the executive authority to subsidise all the costs of PT services in the municipality, and exempted the company that would deliver the public service from paying the service tax (*ISS – Imposto Sobre Serviços de Qualquer Natureza*). The subsidies would be financed by the current budget, supplemented if necessary (Paulínia Municipality, 1995). This policy was maintained until 1997, which made Paulínia a national reference for FFPT (Santini 2019). That same year, the law 1922/1995 was repealed, and the PT system was outsourced, the passenger fare reintroduced. Some groups (students, unemployed, people with disabilities and elderly older than 60 years) maintained the right to travel for free. For the unemployed, this right was suspended in 1999 (Belinazi, 2021).

In 2009 the municipality decided to subsidize more than half of the fare, which reduced the fare from R$2,3 to R$1 (Paulínia Municipality, 2009; Rene, 2009). In 2010 PT was made free on Sundays and holidays (Paulínia Municipality, 2010). In 2013, after the countrywide protests against PT fare increases, the mayor announced the city would go back to full FFPT. This would cost the city about R$ 29 million per year (i.e. about 3% of its yearly income). However, the mayor's proposal was not approved by the city council, justified by the lack of an impact study and the lack of proposals for scenarios in case the amount of vehicles operating would need to increase (Belinazi, 2021; Filippi, 2013). Slightly contradictory to the previous information, following Pelegi (2018), what the mayor proposed in 2013 was an FFPT project ('*Socializ/Tarifa Zero*'), implementing FFPT for families with an income of maximum twice the minimum wage. Following Brinco (2017), PT in Paulínia is free for families with maximum twice the minimum wage since 2013. In 2018, fares were reintroduced on Sundays

and holidays, according to the municipality to reduce vandalism[26] (Santini 2019). Following Belinazi (2021) this fare reintroduction reduced starkly the use of buses on Sundays and holidays, which was followed by a reduction in the provision of PT by the municipality (Paulínia Municipality, 2018).

4.1.2 'Circular de Graça' in Agudos

The municipality of Agudos implemented FFPT in 2003, inspired by the experience of Paulínia (Peschanski, 2018; Santini, 2019). The proposal of FFPT was used as an electoral promise, even though the population was sceptic about the idea (Costa, 2018). The ex-mayor José Carlos Otaviani – elected in a PMDB & PPB coalition, parties considered to be (center) right wing (Peschanski, 2018) – admits there were criticisms and a lack of trust in the proposal. He himself did not even believe in at the time. After the implementation of FFPT, the popularity of the mayor rose. Compared to 33% after launching the proposal, he obtained 68% of the votes when he was re-elected in 2004 (Camargo, 2013).

Why did the municipality implement FFPT? The decision to implement FFPT in Agudos started from the observation that the system in place was not efficient. At the time the system was regulated by the municipality but operated by a private company (Peschanski, 2018). The story of the mayor at the time goes as follows: in 2000 he was running for re-election in Agudos. The company that was providing PT in the city – conceded by the municipality – had been there for almost 20 years. However, its service was of very low quality. The owners passed away and their successors did not manage to continue operating the system. Some friends of the mayor and the candidate for deputy-mayor suggested to implement FFPT in the city. He thought it was crazy. They managed to convince him by numbers and studies, showing it would be perfectly possible to implement FFPT in the city. It became a part of the election campaign. Instead of bringing in the expected number of extra votes, the opposite happened. The population was very sceptical and called it "a crazy idea (…) there is no such thing as

[26] Following Santini (2019) so far, no data is available to evaluate whether the reimplementation of the fare has obtained the desired effects.

a free bus". In the end the mayor won the elections and two years later implemented what he had promised (Peschanski, 2018; Wakai & Chevalier, 2011).

Indeed there were other options to solve the issue of the malfunctioning PT system at the time, such as changing the operator while demanding better quality and a lower fare, or devolving the system to the municipality's direct administration while continuing charging fares. The decision to make PT free of charge in Agudos was the result of a broader understanding of the impacts of such policy. Urban development, for example, and more specifically boosting the local economy and attracting industrial developments, was one of the possible outcomes (Peschanski, 2018).

Following Caribé (2019), Agudos' decision to implement FFPT was meant to solve economical and technical issues. Social issues were only secondary. The (former) mayor does mention the great benefit to the population in an interview ten years after the implementation of FFPT in Agudos. The city's inhabitants save about 120 to 130 BRL per month from PT, which gives them the opportunity to have a better quality of life: it allows them to buy clothes, shoes, medicines, better food, etc. (Wakai & Chevalier, 2011). The municipality also believes that these savings lead to inhabitants spending more in local businesses, and thus sees FFPT not as a cost, but as an investment for the citizens (Desidério, 2015). According to José Carlos Octaviani the population would not accept it if this benefit were taken away (Wakai & Chevalier, 2011).

What does the local public transport system look like? How does the FFPT system function? The law enacting the system states the PT in the municipality ought to be maintained and operated directly by the municipality. However, it shall not be exclusive. Private companies may also transport passengers; they must abide by the regulation in place. The law further specifies PT shall be free but a fare can be defined by administrative act. This fare cannot be more than 0,5% of the minimum wage, and students who can prove they live at more than 2km from their school will have the right to travel for free. At least 50% of the fleet should be adapted

to people with reduced mobility, following the prevailing legislation.[27] The itinerary of the line is defined by administrative act. The fleet should circulate at least 12 times per day, following the full trajectory. An administrative act can define the need for new lines or limits based on traffic statistics and economic elements. The law further stipulates that the vehicles can carry publicity on the inside and on the outside. The income the municipality receives from this publicity goes to the maintenance of the fleet. The timetable can be changed by administrative act, in the interest of the population, respecting the possibilities of the municipality. It is forbidden to exceed the capacity of the vehicles, and to drive the vehicle with passengers on the outside of the vehicle, as well as with open doors (Agudos Municipality, 2003).

The '*Circular de Graça'* (the Free *Circular*[28]) bus network consists of four lines that function daily (Santini 2019). At first, the fleet counted eight buses, growing to fourteen in 2011 (Wakai & Chevalier, 2011), up to sixteen two years later. The municipality staff for the system counts 25 members, of which 20 drivers (Camargo, 2013). The fleet covers about 30,000km monthly (Agência Câmara de Notícias, 2013), transporting about 9000 people daily (Camargo, 2013). The buses circulate from 5h30 in the morning until 23h30 in the evening, with a frequency of once every hour (Desidério, 2015). Despite the approval of inhabitants and companies, there were acts of vandalism of the buses. This led the municipality to install cameras in a part of the fleet, and to start analyzing whether an identification card should be created (Camargo, 2013). None of the resources consulted in the framework of this thesis indicates that registration is necessary to use the system.

[27] Since 2015 the Brazilian Inclusion Law (*Lei Brasileira de Inclusão – LBI*) has turned the norms of the Brazilian Association of Technical Norms (*Associação de Normas Técnicas – ABNT*) into obligations, implying that universal design should be standard. Three types of urban buses are allowed: with low-floor decks, with high-floor decks (combined with accessible high platforms) or buses with wheelchair lift. This last option is only allowed when it can be proven option one or two are not possible. Despite the lift being only allowed in exceptional cases, it is still widely used (Oliveira, personal communication, 19 May 2021).

[28] The literal translation of 'ônibus circular' would be 'shuttle bus'. In order to avoid confusion with what is more commonly known as shuttle buses (mostly privately owned vehicles and/or used to bring a limited group of people from one location to another), the (untranslated) word *'circular'* will be used throughout this thesis in cases where the municipality refers to the buses as such.

In 2014 the city decided to forgo the public ownership of the fleet. The system was outsourced to a subcontractor, but remained fare-free for the city's inhabitants. The company would receive R$ 90 thousand per month, totalling to a bit more than one million BRL per year. Following calculations made by the municipality, this would be cheaper than to keep the ownership in the hands of the municipality. Also the service offered would be better, especially regarding the accessibility of the vehicles (Bazani, 2014; Peschanski, 2018). In 2017 the service was taken over by the municipality again (Pelegi, 2018). Today, the PT system is controlled and carried out by a public company (idec, 2019a).

Agudos – 966km^2 – is considered a municipality with a comparatively large surface area, number 45 in the 645-long list of cities in the state. According to Peschanski (2018) the city's sprawled morphology makes it even more important that there is a good infrastructure in place for movements within the municipality. According to the mayor at the time, the system connects all the points in the city. Sometimes it's necessary to make a transfer at the bus station (Wakai & Chevalier, 2011).

How much does the PT system cost? How is it financed? Before the implementation of the system a study was carried out to evaluate the costs of an efficient PT system in Agudos. They were estimated at 3% of the city budget (Peschanski, 2018). In order to buy and maintain the buses, the municipality set some of the city budget aside. There were no extra taxes levied on the population but there was an improvement in the city revenue, because of an increase in business incomes. Two major companies in the city (Brahma and Duratex) produced more and thus paid more taxes to the city. The ex-mayor points out that Agudos is privileged in that regard. "In other cities there are no such companies" (Wakai & Chevalier, 2011). Besides the city budget, partly consisting of revenues collected from (new) companies in the region (Costa 2018), the expenses of the system are financed by the income gathered through the sale of publicity space (Agudos Municipality, 2003).

Depending on the source, the system (maintenance, drivers' salaries, fleet renovation) costs between R$1,44 million (Desidério, 2016), "less than R$1,5 million" (idec, 2019b), to R$2 million per year (Agência Câmara de Notícias, 2013). This last number comes down to about 2% of the municipality budget (R$ 92 million in Carmargo, 2013). It became possible for the municipality to finance this system by cutting other municipal expenses. For example: the number of commissioned posts was reduced by 70% (Agência Câmara de Notícias, 2013). In order to buy its first five (used) vehicles, the municipality needed to spare R$150,000. In comparison: the PT system in the capital of São Paulo costs about R$1,5 million in less than an hour (idec, 2019b).

Did the introduction of FFPT change the quality of the PT network? Since the establishment of FFPT the bus fleet grew, but the trajectories of the buses stayed more or less the same for the following 10 years. Sometimes the location of the stops was changed because of complaints or suggestions from inhabitants (Wakai & Chevalier, 2011). No further information was found with regards to changes in the PT network.

Did the introduction of FFPT change the habits of the local population or companies? The amount of people using PT in the city tripled after the implementation of FFPT (Wakai & Chevalier, 2011). Unfortunately also the rate of vandalism rose after its implementation, which brought an unexpected extra cost for the municipality. At night, the buses became central points for drug trafficking. The former mayor's request for authorization to have police officers accompany the nocturnal routes was refused in court. The current mayor tried to solve the issue by having an armed man circulate in the buses to prevent damage (Peschanski, 2018). According to the mayor in 2013, the city of Agudos showed – years after the implementation – an increase in tax revenues and improvements in a variety of social and economic factors. Local commerce which hardly existed was strengthened, and it was easier for workers to move around. This led to a reduction in the unemployment rate (Agência Câmara de Notícias, 2013).

Agudos was a poor municipality in its regional context at the moment of implementation of FFPT. In the beginning of the 2000s, Agudos was the third least evolved municipality of the Bauru mesoregion – one of the richest areas of Brazil. Since the implementation of FFPT the city is registered under the range of 'high development' in the Brazilian Human Development Atlas. Following Everton Octaviani, mayor in 2013, a virtuous chain started to move after FFPT was implemented in the city: businesses started popping up and commerce in the city grew stronger. Service providers, previously inexistent, started to operate, as they could move around to provide their services. Many companies set up shop in the city, some companies moved to Agudos (Peschanski, 2018). According to Camargo (2013) FFPT indeed attracts companies, as they no longer have to pay transportation allowance ('*vale-transporte*') for their employees.

Anecdotal evidence shows the attraction of the FFPT system. Camargo (2013) tells the story of a 27-year old inhabitant who moved from a neighboring municipality to Agudos because it offers FFPT.

4.1.3 Morungaba: planning for FFPT

If it were not for the website freepublictransport.info, the city of Morungaba would not have been mentioned in this thesis. The small municipality of 13,781 inhabitants (IBGE 2020) does not figure in any of the other consulted resources that provide an overview of municipalities with FFPT in Brazil. Morungaba is one of the few municipalities that replied to my inquiry by e-mail, and one of the only municipalities that seemed to have planned for a fare-free PT system from the start. What follows are the results of a conversation I held with engineer Marcel Oliveira, Planning and Development Director of the municipality, who worked together with the mayor on the implementation of FFPT in the municipality. The municipality installed a PT service, fare-free from the start, at the end of 2019 (Oliveira, personal communication, 21 April 2021).

Why did the municipality implement FFPT? The built-up area of Morungaba consists primarily of the center of the municipality, and two

neighborhoods in the extreme North and extreme South, each at about 2,5km from the center. Until 2019, its inhabitants – mainly low income families – did not have PT at their disposal. They usually went to places by foot or not at all. The population had been demanding PT for a while[29], and the promise for the construction of bus terminals and the installation of a PT system was integrated in the government plan prepared for the 2016 elections. Following Oliveira (personal communication, 21 April 2021) the main goal of the (soon-to-be) mayor's team was to democratize the population's access to PT.

What does the local public transport system look like? How does the FFPT system function? At the end of 2019, the plan was to have two buses circulating throughout the municipality from 4h00 to midnight. This would attend to all the companies in the city. However, not much later the COVID-19 pandemic broke out, and the municipality no longer had sufficient resources to provide the service. At the moment there is one municipal bus line. In order to project the line, a study was done to find out the demand of the companies, the best timetables, locations for stops, etc. The bus line passes through the two neighborhoods geographically most distant from the center, and continues passing nearby the companies, at the hospital, and at the intermunicipal bus station. The bus rotates five times a day, from Monday to Saturday. There is no ticket control. The fleet is rented by the municipality; the drivers are municipality employees. Three bus terminals were constructed with funds obtained from the state government. In total, including the already existing central bus station (for intermunicipal transport), the municipality now counts four terminals (Oliveira, personal communication, 21 April 2021).

How much does the PT system cost? How is it financed? Apart from the terminals, financed by the state, the cost of the system is borne by the municipality. A request for three buses was done to the Ministry of Regional Development, but the Ministry did not manage to respond to this request. In the end, the municipality finances the PT system completely, without

[29] This was confirmed by research carried out in the framework of Morungaba's Urban Mobility Plan, finalized in 2016 (http://www.pmmu.com.br/docs/PLANOS/PMMU_Morungaba.pdf)

having increased local taxes. Oliveira comments: in a way Morungaba was lucky. Around 2018 the population of the city grew slightly, jumping to a higher bracket of the federal funding scheme. As a consequence, the municipality received increased revenues from the federal government. This extra income supports the municipality to fund the PT and other services (Oliveira, personal communication, 21 April 2021).

Did the introduction of FFPT change the quality of the PT network? Like Monte Carmelo, the PT system in Morungaba was free from the start. It is thus not possible to say how the gratuity influenced the network.

Did the introduction of FFPT change the habits of the local population or companies? Oliveira affirms the population has embraced the new bus system. They frequently use it to go shopping, go to work, or for pleasure, adapting their trips to the bus' timetable. The popularity of the mayor rose to such an extent he was re-elected with 75% of the valid votes. The PT system has also aroused the interest of companies who wish to install in the municipality, asking to extend the service to other neighborhoods. At the moment the mayor cannot respond to these requests because of the lack of resources the pandemic has caused. Studies are being carried out to research the possibilities of expansion, when this becomes possible again (Oliveira, personal communication, 21 April 2021).

4.1.4 Other municipalities with FFPT in São Paulo

In 1998 - not many years after the municipality of Paulínia had stopped charging fares for its PT system - a legislation was enacted in **Potirendaba (SP)**. It created collective PT in the city and made it possible for public authorities to allow for exemptions and discounts from the fare (Costa, 2018). A 2016 news item on the municipality's website declares the PT service's goal is to "facilitate travel of all who use this transport" (Potirendaba Municipality, 2016). The PT system started off with one bus, passing daily throughout the entire city, from one neighborhood to another (Potirendaba Municipality, 2013). It transports about 70 people a day, i.e. more than 2000 per month. The bus used to circulate from 6h until 22h30,

from Monday to Friday (Desidério, 2015). Today, the municipality publishes the timetable for two municipal lines, one has eight and the other one seven departures per day (Potirendaba Municipality, 2021). The website does not mention whether this counts for weekdays only. Following Costa (2018) the 1998 law affirms costs related to collective PT should be paid for by the municipality's budget. Following Brinco (2017), Potirendaba is the only known example of a municipality where FFPT was cancelled during one municipal government, to be reimplemented later.

Following Santini (2019), inspired by neighboring city Agudos (SP), **Macatuba (SP)** implemented FFPT in 2004. Macatuba is one of the only municipalities registered here to have put forward environmental reasons for the implementation of FFPT. It claims to offer FFPT to the population in order to incentivize the use of PT as an alternative to the increase of cars in the city (Pelegi, 2017). The PT system of Macatuba currently consists of two buses. Two (used) vehicles were acquired in 2017 in order to replace the old ones that were of bad quality. The buses used at present are of better quality and better adapted to passengers with limited mobility. They have a capacity for 30 people (Macatuba Municipality, 2017; Pelegi, 2017). The PT system connects different neighborhoods to the center and the industrial district. The only line rotates from Monday to Friday every hour, from 6h00 until 18h15. On Saturday it has five morning departures between 6h00 and 12h00. It does not rotate on Sundays and holidays (Pelegi, 2017). The two new buses, acquired in 2017 cost R$ 34 thousand each (Macatuba Municipality, 2017).

Holambra (SP), a municipality of 65,577 km^2 with 15,272 inhabitants (IBGE 2020) implemented FFPT in 2010. Holambra's PT system is free to use both by its inhabitants as well as visitors (Holambra Municipality, 2020). The municipality's website publishes the timetables of the different buses serving the municipality: the intermunicipal bus lines (with fare), and the municipal '*circular*' lines (without fare). There are four municipal lines, with four to five departures Monday through Friday, zero to five on Saturday and zero to three on Sunday (Holambra Municipality, 2017). The municipality

added two new buses to its fleet in December 2019; they have a capacity of about 40 seats (Holambra Municipality, 2020).

The service does not seem to reach all inhabitants in the same way. In a consulted press article, inhabitants indicate a low bus frequency to two neighborhoods that are somewhat further away from the city center. The same article quotes the then director of Holambra's Transport Department, José Marcos de Souza (Tatu): "the municipality invests and commits (…) in order to guarantee that the bus transport (…) maintains fare-free and without costs to the population of Holambra. Holambra (…) does the opposite of what the large majority of municipalities in the state of São Paulo do - charge more every day for this service - by guaranteeing to all the inhabitants and visitors, without exception, the opportunity to transit freely through the city to study, work, shop and go for a trip" (Jornal da Cidade de Holambra, 2017). The two new buses bought by the municipality in 2019 had a cost of R$ 139 thousand (Holambra Municipality, 2020).

Figure 6 Holambra's bus fleet
Image credits: left: Jornal da Cidade de Holambra (2017); right: Holambra Municipality (2020)

In **Dourado (SP)**, a municipality with 8,878 inhabitants (IBGE, 2020), the PT fare was brought from R$0,50 to zero in 2014. The goal of the project was two-fold. On the one hand it aimed to economically benefit the population, and on the other hand, it intended to lure more people to use the service (which was at 200 daily) in order for them to decrease their automobile use. In 2014 the service started with one vehicle, with the plan to increase its number in case of rising demand. The municipality estimates a cost of about R$ 17,3 thousand (G1 São Carlos e Araraquara, 2014). Law

N°1.453 stipulates that PT will be offered for free, as long as the municipality has the finances for it, deriving directly from the municipality budget (Dourado Municipality, 2014). During the COVID-19 pandemic, the service was temporarily suspended. It was resumed in February 2021. The *circular* circulates three times a day throughout the city: from 6h30 to 9h30, from 10h30 to 13h30, and from 16h30 to 19h (Dourado Municipality, 2021).

The municipality of **Vargem Grande Paulista (SP)** adopted FFPT in 2019; it is the first municipality of the metropolitan region of São Paulo to offer FFPT. In 2018 the municipality was pressured by the company operating the PT system in the city, demanding either higher fares or subsidies from the municipality. When the company stopped operating from one day to the next, the municipality started operating an emergency service with vans. The municipality then decided to order a variety of studies, calculating the costs if the municipality were to implement FFPT. It was found that compared to the concessionary providing the service, implementing FFPT would reduce costs for charging the fare, and the company's profit margins would no longer have to be compensated. It turned out adopting FFPT would be cheaper for the municipality, as well as for the citizens. The cost of the system for the municipality would go down from a monthly contribution of R$574 thousand to the concessionary (which would have continued charging fares), to R$386 thousand per month (with rented buses, not charging fares). Hence the municipality adopted a new model for PT in the city, offering it for free to its citizens (Ramos et al., 2019).

The municipality's current fleet consists of 13 buses, carrying out seven lines, compared to seven buses and four lines before (Ramos et al., 2019). Maps with the routes and their timetables are published on the municipality's website (Vargem Grande Paulista Municipality, n.d.). The buses are rented by the municipality. The company renting out the buses manages and maintains them; the municipality guarantees the operation of the service. In order to make use of the system, users need to apply for a card that allows them to pass the turnstile (Jornal da Gazeta, 2019). Resources to finance the system are gathered in the Municipal Urban Transportation and Traffic Fund (*Fundo Municipal de Transporte e Trânsito*

Urbano – FMTU). It will have a variety of incomes, amongst others from budget allocations and traffic fines (Rede Macuco, 2019). Further, companies in the region no longer pay *vale-transporte* for their employees. Instead, they now contribute R$39,2 per month per employee to the Fund (Jornal da Gazeta, 2019). The Fund is also financed by publicity in the buses and terminals, and on the online application connected to the PT system, as well as through income from renting out commercial space inside a new terminal (Ramos et al., 2019).

According to the company carrying out the service the number of PT users in Vargem Grande Paulista has tripled since the implementation of FFPT (JE Online, 2020). The municipality observed that since the implementation of the FFPT system more inhabitants – mainly those living further away – have been making use of the PT system, and have come to the center more often. They buy in local shops, make use of local service, etc. According to the mayor, this leads to higher income both for the municipality, as well as for the local businesses, and thus increases job opportunities in the city (Jornal da Gazeta, 2019). The FFPT system further incentivizes local companies to hire locals, as it exempts them from paying their transportation allowance. In general the FFPT system thus leads to thriving businesses as well as lower unemployment rates (Ramos et al., 2019).

Figure 7 Vargem Grande Paulista's FFPT bus fleet
(© Vargem Grande Paulista Municipality)

On January 2nd 2020, the municipality of **Pirapora de Bom Jesus (SP)** adopted FFPT. The new PT system is called '*Expresso Social Piraporano*' (Pirapora's Social Express). The municipality has a reasonably vast territory; many inhabitants cross it by foot. The new PT network aims to diminish the cost of living for local inhabitants and to boost Pirapora's labour market and businesses (de Sousa, 2020). The fleet consists of two buses, of which one rotates while the other one is used as backup, or will start circulating when the demand goes up. Throughout a 11km-long trajectory, the bus passes by all of the city's neighborhoods. The bus circulates from 6h in the morning until 19h in the evening, from Monday to Saturday. The buses were donated to the municipality by companies in the region. In return, the municipality takes care of maintenance, and pays for the drivers and the fuel (Bortolotto, 2020). With the new PT system in place inhabitants from neighborhoods where there was no PT before will have access to the service (Bazani, 2020). The new buses are adapted to passengers with reduced mobility. The system also comes with a phone application (PXBUS Pirapora), where users can check timetables and the live location of the bus (de Sousa, 2020). The municipality's website publishes a timetable (see Pirapora do Bom Jesus Municipality, n.d.).

Figure 8 The Expresso Social Piraporano bus
(© Municipality of Pirapora de Bom Jesus)

4.2 Municipalities with FFPT in the state of Minas Gerais

The state of Minas Gerais (MG) is home to the first municipality to have ever implemented FFPT and still has FFPT in place today: Monte Carmelo. Apart from Cláudio, where FFPT was implemented because of COVID-19, all municipalities in MG with full FFPT are discussed below.

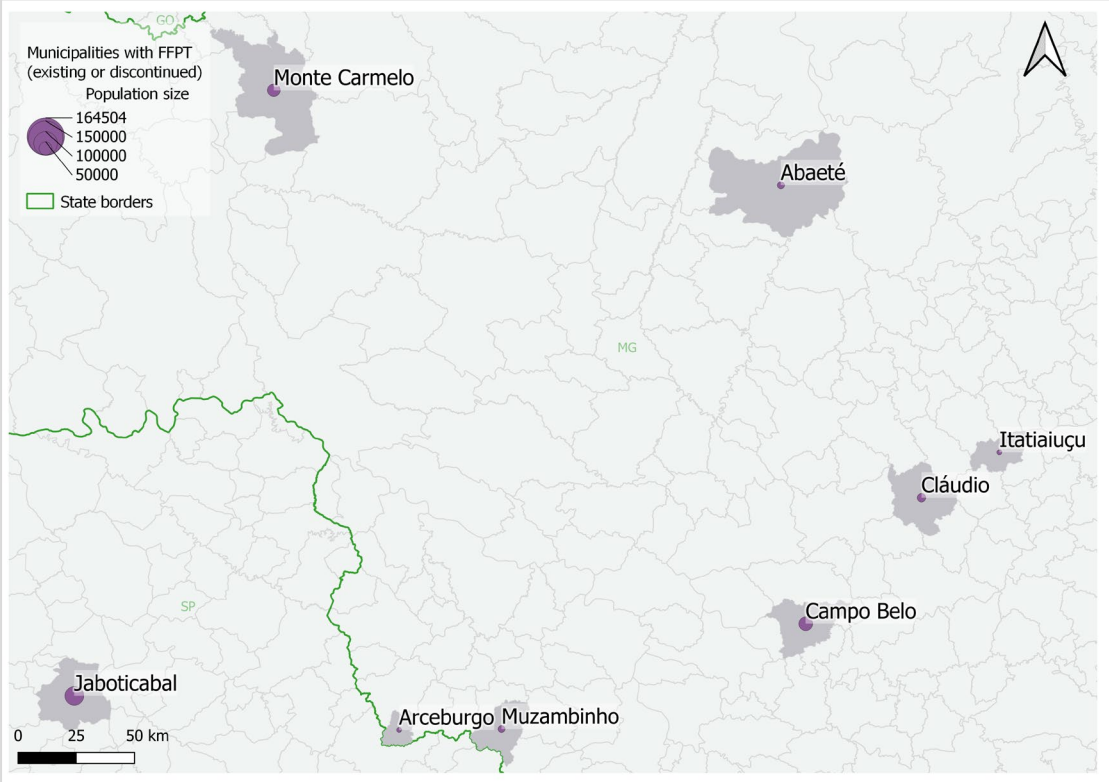

Figure 9 Map detail: FFPT localities in the state of Minas Gerais

4.2.1 Brazil's oldest FFPT experience: Monte Carmelo (MG)

The municipality of Monte Carmelo – which today counts 47,931 inhabitants (IBGE, 2020) – markets itself proudly as the first Brazilian city with FFPT (see Figure 10) . Since 1994 Monte Carmelo's inhabitants do not pay for PT in their municipality. Following Lopes (2018) – whose master thesis discusses the case of FFPT in Monte Carmelo – the demand for PT in the municipality started growing strongly in the 1990s because of the development of the municipality. The number of inhabitants increased; the periphery expanded. Back then, the municipality was an important provider of work because of the presence of the ceramics industry and the manual

harvesting of coffee. At the time, there were companies providing PT, but the service was very limited and unreliable. One of the rationales to implement a reliable PT system was the low number of enrolled students in evening classes. Those classes were meant to alphabetize workers from the ceramics industry. The PT system was thus first and foremost introduced to attend a working class.

Figure 10 Banner on Monte Carmelo municipality website
("First Brazilian city with FREE public transport")
(Monte Carmelo Municipality, 2021)

Why did the municipality implement FFPT? In 1993, the concession of the only company providing PT in the city ended. Its service was limited and other companies tempting to provide PT failed to do so, as it was not sufficiently lucrative. At the same time, inhabitants living in neighborhoods distant from the university did not make it to the evening classes. "As the classes ended around 23h, it was not possible for them to go back home safely, as the only option was to go by bike or walking" (mayor at the time in Lopes 2018).

According to the mayor at the time (Gilson Brandão Viera), when the PT system started operating an analysis was done in order to understand how many buses would be needed to serve all the neighborhoods of the city. At first, the municipality bought five buses – four for the collective transport and one for school transport – and hired 11 drivers. Three buses would serve the first lines throughout the city, while one bus would stand in as backup. The plan was to only have them operate for free in a first phase, in order to know the demand. However, a deeper inquiry showed that it would be more expensive for the municipality to charge a fare rather than charging nothing. It would have meant the creation of a public company, which would have been more costly than not creating it at all (Lopes 2018).

Eventually, the "gratuity started by accident, the reality needs to be said" (transport coordinator in Lopes, 2018, p. 73).

The costs of PT at the time were about 1% of the municipal budget, and – according to the mayor back then – basically insignificant compared to all the benefits. Further, as there was a cost related to collecting the fare, it did not seem worth it. The PT "would not only serve students taking evening classes, but also workers, housewives, students taking classes during the day, and the inhabitants in general" (mayor in Lopes, 2018, p. 73). The PT system responded to a demand by the population to provide an organized network of collective transport, and – following the transport coordinator at the time – the municipality was the only one with the resources to provide this (Lopes 2018).

In 2014, on the first of May (International Labour Day) the municipality's fleet was officially renewed, adding five buses and a new line to the network. While the new line would mainly serve university students, the PT network still maintains a strong working class focus. The mayor at the time (Fausto Nogueria) stated in an interview: "The municipality offers this service since such a long time, and for free, while we see people in other cities burning buses, doing protests because of fare hikes (...) This is why this is a conquest, which should be maintained for the worker because he ends up sacrificing a lot of his income on transport" (Ascom Monte Carmelo, 2014). Following Costa (2018), the goal of implementing FFPT in the city first and foremost was to provide a service for workers and students, but everyone is allowed to make use of the service for free.

What does the local public transport system look like? How does the FFPT system function? In function of the system, the city was geographically divided into four parts. The buses cross each other clockwise and counter-clockwise. All the neighborhoods are connected with the center (Ascom Monte Carmelo, 2014). At first, there were three lines and four buses. By 2014, the system had expanded to four lines and six buses, managed and maintained by the municipality. These four lines cover almost the entire urban area of the city. Every trajectory is about 120km long

(Ascom Monte Carmelo, 2014). According to Freitas (2015) savings in the maintenance costs made the creation of a fifth line possible. This line attends a campus of the Federal University of Uberlândia (UFU), situated at the border of the city, from 6h in the morning until 18h30 in the evening. In 2014, the PT system transported about 6000 people daily, on average 1500 per line (Ascom Monte Carmelo, 2014; Geraldo, 2016). The bus lines of Monte Carmelo's free bus service are published on the municipality's website. Each line circulates between five and nine times daily (Monte Carmelo Municipality, 2021).

The system is free to use, for inhabitants and for visitors. In the beginning the plan was to have the bus rotate daily until 23h, but this was soon diminished to only weekdays until 23h, Saturdays until 18h, and not on Sundays and official holidays. As there was (supposedly) no demand between 9h and 11h, the bus would not circulate at those times. Following Lopes (2018) there are strong indications that the FFPT system was influenced greatly by the workers of the ceramics sector. The timetables of the buses were mainly scheduled to bring them to work, home and to school. Outside of those times, the buses would not circulate for other inhabitants of the municipality. Today, the buses still only circulate during peak times, and the service on Saturday has been reduced to the morning (until 13h). During school holidays the buses do not circulate. That time is used for maintenance and for the drivers' holidays (Lopes 2018).

How much does the PT system cost? How is it financed? The PT system is funded by the municipality itself (Geraldo, 2016; Santini, 2019). The costs include salaries, maintenance of the bus fleet, and fuel. Since its implementation, PT expenses amount to about 1% of the municipal budget (at the time about R$10 thousand). In the law project (N°1.683/94) which created the PT system, a paragraph was included stating that the inhabitants of Monte Carmelo would pay indirectly for the service, through the payment of their taxes. However, there was no increase in taxes. As mentioned by Lopes (2018), the tax income from the existing industries in the city made it possible for the municipality to bear the cost of the PT system (Lopes, 2018).

Did the introduction of FFPT change the quality of the PT network? The PT network in Monte Carmelo was fare-free from the start. While the plan was to introduce a PT network with fare, it ended up being a PT network free of charge 'by accident'. It is therefore not possible to answer the question above. What can be said is that the system has evolved since its implementation, adding more lines to attend to the population better. Timetables have changed several times, too, in order to serve the city's student population (Ascom Monte Carmelo, 2014).

Did the introduction of FFPT change the habits of the local population or companies? As the PT network was free from the start, it is not possible to answer the question above.

4.2.2 Other municipalities with FFPT in Minas Gerais

Not much later than Monte Carmelo, the nearby city of **Abaeté (MG)**, 300km down the road towards the state capital Belo Horizonte, adopted FFPT. It was implemented in 1997 (Lopes, 2017). The PT system consists of one line, connecting two neighborhood, each in one corner of the city. It functions from Monday to Saturday, from 5h45 until 19h. Two vehicles carry out the service (Freitas, 2015). No further information about the PT system in Abaeté was found.

Muzambinho (MG) implemented FFPT in 2011. Geographically close to Paulínia (SP), it might have been inspired by this first experience as well (Santini 2019). According to the administration in place in 2015, the policy was implemented by their predecessors "for political ends" (Desidério, 2015). The system was maintained by the next administration in order to "transport people who really need it" (Freitas, 2015). First, in April 2011 the PT system was created through municipal law 3.216/2011. The law regulated all the aspects regarding the PT service, carried out by the municipality itself or by a private concessionary. The law granted the possibility to the municipality to exploit the service directly, if implemented within six months after the publication of the law. In September of the same

year a new law was published (Costa, 2018). Law n° 3.240/2011 created the Municipal Fund of Urban Collective Transport of Muzambinho, with the goal to "guarantee the financial conditions for the funding of and investments in control, operation, monitoring and planning of the public transport in the municipality of Muzambinho, carried out directly by the public authorities of the municipality" (Muzambinho Municipality, 2011, p. 1). The Fund's income consists of: (a) (municipal) budget allocations; (b) contributions, transfers of resources, grants, subsidies or donations, from the government or the private sector; (c) supplementary, special or additional credits; (d) the result of investments of its resources; (e) the resources obtained by the commercialization of advertising space in goods and equipment connected to the urban transport system; (f) the result of (tax) collections, direct and indirect; and (g) other revenues (Muzambinho Municipality, 2011). This Fund collects the necessary capital for the functioning of PT in the city, and thus implements FFPT for all its users (Costa, 2018). The average monthly cost of the service is R$ 10,833 (Desidério, 2015) or - according to Freitas (2015) - R$ 52 thousand (or 1,5% of the municipal budget).

The municipality purchased two buses to carry out the service (A Folha Regional, 2011). These vehicles serve two lines four times of the day (Freitas, 2015), departing at 7h, at 11h, at 13h, and 17h. About 270 people per day, or 8.320 per month, make use of the system (Desidério, 2015). Every trip the bus covers about 28km - it goes from one extreme in the city to the other (A Folha Regional, 2019) - passing by different neighborhoods of the municipality. There is a turnstile on the buses, but no-one to collect fares. Some inhabitants are satisfied, others desire a more frequent service (G1 Sul de Minas, 2013).

Going by the information provided by a newspaper article at the time, the plan was only to offer the service for free during the first month, the system's implementation phase. After this, R$1 would be charged (A Folha Regional, 2011). In the end, this fare seemed to have never been applied, as the service is still free of charge today. However, it is not sure whether the fare-free system will continue to exist, as the municipality can barely

finance it (Freitas, 2015), and – according to the mayor in 2013, Ivan de Freitas – it prevents the municipality from carrying out other public works (G1 Sul de Minas, 2013).

The implementation of FFPT in **Itatiaiuçu (MG)** also meant the arrival of collective PT in the municipality, which did not exist before (Brinco 2017, Santini 2019). According to the Secretary of Transport and Public Roads in 2015, the PT is intended to serve the low income population, who depend on the PT system to go to work (Freitas, 2015). According to the mayor, the municipality's PT system aims to reduce inequalities and promote social inclusion, by offering the inhabitants the chance and ease to access the different localities of the municipality (G1 MG, 2015). In June 2014, law n° 1.251 created a PT system in the city, in order to comply with art. 30, V, of the Brazilian constitution and the National Urban Mobility Policy (Costa, 2018). The law further stipulates the service will be offered directly by the municipal administration, without the establishment and collection of fares. In order to identify the best routes, timetables, number of vehicles and users, the trajectories of the users, the costs of the system, etc., the law requires tests to be carried out for maximum six months (Itatiaiuçu Municipality, 2014). The system eventually started functioning with four lines in July 2015, connecting different districts to the center of the municipality. The routes are carried out three times a day: in the morning, at lunch time, and in the afternoon (Freitas, 2015). The timetable can be found on the municipality's website. Daily, there are between three and seven departures of each line in two directions, towards and departing from the center (Itatiaiuçu Municipality, 2020). The municipality purchased the four first buses, with a capacity of 22 seated passengers and with cameras and wheelchair lifts, for R$ 196,5 thousand each. The estimated costs to maintain FFPT in the city is R$ 52 thousand per month, or about 1,5% of the municipality's income. According to Freitas (2015) this is the same amount the municipality of Muzambinho spends.

One newspaper article mentions **Arceburgo (MG)** as another municipality offering FFPT. According to the article, FFPT is offered to inhabitants of the municipality's urban area. The service is called '*Tarifa Zero'*, and includes a

driver and a vehicle with 45 seats, offered by the municipality. It is used daily by about 450 people, mainly by workers from two companies in the city. The bus rotates from 4h30 until 18h, mainly to support these workers to go to work and back home. The line circulates six times a day, three times in the morning, and three times in the afternoon. It does not function in the weekends nor during holidays. The costs for the service are paid by the municipality's budget (A Folha Regional, 2019). Further information on the system is limited. No law was found on the municipality's website instituting FFPT. One document confirms the existence of a '*Tarifa Zero'* system (Arceburgo Municipal Chamber, 2017).

In **Campo Belo (MG)**, the municipality decided to offer PT for free in 2019 when it turned out there were no companies interested in offering the service. As providing PT would not be sufficiently profitable, no company applied to the public tender. A survey carried out by the municipality found that about 30,000 people used the bus per month, out of whom 12,000 already travelled for free. Paying passengers each paid R$3. The current bus fleet (including the drivers) is rented by the municipality (EPTV 2, 2019). The buses are equipped with air conditioning, WiFi, a lift platform and other facilities needed to support wheelchair users (Campo Belo Municipality, 2019). Two buses rotate daily throughout the city, one bus functions as back-up. Before, the municipality paid on average R$50 thousand to the company providing the service; today the FFPT costs the municipality about R$70 thousand per month (EPTV 2, 2019). In March 2021, a new bus was donated to the municipality by a state representative. It operates a new line, connecting the rural zone of the municipality with the city center from Monday to Saturday (Campo Belo Municipality, 2021). The municipality plans to continue looking for companies willing to operate the service (EPTV 2, 2019).

4.3 Municipalities with FFPT in the state of Rio de Janeiro

At present, two municipalities in the state of Rio de Janeiro (RJ) have FFPT in place: the municipality of Maricá, the largest municipality with FFPT in the country, and the municipality of Silva Jardim. The municipality of Porto Real discontinued FFPT in 2017; this experience is shortly described in 4.8.

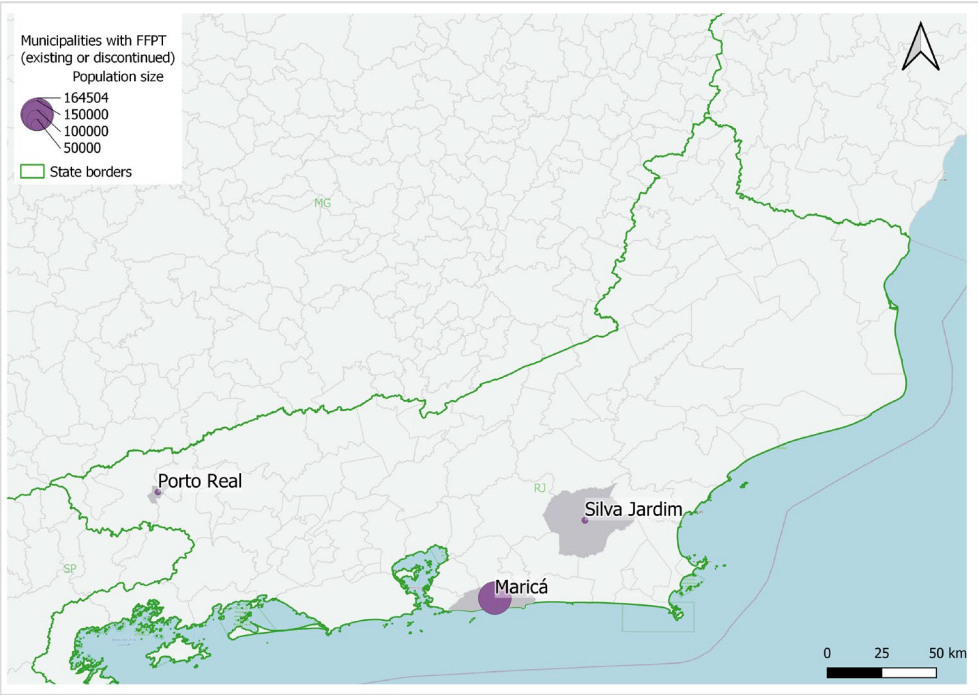

Figure 11 Map detail: FFPT localities in the state of Rio de Janeiro

Maricá (RJ) is the largest municipality in Brazil with FFPT in place. In 2020 Maricá counted 164,504 inhabitants (IBGE 2020). The FFPT system was implemented in 2013[30].

Why did the municipality implement FFPT? Following the mayor at the time, Washington 'Quaquá' Luiz Cardoso Siqueira, his goal was first and foremost to reduce the political power of the private bus companies in the city. The bus companies would take advantage of the population, and take away their right to come and go, to get to know the city. His main goal was

[30] Some sources mention 2015 as implementation year (CartaCapital, 2015; Santini, 2019). Also the municipality's website publishes two dates: 2013 (Maricá Municipality, 2019) and the end of 2014 (Maricá Municipality, 2014). This is probably due to the legal challenges the municipality faced. The policy of implementing FFPT was adopted in 2013, the public company eventually operating the system (EPT) was only created in 2014 (Costa, 2018).

to break the companies' monopoly, and return the right to the city to the population. At first, the plan was to charge R$2 at the start, and let the fare go down with R$0,50 every year until reaching a fare-free system. However, as the municipality suffered from legal actions by private companies trying to prevent the public company from functioning, the municipality had to go with a fare-free system from the start (Siqueira, 2020).

What does the local public transport system look like? How does the FFPT system function? The buses bought by the municipality to carry out the service are red, in contrast to the blue ones of the private companies. The buses were then nicknamed '*vermelinhos*', the little red ones (Santini, 2019). The service is carried out by the Public Transport Company (*Empresa Pública de Transporte, EPT*). At first, the FFPT system only operated in a part of the city. In the other regions, PT was carried out by one of the private companies (Costa, 2018; idec, 2019b; Santini, 2019). For Lopes (2017) Maricá did therefore not count as a full case of FFPT. However, the contract with the only surviving private company ended in 2020, and since March 2021, the fare-free system covers the entire municipality (Marques, 2021a).

At the start, the municipality bought 10 buses, which covered 4 lines (CartaCapital, 2015). They have a maximum capacity of 46 seated and 28 standing passengers, and are equipped with wheelchair lifts (Maricá Municipality, 2014). At the moment, the EPT fleet counts 52[31] buses, covering 19[32] lines. The EPT manages the system, which is carried out by contracted companies. The service functions more than 20 hours daily from Monday to Sunday (Marques, 2021a).

[31] In 2019, the municipality published a news item stating 23 new buses were chartered, adding to the existing fleet of 38 (Maricá Municipality, 2019), i.e. 61 vehicles in total. Also in this case, various sources state different numbers.
[32] According to Lourenço (2021), in an article published less than 2 months later, there are 25 lines.

Figure 12 Maricá's vermelinhos
(© idec)

How much does the PT system cost? How is it financed? The municipality invests about R$15 million[33] into the system yearly (Santini, 2019), and saves about R$ 4,8 million on transportation allowance for its own public servants (Desidério, 2015). In order to finance the system, the city counts with royalties from oil exploration along its coastline, which has gone up since the implementation of the FFPT system: from R$ 275 million in 2015 to R$ 1,4 billion in 2018 (Santini, 2019). In order not to continue the dependence on oil royalties, and to show that it is also possible without, the municipality looks into different ways to obtain funds to finance the system. At the moment, the municipality aims to transform into a technological hub, where new, less polluting technologies can be produced for the transport sector. This way the technological royalties can replace the oil royalties (Marques, 2021a; Santini, 2019a).

Did the introduction of FFPT change the quality of the PT network? Since its implementation, the system has been expanding throughout the municipality (Marques, 2021a). In March 2021, also bikes were added to the FFPT system. At the moment, there are about 10 locations in the city

[33] R$8,4 million according to Desidério (2015)

where registered inhabitants can borrow a bike. From Monday to Friday it is possible to use them for maximum one hour on end; in the weekends and on holidays two hours is the maximum. The EPT will launch a tender to buy children's bikes and bikes for people with disabilities (Lourenço, 2021).

Did the introduction of FFPT change the habits of the local population or companies? Following Rafael Calabria, researcher at the Brazilian Institute of Consumer Protection, specialized in urban mobility, the success of the project is proven by the intensive use of the bus in the city, and by the rise in demand by the population. It is different from cities were a fare is charged (idec, 2019b). The municipality estimates that the number of trips will go up from 21 thousand to 50 thousand per day, as the system continues to expand throughout the municipality (Marques, 2021a).

The municipality of **Silva Jardim (RJ)**, not far from Maricá, implemented FFPT in 2014 partly because of disagreements with the PT companies at the time (Santini 2019). The adoption of FFPT was meant to solve the inefficiency, bad quality, and various legal issues of the (outsourced) system in place. Even though the implementation of FFPT in the municipality happened not long after the 2013 manifestations, the decision was already taken before (Menezes, 2014). In 2011, the Municipal Urban Transport Service (*Serviço Municipal de Transportes Urbanos, SMTU*), a public company, was created by law n°1.554. This law already stated that when defining the fares, the social function of the public company should be taken into account. According to Costa (2018) this can be seen as an indication that there was a plan to implement FFPT in the future. In February 2014, gratuity in the municipality's PT system was implemented by decree n° 1626. It applies to buses owned by the municipality, within the limits of its territory. The first decree granted gratuity for one month (Silva Jardim Municipality, 2014). Hereafter, a series of municipal decrees have continuously prolonged FFPT in the municipality. The last decree prolongs the universal gratuity until December 31st of 2021 (Silva Jardim Municipality, 2021b).

The system counts with 10 vehicles, operating 8 lines, every day of the week. Two vehicles act as back-up, in case of mechanical issues (Menezes, 2014). The information of the PT system on the municipality's website is limited. The 2021 timetable of 9 lines can be found in a news item (Silva Jardim Municipality, 2021a). The PT system is financed by the Municipal Transport Fund (*Fundo Municipal de Transportes, FMT*), which consists of the following resources: (a) budget allocations; (b) additional supplementary credits; (c) resources from agreements, contracts, consortia and covenants; (d) income obtained through the application of its own assets; (e) transfers from other state and federal funds; (f) revenues from the collection of bus fares; and (g) other eventual revenues (Silva Jardim Municipality, 2015). According to the mayor who implemented FFPT, Wanderson Gimenes Alexandre, the policy has injected R$ 3 million into the local economy in only 18 months. According to him this is the value inhabitants have economised because of the system's gratuity (Pires, 2015 in Caribé, 2019). Other sources claim a rise of 30% in sales in local businesses, due to the easier access to the center of the city (Macaé News, 2015 in Caribé, 2019).

4.4 Municipalities with FFPT in the southern region

In Brazil's southern region, consisting of the states of Paraná, Santa Catarina and Rio Grande do Sul, five cases of FFPT were identified: four in the state of Paraná, and one in Rio Grande do Sul. The discontinued case of Tijucas do Sul (PR) is considered in 4.8.

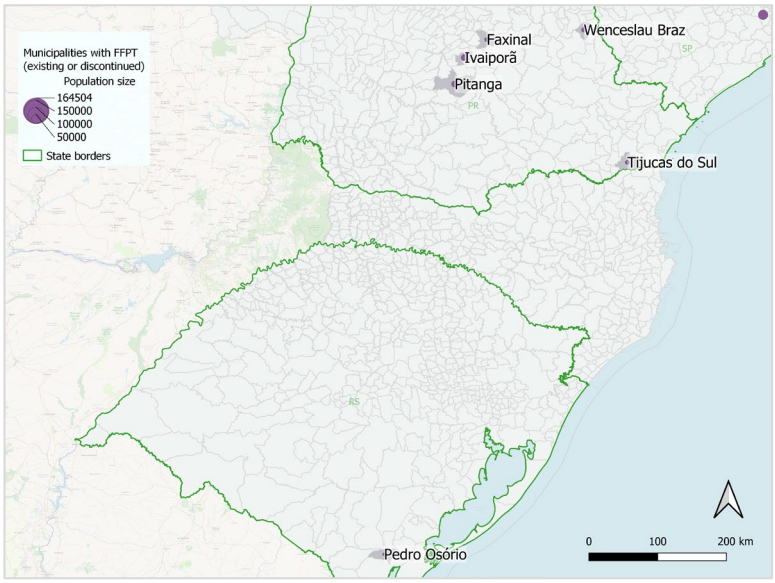

Figure 13 Map detail: FFPT localities in Paraná (above) and Rio Grande do Sul (below)

In **Ivaiporã (PR)** FFPT was implemented by mayor Pedro Wilson Papin in 2001 (Costa 2018). It is the largest city in the state offering FFPT (Idec, 2019). The service is carried out directly by the municipality, and the costs are covered by the city budget and by income from publicity on the buses. Following Costa (2018) Ivaiporã was probably the first municipality to collect funds for PT by selling publicity space. The municipality spends about R$ 800,000 yearly to maintain the service[34]. After the implementation of FFPT the use of PT transport in the city rose. In 2019, the municipality of Curitiba – the state's capital – decided to donate an articulated bus to the municipality of Ivaiporã (Idec, 2019). A 2017 news article on the municipal website gives limited information on the bus lines, the timetable and its drivers (Ivaiporã Municipality, 2017).

[34] A 2013 newspaper article mentions a cost of R$ 520 thousand and a yearly budget of R$ 50 million (Camargo, 2013).

Figure 14 FFPT bus in Ivaiporã
"In Ivaiporã the PT is for free and of high quality"
(© Rafael Calabria, idec)

Faxinal (PR) offers FFPT to its citizens since 2001. Little information was found on Faxinal's PT. What is known is that in 2016 the municipality purchased a new bus, which circulates for free throughout the city center and different neighborhoods of the municipality. The bus disposes of seatbelts and a wheelchair lift and it cost about R$77 thousand. According to the mayor at the time, this purchase was possible because of the organization of the municipality's finances (Faxinal Municipality, 2016). In 2019, two bi-articulated buses were donated to the municipality, after one was set on fire earlier that year. It was gifted by URBS (Faxinal Municipality, 2019), the company that controls the transport system in the nearby state capital Curitiba.

Wenceslau Braz (PR) implemented FFPT in 2009. The municipality directly carries out the service. The drivers are municipality staff. According to the mayor in 2019, Paulo Leonar, the municipality carries out this service from an understanding that it benefits lower income inhabitants and all the workers who need transport to go from home to work. For many people the

price of PT can take a large bite out of their budget. In 2019, the municipality purchased new vehicles, and started a new line, also connecting the rural areas of the city to the center (Aleixo, 2019). More information about the FFPT system in the city could not be found.

Pitanga (PR) implemented FFPT in 2012. The PT system in the municipality was free upon the publication of the law N°1.690 in December 2011. The law creates the *Transporte Coletivo Urbano Gratuito* (Free Urban Collective Transport), to be carried out as a public service, directly by the municipality, and free to all its users. Like other municipalities, the law provides for the opportunity to exploit publicity inside the buses, in order to gather funds to pay for the system. The law further stipulates that expenses for the system can be covered by (a) municipal budget allocations; (b) contributions, donations and bequests of individuals or legal entities, private or public; (c) grants, subsidies, funding or contributions from the municipality or other governmental entities, in the three spheres of government; (d) fees, taxes and revenues from agreements and the like with organs and entities of the National Transit System; and (e) other resources defined by specific law (Pitanga Municipality, 2011). In 2017 the municipality added an extra bus to the fleet. Between 2017 and 2019, the municipality spent about R$ 180 thousand to maintain the vehicles. Fuel costs on average R$ 40 thousand per month (Correio do Cidadão, 2019). According to Camargo (2013), the monthly cost comes down to about R$ 12 thousand.

Today, Pitanga's inhabitants can use the service in the morning and in the afternoon from Monday to Friday. The system consists of two rotating and one extra bus. Two lines cover the total urban area of the city, totalling to about 4000km per month. Transport in the rural areas of the municipality is carried out by other types of vehicles (Correio do Cidadão, 2019). The two buses carry about 400 passengers per day. In 2019 the municipality looked into expanding the system, based on the needs and behaviors of the users. One of these needs is to increase the capacity of the system, which has reached its limits. The implementation of a system with cards is being evaluated. The system will continue to be free, but the plan is to outsource

the service in order to obtain a higher service quality, and to make sure that those who use the system are those who really need it. Research is being carried out to find out if the vehicles could rotate during the weekends in more localities. This way, the system can also attend some of the rural communities of the municipality (Correio do Cidadão, 2019).

Pedro Osório (RS) is the only municipality in the state of Rio Grande do Sul that was found to have FFPT in place. In November 2018, the municipality took over the control of the PT system (Diário Popular, 2019) because the company offering the service, which was designated by the state, withdrew from the municipality. At first, the bus circulated four times a day. It was improved with a broader timetable – today the free bus circulates six times a day – and was extended to the rural areas of the town (Diário Popular, 2019). The rural line only circulates once per month (Pedro Osório Municipality, 2019).

4.5 Municipalities with FFPT in the state of Goiás

The only two municipalities of the center-west region with FFPT that were found, are located in the state of Goiás: Aruanã and Anicuns.

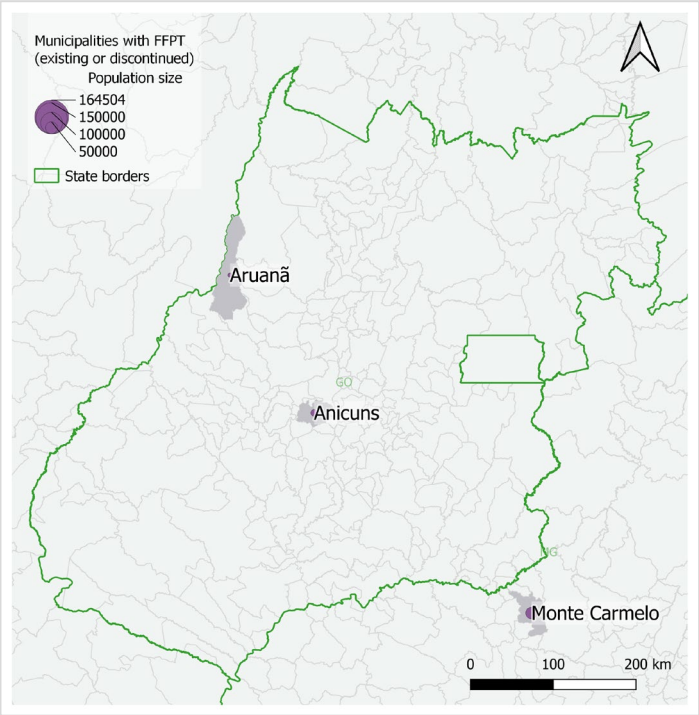

Figure 15 Map detail: FFPT localities in the state of Goiás

FFPT was implemented in **Aruanã** in 2008 (Lopes, 2017). Today, the city counts 10,110 inhabitants (IBGE, 2020), but receives about 800 thousand tourists per year, attracted by the Araguaia river (Parreira, 2013). The information about the PT system of Aruanã is limited. The only news item found dates from 2013. Back then, the bus fleet consisted of ten vehicles, including buses used for school transport. In December the same year, four buses were added to the fleet. One bus line connects the northern with the southern part of the municipality. It functions from 6h until 23h, and has a frequency of one bus every half hour. A new line going from east to west should have been installed in August 2013, however no other source was found to confirm this. The PT system is financed by the municipality's own resources, collected through taxes (Parreira, 2013).

The municipality of **Anicuns** started its fare-free service in 2014. The service is free for all inhabitants and visitors. The distance to go from one side of the built-up sector of the municipality to the other part is about 6km. There is only one (27 year old, previously for school transport) bus that serves the town. It costs the municipality about R$ 8000 a month to maintain the driver, the bus and the fuel, i.e. less than 1% of the municipality's revenue. The mayor explains in a press interview that the idea behind FFPT was to serve lower income inhabitants of the municipality, to make it possible for them to move around (Abreu, 2020). Nothing about the service can be found on the municipality's website. One facebook post was found where the municipality communicates it offers FFPT to its population, which transports hundreds of people daily (Prefeitura de Anicuns, 2015).

4.6 FFPT in Fortaleza's metropolitan region

In the North and Northeast of the country, only two cases of FFPT were identified, they are both located in the state of Ceará (CE). Eusébio was the first municipality to implement FFPT in 2010. It is part of the metropolitan region of the state's capital, Fortaleza, and has about 54,337 inhabitants (IBGE 2020). Until 1987 Eusébio was part of the neighboring municipality of Aquiraz (Pinto, 2014), which also started to implement fare-free bus lines recently (Aquiraz Municipality, 2018). Figure 16 indicates where Fortaleza, Eusébio and Aquiraz are located. Very little information was found on the case of Aquiraz; this paragraph will thus focus on Eusébio's FFPT system.

Figure 16 Map detail: FFPT localities in the state of Ceará

Why did the municipality implement FFPT? The FFPT system – Regular Urban Transport of Eusébio (*Transporte Regular Urbano de Eusébio - TRUE*) – was created by Law n°1.024. It was put in place by the mayor at the time, Acilon Gonçalves Pinto Júnior (Pinto, 2014). The PT was initially not planned to be fare-free. When it turned out the system did not manage to compensate the companies providing the service, the municipality decided to implement a fare-free service to guarantee the inhabitants' right to

mobility (Pinto, 2014). The mayor carried out a study based on other experiences in the sector (Eusébio Municipality, 2017). Like many other cases, Pinto (2014) observes, the decision to implement FFPT was taken in a top-down manner: from the government to the people.

What does the local public transport system look like? How does the FFPT system function? In order to make use of the service, a subscription at the municipality is necessary, proving residency or work in the municipality. In 2014 there were 8,546 people registered (Pinto, 2014). This means that who is not registered should pay the normal fare. However, as there is no monitoring or fare collection system in place, non-locals end up using the system together with the locals (Caribé, 2019). TRUE is controlled by the municipal transit authority, an agency that plans and regulates the transport in the city. The system started off with six lines, linking different neighborhoods in the city. Three new lines were added in 2014 (Pinto, 2014). Today, the system counts with 10 lines (Eusébio Municipality, 2020). Most lines used to rotate between two to ten times a day, from Monday to Friday, some routes also to a lesser extent on Saturday, none on Sunday (Pinto, 2014). Today the buses circulate from Monday to Saturday from 5h45 to 20h30, and on holidays, following a different timetable. The plan is to implement two more lines and night lines to attend those who work late shifts (O Estado, 2020). TRUE transports about 60 to 70 thousand passengers per month (Eusébio Municipality, 2020; O Estado, 2020). The network covers about 90% of the municipality's territory (Santini, 2019).

The inhabitants seem to be very grateful for the system. An average worker saves up about R$160 per month by using the system. "TRUE guarantuees the right to mobility foreseen in the constitution, it is the people's right to enjoy public spaces, to occupy them, it is the democratization of access" (mayor in O Estado, 2020). Interestingly, those who take the fare-free system never talk about 'the bus', but always talk about the 'TRUE', this way distinguishing themselves from those who pay for 'the bus' (Pinto, 2014).

How much does the PT system cost? How is it financed? TRUE's fleet and services are currently outsourced (Pinto, 2014). The cost of the system is about R$ 2.310.100 yearly, financed by the municipality. This amount represents about 1% of the city's income (Eusébio Municipality, 2017; O Estado, 2020). According to Caribé (2019) the case of Eusébio is different from the municipalities in the states of São Paulo and Rio de Janeiro, which have much higher incomes.

Did the introduction of FFPT change the quality of the PT network? While there is not much information to be found about the PT network before TRUE, Pinto mentions that TRUE was created in the face of the precarity of the existing transport service. However, the system was not meant to be fare-free at first (Pinto, 2014). The advent of TRUE brought with it a better PT service for Eusébio's inhabitants indeed, but it only became fare-free afterwards. After its implementation it has expanded, and plans exist to increase frequencies in the future. Pinto (2014) highlights: while the decision to implement TRUE was top-down, the expansion of the service was the result of demands made by the population, confronted with challenges to move around.

Did the introduction of FFPT change the habits of the local population or companies? Eusébio is an important part of Forteleza's metropolitan area, consisting almost completely of urbanized land. The municipality is growing, also vertically, and hence is very attractive for construction companies. The combination of TRUE with the process of real estate and industry expansion has attracted new developments and companies to the municipality. The advent of TRUE has also changed the dynamics of the municipality, for example around the bus stops (Pinto, 2014).

4.7 COVID-19 and FFPT

Since the outbreak of the COVID-19 pandemic the situation of many PT systems in the country has exacerbated. Most companies were indeed dependent on users for their income. Their revenues thus plummeted as PT passengers started to stay at home during lockdowns, and moving around less when working from home. In many cities this has led to a reduced PT service, despite the health hazards and the need for social distancing. In Arceburgo (MG), the FFPT system was temporarily suspended (Arceburgo Municipality, 2020). Because of the companies' unviable financial situations, there were cases where the municipality took over the service, and started to offer it for free to the inhabitants. In **Assis (SP)** FFPT was decreed in March 2021, and will be maintained throughout the pandemic. The decision was taken because a large part of the users was already traveling for free, and the sum of the paid fares was not enough to finance the system. The decree implementing FFPT further stipulates improvements in the system (Marques, 2021b).

Cerquilho (SP), located in the metropolitan area of the city of São Paulo, implemented FFPT in July 2020. The decision was justified by the need to reactivate the economy in the city, caused by the COVID-19 pandemic. The system will be accessible for the entire population, but mainly aims to reach the poorest inhabitants, in order for them to be able to participate in job interviews, and pursue public services. The municipality launched a tender in order to find a company to operate the FFPT service. The maximum value was estimated at R$ 981.950,40 for one year of operation. Two lines circulate from Monday to Sunday; on weekdays there are 14 departures between 5h00 and 21h30, on Saturday there are 12, and on Sundays there are 8 between 9h00 and 19h30. The buses are required to have a capacity of at least 38 passengers, be of manufacturing year 2020 (exceptionally vehicles from 2017 or newer are allowed), have air conditioning, and be adapted to people with disabilities. The vehicles need to have a GPS system installed; the data it generates belongs to the municipality. Complementary law n°06/2020 authorizes the municipality to subsidize PT for 100%, and

stipulates that the expenses will be provided by the municipality's budget. FFPT was implemented while an improvement of PT in the city was already happening. Before, there was one intermunicipal line, which would pass through only some parts of the city. Since 2017, plans started to form to amplify the routes and add stops. The number of stops has gone up from almost 50 to 78, and they were distributed in such a way that users would not have to walk more than 3 blocks to find a bus stop, at any point in the city. The system was set up by collaboration between different departments of the municipality, supported by consultancy Polo Planejamento (Pelegi, 2020b).

The town of **Cláudio (MG)** adopted gratuity in its PT system in March 2021. The company responsible for the operation of the service had left the city (the reasons why were not shared with the press at the moment the news broke). The municipality needed to step in and take over the service. It plans to do so for at least six months. Also here, there is a belief that FFPT will boost the local economy. The new bus fleet is adapted to people with disabilities (G1 Centro-Oeste de Minas, 2021).

4.8 Discontinued cases

In addition to the cited examples where FFPT is currently in place, there are - besides Paulínia (SP) - other municipalities that had FFPT in the past, but have (partially) reintegrated fares today. In **Tijucas do Sul (PR)**, the policy was discontinued after four years, because of budgetary issues. In **Porto Real (RJ)**, where FFPT was discontinued after six years, it was perceived as a policy connected with a certain political (leftist) group. When the conservatives took power, they cancelled the policy (Santini 2019). According to the secretary of urban services and transport in 2016, the goal of the measure was to attract companies in the region to hire workers from Porto Real, as they would no longer have to pay for their employees' transportation allowance. The measure was further meant to boost the local economy (Desidério, 2015). Following Caribé (2019) what differentiates Porto Real from the other experiences is that in 2005 the city significantly lowered the price of the fare to R$0,50. As a consequence, the buses that rotated throughout the city became known as the '*cinquentinhas'*, the little fifties. Only later the fare was brought to zero. The system consisted of eight vehicles, serving six lines, which would run from 4h30 until 1h00. The cost of the system amounted to about R$ 200 thousand per month, i.e. 2% of the city's budget. It transported about 5,5 thousand people on weekdays, on average 130 thousand per month (Desidério, 2015).

FFPT in the municipality of **Jaboticabal (SP)** did not last long. Its case nevertheless contains some interesting elements to be mentioned in the framework of this thesis. In 2019, in order to solve the existing PT issues in the city, the mayor (José Carlos Hori) started to look for solutions. He mentions he was inspired by European FFPT models. An Urban Municipal Transport Fund (*Fundo Municipal de Transporte Urbano – FMTU*) was created by law n° 5.038. Its revenues are made up of a variety of resources, which are also common in other municipalities, e.g. publicity inside the buses or what the municipality already contributes for the free passes of students, people with disabilities, and elderly (Marques, 2019). The Fund would also gather finances from less common resources. Instead of paying

vale-transporte to their employees, companies in the city would directly deposit transportation allowances to the Fund. Other unseen potential resources formulated were: a 'necessary percentage' of the income from the automotive ownership tax (*Imposto sobre Propriedades de Veículos Automotores – IPVA*), and revenue from parking spaces (Jaboticabal Municipality, 2019a).

Law n°5.039 created the '*Tarifa Zero'* programme in the municipality. Its goal is to universalize the supply of PT in the city, in the terms of the constitution, and the National Urban Mobility Policy. It further aims to promote a more balanced access to the opportunities the municipality has to offer, as well as to improve the quality of life of its citizens. The law further states seven guidelines for the FFPT programme, of which the following are interesting to highlight in the framework of this thesis: (a) universal access; (b) discouraging the use of private motorized vehicles in the central parts of the city; (c) prioritisation of the (re)structuring of the road system for the transport of goods and for the public transportation system; and (d) security for people while travelling. The municipality itself is directly responsible for the management of the system. It is accessible to all the citizens; elderly and students need to register. The law spells out that the new PT system should take into account local needs, and work towards a more efficient system of high quality. A variety of rights for the system's users are stipulated, such as the participation in the planning and evaluation of the local mobility policy (Jaboticabal Municipality, 2019b). This series of guidelines, combined with the list of potential resources for the Transport Fund, indicates an unprecedented level of ambition for a FFPT policy in Brazil.

In 2020, the municipality launched a series of public tenders in order to find a company that would rent out buses, with drivers and fuel, for the *Tarifa Zero* programme. This process was not without challenges. First, the public bid was suspended by the state's Court of Auditors. Thereafter, it was postponed several times (Pelegi, 2020a). Eventually, in 2021, with a new mayor in place, the '*Tarifa Zero'* programme was cancelled, under the

pretext that the PT system needs to be reconsidered, and that the Municipal Fund had not received any income so far (Bazani, 2021).

5. Municipalities with FFPT in Brazil: discussion

An initial objective of this research was to identify *where* in Brazil full FFPT was or has been implemented, and *why* (RQ1). The previous chapter provides an overview of where the 32 encountered cases (both existing and discontinued) are located. It further brings together the results of the desk research, aiming to provide an answer to *why* FFPT was adopted, and what each system's *operational, economic and political aspects* (RQ2) are. Besides desk research, different informal interviews were carried out with researchers (academic or other) in the field of urban mobility, each with their specific knowledge on (fare-free) public transport in Brazil. Their contributions help to better understand the very different (compared to Europe and the United States) reality of (fare-free) public transport in Brazil. They clarify why it is challenging to obtain data, and provide suggestions for different research methods and future research avenues. This chapter summarizes the main findings of the interviews and the desk research. Preliminary answers to the two research questions are formulated, (partly) confirming or rejecting the four hypotheses put forward:

1. The motivations for the implementation of FFPT in Brazilian municipalities are heterogenous and context-dependent, and are of ecological, economic, social and/or political nature.
2. When considering to apply FFPT, municipalities are influenced to a greater extent by neighboring municipalities than by municipalities geographically further away.
3. There is no distinct connection between policy decisions in small municipalities and FFPT-related protests that have taken place in the country's bigger cities.
4. The *Tarifa Zero* idea formulated in 1989 in São Paulo was a source of inspiration for all municipalities with FFPT today.

5.1.1 Rationales behind Tarifa Zero *policies in Brazilian municipalities*

As suggested by the first hypothesis, the motivations behind the implementation of FFPT in Brazilian municipalities indeed depend on the context. Each case shows its own specificity, its own (combination of) motive(s) to implement FFPT. When it comes to the second part of the hypothesis, however, it became clear that motivations behind implementation of FFPT in Brazil are of a somewhat different nature than the motivations discussed in the literature review. In Europe, FFPT is often implemented because of **ecological** goals. This usually means inducing a modal shift: increasing the use of PT, while decreasing the use of cars. Only for two of the analyzed municipalities here (Macatuba and Dourado), the reduction of car use is explicitly mentioned as an argument for the implementation of FFPT. Like elsewhere, arguments of **social** nature are often cited by citizen movements fighting for FFPT. They are, however, rarely the (main) motivation for municipalities to implement FFPT. It must be noted that, more often than ecological arguments, socially-inspired rationales are frequently cited by public officials. They would for example claim the goal of the policy is to serve the low income population, to give the right to the city back to the inhabitants, to support workers in their daily mobility, etc. However, the reality often shows other motivations, which probably played a more important role in the decision to implement FFPT.

Various researchers I interviewed warn for political lip service. Caribé advised me: do not expect these municipalities to have implemented FFPT because of ideology. It is not the case. It is an ad-hoc measure, taken as a solution to a situation of emergency. It is one of the solutions municipalities came up with to *have* a PT system in the city (Caribé, personal communication, 16 April 2021). Public officials might indeed allege that the goal of FFPT is a social one, other factors – e.g. that FFPT turned out to be cheaper than collecting fares – probably played a more important role. In our conversation, Caribé emphasizes several times FFPT was mostly implemented because of an **emergency**, not as a planned policy. Many of the stories behind the analyzed cases indeed confirm this. In several municipalities (e.g. Monte Carmelo, Agudos, Eusébio, Silva Jardim, Pedro

Osório, Campo Belo, Vargem Grande Paulista, Cláudio) FFPT was implemented at a moment when either the contract between the municipality and a concessionary providing a poor service had ended, when the concessionary had left, or when no company was interested in providing PT as it was not a sufficiently lucrative business. FFPT became a realistic solution in critical times, at a moment when a solution was being sought to respond to the (sudden) lack of PT. In most cases the policy was indeed not planned to be fare-free originally (e.g. Monte Carmelo, Muzambinho, ..). The service was often provided for free in a first (experimental) phase, and then only continued without charging when research showed FFPT would be the cheapest option, or worth the limited investment (e.g. Campo Belo). The case of Morungaba is one of the rare examples to have deliberately planned for a PT service that would be fare-free from the start.

When asked about whether I would find objective data on the impacts of FFPT on the habits of the local population or companies, Caribé said:

> *I do not think you will find this kind of data. As I said: this is not a planned policy, this is a desperate policy. There are cities where no-one wants to operate the public transport system because it is not lucrative. And if the municipality would subsidize, it will be more expensive than to take over the system. Or if it does not end up more expensive, politically it will not be worth the trouble. It is a lot more convenient to bear the system's costs, make a bit of publicity [for the municipal management] on top of it, rather than to subsidize and to maintain the fare or a reduced fare. So it is not something planned. It is something unforeseen: the system failed, no-one wants to operate it, so the only way to have transport, is for free. Period. That is how it happens in Brazil. It is not part of an environmental policy, of modal shift or energetic transition, or another, like a social policy of inclusion. That is not the case. It could function as an economic policy, as an incentive for businesses, for companies to settle [in the municipality], because they will not pay for the transport of their workers, the business will have more customers (…). So an economic policy, maybe yes. But fundamentally, it is an emergency measure. The situation enforces some municipalities – when the mayor is courageous, and the mayor is someone more open-minded – to implement FFPT. Because in the rest of the country there are not even buses. The operators do not want to commit, the municipalities do not dare to subsidize, so [the city] remains without a bus system. And further, after the use of motorcycles in the country became generalized, well, there won't be [a public transport system], right, because people buy a motorcycle (…) and this diminishes the pressure on the municipalities to install a transport system.*
>
> (Caribé, personal communication, 16 April 2021)

Neiva Lopes, who researched the case of Monte Carmelo (MG), confirms FFPT in Monte Carmelo was not a planned policy. Also there, the political discourse differed from the reality. While the municipality framed FFPT as a measure to help the workers to go to work and school, the reality was that it was cheaper for the municipality to offer PT for free. André Veloso confirms that, depending on the municipality's conditions, one of the main reasons to offer FFPT is because it is the cheapest option (personal communication, 4 March 2021). Lopes imagines the situation in Monte Carmelo today would probably be different, as the city has grown, and PT would be a lucrative business. However, from the moment such a policy is implemented, it is very hard (politically) to take away (Lopes, personal communication, 12 May 2021).

If there is a deliberate motivation behind the implementation of FFPT, it *could* be **economic**, says Caribé (personal communication, 16 April 2021). Economic motivations are indeed frequently mentioned: the aim of FFPT is to boost the local economy (e.g. Agudos, Porto Real, Cerquilho, Pirapora de Bom Jesus, Cláudio, ..), to attract industrial developments and/or companies (e.g. Agudos, Porto Real, …), to support inhabitants to reach their jobs (e.g. Monte Carmelo, Itatiaiuçu, Cerquilho, ..), etc. Another aspect that is often cited is the presence of a specific industry or (large) company in the city, who either attract a large share of the workforce and/or add a significant amount to the municipal budget. Caribé (personal communication, 16 April 2021) cites Maricá and Paulínia as examples: because of the presence of the oil industry, these municipalities' financial situation is much better compared to other cities (in the region). Vitor Mihessen (personal communication, 14 April 2021) cites Porto Real, where the FFPT system used to be organized by the companies of the city's industrial complex, and the transport system was mainly tailored towards its workforce. Also Rafael Pereira (personal communication, 17 May 2021) points to the link between the presence of a major company – responsible for a large share of the municipality's economy – and fully subsidized transport systems. These systems are either provided by the company directly, or the company financially supports the municipality in its provision.

FFPT is usually prized by local inhabitants: mayors who have implemented FFPT are often re-elected because the implementation of FFPT gives them a very large head start (Caribé, personal communication, 16 April 2021). While indeed many sources confirm that implementing FFPT brings about a series of benefits for the municipality, and as a consequence an increase in popularity for the mayor, the data does not suggest **political** motivations are strong drivers. In the municipality of Agudos the opposite could be argued: there, the mayor was at first against the proposal, out of fear to lose votes. The city of Maricá is an interesting exception in this case, as one of the main goals of implementing FFPT was to take away the political power of the private PT companies in the city. Caribé further clarifies it is often not a policy that is implemented by a green or left party. Many of these experiences are implemented by right-wing parties, similar to some FFPT experiences in France (personal communication, 17 May 2021).

As mentioned by Caribé, it can occur that subsidizing is more expensive than taking over the system or only a limited extra budget is necessary for the municipality to take over, and reap the (political) benefits (Caribé, personal communication, 16 April 2021). Rafael Pereira (personal communication, 17 May 2021) confirms it is often an **opportunistic** policy, driven by political considerations, and in the interest of companies that play an important role in the local economy.

In summary, the rationales of municipalities to implement FFPT in Brazilian municipalities are diverse and context-specific. In most cases, the need to respond to an emergency situation seems to be an important underlying factor. Economic arguments, such as boosting the local economy or attracting companies to the municipality, can play an substantial role. Social and ecological arguments are negligible.

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It was further hypothesized that municipalities are influenced to a greater extent by neighboring municipalities than by municipalities geographically

further away, and that the *Tarifa Zero* idea formulated in 1989 was a source of inspiration for all municipalities with FFPT today. Although there was no opportunity to ask these questions directly to municipality officials, some preliminary answers can be drawn from the results of the desk research. Interestingly, the majority of identified cases are situated in the state of São Paulo, geographically close to the municipality of Paulínia - the first registered case of FFPT - and the city of São Paulo, where the *Tarifa Zero* project was born. The state with the second highest number of cases is Minas Gerais, where Monte Carmelo is located, the first municipality to have implemented and still has FFPT in place today. With the exception of Jaboticabal, whose mayor mentions being inspired by European FFPT models, hardly any references were found to what or whom inspired a certain municipality to implement FFPT. Santini (2019) is the only source encountered that refers to potential sources of inspiration. I encountered occasional allusions to research on FFPT experiences carried out or commissioned by the mayor, but not the results of the study in question.

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When presented with the third hypothesis, Caribé states: we do not know if there was societal pressure or not in the municipalities adopting FFPT. We know there was no local branch from groups of the likes of MPL or *Tarifa Zero*, but we do not know if there was pressure from a community organization, or whether citizens started organizing themselves to provide transportation alternatives, etc. We do not know who or what did pressure the municipalities to implement FFPT. Despite the fundamental role of social movements to frame the national debate, it is hard to give them credit for the existing cases of FFPT in the country. Even if there was a local association pushing for FFPT, the mayor would not admit this. As it is a very popular policy, it is indeed in the interest of the mayor to pretend it was his idea, so it becomes his brand (Caribé, personal communication, 16 April 2021). This might also explain why the research behind the implementation and/or the mayor's sources of inspiration are not made publicly available (or at least not published on the municipality's website).

5.1.2 Characteristics of Tarifa Zero *policies in Brazilian municipalities*

The second research question of this thesis asked *what are the operational, economic and political aspects of FFPT in Brazilian municipalities*. From the data gathered in the framework of the desk research, some preliminary answers can be formulated. First, most of the PT systems studied are owned and managed by the municipality. Exceptions exist where the fleet is rented by the municipality (e.g. Morungaba, Vargem Grande Paulista, Campo Belo) or the PT system is (or was) outsourced (e.g. Eusébio, Agudos). Most PT systems are rather limited in size. With the exception of Maricá, with a fleet of about 50 buses, carrying out 19 lines, most systems are small: one or two buses serving one line is the most common. In some municipalities, the amount of lines goes up to eight (Silva Jardim) or ten (Eusébio), but in most cases the number remains below five. Frequencies are also limited; lines usually operate less than 12 times a day, with exceptions in for example Aruanã (one bus every half hour) and Maricá. In most municipalities the frequencies are limited to two to eight departures per day on weekdays, with limited or no service on weekends. The buses usually rotate around peak times, when workers go to their jobs or back home.

Information regarding costs of the PT system was mostly scattered; a variety of sources stated inconsistent numbers. Based on few trustworthy resources (e.g. idec or Lopes), costs for FFPT in the analyzed municipalities are probably at 1-3% of the municipality budget. Most systems are financed directly from the resources the municipality has at hand. In the case of a couple of municipalities, the implementation of FFPT came with the creation of a Municipal Transport Fund (e.g. Muzambinho, Silva Jardim, Vargem Grande Paulista), financed by a combination of sources, specific for each municipality. Some FFPT systems are (partly) financed by the sale of publicity space inside the buses, as well as by contributions from companies (who no longer have to pay *vale-transporte*). At times, buses are donated to the municipality by a state representative, companies in the region or in the case of two municipalities in Paraná by the state capital of Curitiba. Not all, but many of the municipalities count with an extra source of income, putting them in a somewhat privileged position compared to similar

municipalities in the country. Examples are income from oil royalties (e.g. Maricá), taxes from companies in the region (e.g. Monte Carmelo, Agudos) or a relatively large jump in the amount of federal subsidies due to a slight population increase (e.g. Morungaba). No examples were found of what Gregori and colleagues (2020) propose to obtain income to finance the FFPT system, i.e. taxing certain companies or individuals (more), nor what Inesc (2019) suggests: levying (progressive) taxes on individual motorized transport. No cases were identified where extra taxes were levied on the population. The municipality of Jaboticabal is the only one where taxing individual transport is mentioned as a source of income for FFPT. However, FFPT in Jaboticabal was discontinued not much later than when it was implemented, and this tax scheme thus never became a reality.

Currently, there is a profound debate going on nationally on the question of who will finance the collapsing PT system. Daniel Caribé explains: already before COVID-19, it was clear the Brazilian PT model was unsustainable. The advent of COVID-19 has caused the system to collapse completely. In a variety of cities, the companies providing PT went bankrupt, and in order to continue the provision of PT in the city, the municipality had to take over the system. He cites the city of Salvador, the capital of the northern state of Bahia, as an example. Three concessionaries used to operate the PT system, each in one part of the city. When the pandemic struck, one of the companies failed. The municipality took over the system, financing and operating it. While the government in the city is politically liberal, and would never aspire to nationalize the PT system, it was in practice nationalized. For a long time FFPT was not being discussed as a realistic option, but considered by many as a utopic idea. The current situation has created a new framework, and has led more people to discuss it as a realistic solution (Caribé, personal communication, 16 April 2021). There seems to be a consensus throughout most of the center-left side of the political spectrum that subsidies are needed to some degree. However, the debate on which level of subsidies that would be, seems to be rather limited (Pereira, personal communication, 17 May 2021).

5.1.3 Impacts of Tarifa Zero *in Brazilian municipalities*

This research has shown that FFPT is often an unplanned policy. This explains why there is not much (objective, purposefully gathered) information available on the impacts of FFPT adoption. In general, what this study indicates is that the advent of FFPT often improved the quality of PT in the city. On the one hand, it often happened that the existing service was of low quality, and when the contract between the provider and municipality ended, the municipality took over and improved the service level. Some municipalities bought, rented or were donated (new) vehicles. Sometimes studies and experiments were carried out in order to find out how to best optimize the service for local residents. On the other hand, in some cases the adoption of FFPT meant the arrival of a PT system, which was inexistent before. Regarding the impact of FFPT on local inhabitants and companies, there exists some anecdotical evidence, as well as observations by public officials. The few existing estimations indicate that the implementation of FFPT led to an increase in the use of PT, an improvement in local business, and an elevated interest of companies wishing to install themselves in the municipality.

5.1.4 Researching Tarifa Zero

Besides providing preliminary answers to the research questions put forward, this research introduces new insights to be taken into account when researching FFPT in Brazil. As mentioned previously, these municipalities are often small and with limited technical and human resources. It is important to highlight that this form of urbanity is dominant throughout the country. Of the 5570 Brazilian municipalities, 4884 have less than 50,000 inhabitants. About half of these (2446) count less than 10,000. Only 48 Brazilian cities have more than 500,000 inhabitants (IBGE, 2020). Urban mobility research mainly focuses on these larger cities, leaving the smaller cities and towns understudied. Further, urban (mobility) policies are usually formulated in somewhat informal ways, different from the more formalized and streamlined ways of policy-making in most European or North-American countries. When researching *Tarifa Zero* in

Brazil, it is important to understand how urban (mobility) policies in small Brazilian municipalities are drafted and implemented. Indeed, if we wish to learn from FFPT experiences in Brazil, besides from deciding *what* to research, it is first and foremost important to look at *how* we research.

6. Conclusion

The main goal of the current study was two-fold. On the one hand, it aimed to investigate where in Brazil FFPT was implemented, and what were the rationales behind its implementation in different localities. On the other hand, it set out to explore the operational, economic and political aspects of each local FFPT policy. Through a combination of desk research and informal interviews with experts in the field, this study has identified some preliminary answers to the research questions put forward, as well as a series of questions that remain to be answered.

To the best of my knowledge, this thesis is the first comprehensive investigation of all known cases of FFPT in Brazil. It does, however, not claim to be complete. It is possible certain municipalities with FFPT in place failed to be identified. Further, the data gathered is limited, both when it comes to quantity as quality. Many of the questions put forward have remained unanswered, or different sources provide contradicting information. This thesis only lifts a corner of the veil of the many stories still to be told on FFPT in Brazil.

Despite its exploratory nature, this study offers some insight into the motivations behind the implementation of FFPT in small Brazilian municipalities. While the context in each municipality is different, there seems to be a pattern when it comes to FFPT implementation. In most cases, it is either implemented to replace a poorly functioning PT system that was previously outsourced to a private company, or it is implemented in the framework of the introduction of an entirely new PT system, which was previously inexistent. Only rarely the system is planned to be fare-free from the start. It is more common the municipality discovers it is cheaper to implement the service for free, or that it only demands a limited extra investment in exchange for a series of benefits for the population (and for the mayor's popularity). FFPT in most Brazilian municipalities was thus not implemented out of ideology, but rather because of a practical necessity.

The motivations for the implementation of FFPT in Brazilian municipalities thus contrast with arguments put forward by citizen movements like *MPL* or *Tarifa Zero*, who fight for FFPT from a social justice angle. What also became apparent from this research is the disparity between the array of ideas (and research) that exists on how to finance (fare-free) public transport systems and the very few cases that apply these ideas in practice. Mostly, the FFPT system is financed directly by the municipality budget, while no extra taxes or levied (from the population nor from companies).

Neiva Lopes puts into question the current strategy of the movement fighting for FFPT. At the moment, most claims and demands are focused on large cities, where there are often established PT systems, operated by (powerful) private companies. However, there still exist (small) municipalities, where there is no PT system in place, and thus no transport company monopoly. As it is not lucrative, no company is interested in offering the service. What if the movement would shift its focus towards these municipalities? What if these municipalities would adopt FFPT, before a private company comes in? Instead of focusing on the big cities, the movement could also work 'from the bottom up' (Lopes, personal communication, 12 May 2021).

It further became apparent that most FFPT systems in Brazil are small, i.e. with a limited amount of vehicles and routes, and thus only need a limited budget for the PT system to function. Rafael Pereira (personal communication, 17 May 2021) points out that FFPT is often funded by companies and/or offered as a key service to workers. He asks: "what does this mean for people that are not commuting?", thereby highlighting an interesting contradiction: while FFPT is often applauded for its social inclusion aspect, does FFPT in Brazilian municipalities – by focusing on workers – leave an important part of society (e.g. caretakers, unemployed, youth, seniors, ..) excluded?

This research has illustrated that the context in each municipality is different, that online available information about their FFPT policies and practices is limited, and that the correct research strategy is important in

order to obtain (trustworthy) data. There is still very little known about what or whom inspired municipalities to implement FFPT, and whether there have been local organizations that put pressure on the municipality to implement a (fare-free) PT system. For each of these municipalities a next research step could be to scrutinize and complement the data presented here, collecting data both from the point of view of the municipal management and the mayor (at the time of the implementation), as well as of the local population. Questions to be researched further could include whether local inhabitants organized to put pressure on the mayor to implement a (fare-free) PT system, if and how the FFPT (has) impacted their lives, how does the system function, and (how) does this respond to their daily mobility needs.

Finally, an important question raised by this research is *how* FFPT in Brazil can or should be studied. It taught me the important lesson that in order to go forward, we sometimes need to take a step back, and deconstruct some of the ideas we take for granted. In order to understand and research a phenomenon in a certain context, one must first research and understand this context. In conclusion, this research is not an end, but a beginning.

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ANNEX I

The table below gives an overview of the implementation year of different Brazilian FFPT experiences, mentioned by five different sources - Brinco, 2017; Lopes, 2017; Kębłowski, 2019;Santini, 2019; Veloso, 2021 – and my own observations. The column on the most right indicates which year was used for the timeline (Figure 3). When the cell is grey, it means the source does not mention the municipality mentioned in the corresponding row. When the box is empty, it means the municipality is mentioned, but no indication was given of the year of implementation.

Municipality	Brinco (2017)	Lopes (2017)	Kębłowski (2019)	Santini (2019)	Veloso (2021)	Own observations	Timeline
Monte Carmelo (MG)	1994	1994	1994	1994	1994		1994
Abaeté (MG)		1997					1997
Potirendaba (SP)	1998	1998	1998	1998	1998	1998	1998
Faxinal (PR)	2001	2001			2001	2003	2001
Ivaiporã (PR)	2001	2001	2001	-	2001	2001	2001
Agudos (SP)	2003	2003	2002	2002	2003	2003	2003
Macatuba (SP)				2004	2004	not clear	2004
Aruanã (GO)		2008				2008	2008
Wenceslau Braz (PR)	2008	2009		-	2009		2009
Eusébio (CE)	2010	2010	2010	2011	2010	2010	2010
Holambra (SP)				2007	2010	1993	2010
Muzambinho (MG)	2011	2011		2011	2011	2011	2011
Pitanga (PR)	2012	2012		-	2012	2011	2012
Maricá (RJ)	2013	2013	2013	2015	2015	2013 & 2015	2013
Anicuns (GO)	-	2014	-	-	2014	2000	2014
Dourado (SP)						2014	2014
Presidente Bernardes (SP)						2014	2014
Silva Jardim (RJ)	2014	2014	2014	2014	2014	2014	2014
Itatiaiuçu (MG)	2015	2013	2015	2015	2015	2015	2015
Volta Redonda (RJ)				one line 'Tarifa Comercial Zero'			2017
Aquiraz (CE)						first lines in 2018	2018
Pedro Osório (RS)						2018	2018
Alumínio (SP)						2019	2019
Arceburgo (MG)						not clear	2019
Campo Belo (MG)					2019		2019
Morungaba (SP)						2019	2019
Vargem Grande Paulista (SP)					2019		2019
Cerquilho (SP)						2020	2020
Pirapora do Bom Jesus (SP)					2020		2020
Artur Nogueira (SP)						2021	2021
Assis (SP)						2021	2021
Cláudio (MG)						2021	2021
Ponta Grossa (PR)				is studying the possbility			-
Paulínia (SP)	2013		2013	1995-1997			1995-1997
Porto Real (RJ)	2011	2012	1994	2011-2017			2011-2017
Tijucas do Sul (PR)		2015		until 2019			2015-2019
Jaboticabal (SP)						2020-2021	2020-2021

Annex II

The following pages contain the LiFT survey, adapted to the Brazilian context, and translated into Portuguese.

Questionário sobre Tarifa Zero

Introdução ao questionário

O(a) senhor(a) está convidado(a) a participar de uma pesquisa que tem como objetivo identificar experiências globais de tarifa zero/passe livre e de coletar dados sobre elas.

Não há custos associados à sua participação e o senhor(a) pode retirar-se desta pesquisa a qualquer momento. Antes de decidir participar, pedimos que leia esta carta informativa e que dê seu consentimento aos termos indicados abaixo.

Este questionário foi preparado como parte de um projeto de pesquisa sobre tarifas do transporte público, intitulado "Da redução de tarifas ao passe livre: uma análise da dinâmica econômica, operacional, sócio-espacial e política do transporte público gratuito". É o primeiro projeto de pesquisa que investiga tarifa zero/passe livre a partir de uma perspectiva global, reunindo dados de todos os continentes e de todas as regiões globais. Pode encontrar mais informações sobre o LiFT aqui (inglês).

LiFT é financiado pela Fundação de Pesquisa de Flandres (FWO) e pelo Fundo Nacional de Pesquisa de Luxemburgo (FNR), e realizado pela Universidade Livre de Bruxelas (VUB) na Bélgica e o Instituto de Pesquisa Socioeconômica de Luxemburgo (LISER).

No questionário, pedimos que responda perguntas sobre as práticas e políticas de tarifa zero na rede de transporte público de seu município ou região.

Algumas das perguntas podem ser bastante específicas. É possível que o senhor(a) não saiba a resposta imediatamente e tenha que procurá-la em sua organização. Agradecemos desde já qualquer contribuição para achar as respostas.

O seu nome não será publicado com os resultados desta pesquisa. Seus dados serão somente acessíveis pelos membros da equipe de pesquisa e serão removidos depois da conclusão da pesquisa. Os dados coletados serão processados pela equipe de pesquisa e armazenados de forma segura para análises futuras. Os seus dados pessoais podem ser utilizados para contatar o senhor(a) para uma entrevista que acompanha o questionário.

Nosso objetivo é que a pesquisa beneficie também a sua organização, por exemplo, compartilhando percepções e informações sobre outras práticas de tarifa zero. Estamos construindo um site com informações em várias línguas e organizaremos uma série de eventos aos quais lhe convidaremos com muito prazer.

Depois de concluir este questionário, teremos o maior prazer em marcar uma entrevista (online ou por telefone) com o senhor(a) e/ou um(a) colega.

No caso de perguntas, estamos à sua disposição a qualquer momento durante a pesquisa:

- Pesquisadora de experiências brasileiras: **Marijke Vermander** (marijke.vermander@vub.be)

- Pesquisador coordenador: **Wojciech Kębłowski** (wojciech.keblowski@vub.be)

Agradecemos desde já a sua colaboração.

Consentimento Informado

- Pude ler atentamente as informações que acompanham este consentimento informado.
- Tive a oportunidade de fazer perguntas sobre este estudo e recebi respostas adequadas às minhas perguntas.
- Entendo o que se espera de mim neste estudo.
- Fui informado sobre os benefícios deste estudo.
- Minha participação neste estudo é voluntária e não remunerada. Tenho o direito de me retirar desta pesquisa a qualquer momento, sem indicar um motivo específico.
- Entendo quem tem acesso aos meus dados pessoais, como eles serão armazenados e processados e o que acontecerá com os meus dados no final do estudo.
- Concordo que os dados coletados serão processados pela equipe de pesquisa e armazenados de forma segura para análises futuras.
- Tomei conhecimento de que os resultados desta pesquisa serão utilizados para fins científicos e podem ser publicados. Porém, minha identidade nunca será publicada.
- Fui informado/a sobre quem posso contatar no caso de perguntas a respeito da pesquisa e/ou sobre o tratamento dos meus dados pessoais.

☐ Sim, consinto

☐ Não, não consinto

Como preencher o questionário

As perguntas abertas são seguidas por um campo aberto As perguntas de escolha múltipla são seguidas por varias opções (a, b, c, ..). Por favor indique a(s) resposta(s) relevante(s) para seu município. Se a resposta selecionada for seguida por uma pergunta aberta ("por favor especifique..."), a resposta dessa pergunta pode ser preenchida no campo aberto.

Se você não tem certeza de uma resposta, nem alguém dentro da atual gestão municipal tem, pode indicar que não sabe ou não tem certeza. Se puder fornecer o nome ou contato de uma pessoa que poderia saber a resposta, ficaríamos muito gratos.

Documentos oficiais

Se você tiver acesso a documentos (por exemplo planilhas de custo, relatórios da câmara municipal, pesquisas, etc.) que podem complementar as respostas dadas, pedimos que, se possível, nos envie junto com as respostas a este questionário.

Informações básicas

Como chama a instituição que o senhor(a)representa?

.....

Qual categoria descreve melhor a instituição que o senhor/a senhora representa?

- ◯ Regulador/gestor de transporte público
- ◯ Empresa estatal fornecedora de transporte público
- ◯ Concessionária privada de transporte público

Qual é a sua função ou papel dentro da organização?

.....

.....

.....

Como se chama o órgão local (municipal, regional ou estadual) responsável pela gestão do transporte público em seu município?

.....

.....

Em quais municípios a rede sob gestão deste órgão presta serviços?

.....

.....

.....

.....

Além desta rede, há outras redes de transporte público que operam em seu município? Não / Sim (por favor, especifique quais)

.....

.....

.....

.....

.....

Como se chama(m) a(s) empresa(s) que operam na rede de transporte público?

.....

.....

Gostaríamos de informar o senhor/a senhora sobre os resultados de nossa pesquisa e manter contato sobre atividades futuras relacionadas a tarifa zero. Para facilitar essa comunicação, por favor preencha seus dados de contato abaixo:

Endereço e-mail:

.....

Telefone:

.....

Porquê e quando a Tarifa Zero foi introduzida?

Antes da introdução de Tarifa Zero, existiam grupos de usuários que já não pagavam a passagem (completa), isto é, que possuíam gratuidade ou descontos na tarifa?

- ◯ Não
- ◯ Sim — por favor especifique:

.....

.....

.....

Quando foi introduzida a tarifa zero?

- ◯ A rede de transporte público funciona sem cobrança de tarifa desde que foi criada, no dia: (por favor especifique a data –ano/mês/dia– quando a rede foi estabelecida ...../...../.....)
- ◯ A tarifa zero foi introduzida **de uma vez** em uma rede de transporte público já existente no dia: (por favor especifique a data –ano/mês/dia– quando tarifa zero foi introduzida ...../...../.....)
- ◯ A tarifa zero foi introduzida gradualmente **por fases** em uma rede de transporte público existente da seguinte maneira: (por favor especifique as fases:

  .....
  .....
  .....
  .....

Quais foram os três motivos principais pela introdução de Tarifa Zero?

- ☐ Reduzir a quantidade de carros em circulação
- ☐ Melhorar a qualidade de vida dos habitantes do município
- ☐ Estimular a economia local
- ☐ Atrair novos investidores ou residentes
- ☐ Ajudar grupos desfavorecidos
- ☐ Melhorar o acesso social ao transporte público
- ☐ Enfatizar o caráter público ou universal do transporte público
- ☐ Conceder à iniciativa privada a gestão do sistema de transporte público
- ☐ Obter fundos ou subsídios supra-locais (regionais, nacionais, federais)
- ☐ Ganhar apoio político de eleitores locais
- ☐ Melhorar as condições de trabalho dos trabalhadores do transporte público
- ☐ Outro (Por favor, especifique:

  .....

  .....

  .....

Quem trouxe a ideia de Tarifa Zero para dentro da administração do município?

- ☐ Autoridades locais de transporte
- ☐ Operadora de transporte público
- ☐ Outros políticos locais e funcionários eleitos
- ☐ Grupos ou associações de cidadãos
- ☐ Comerciantes e empreendedores locais
- ☐ Outros (por favor, especifique:

  .....
  .....
  .....

De onde veio a ideia de Tarifa Zero? Quem ou o quê inspirou a pessoa que levou a ideia?

- ☐ Autoridades locais de transporte
- ☐ Operadora de transporte público
- ☐ Outros políticos locais e funcionários eleitos
- ☐ Grupos ou associações de cidadãos locais
- ☐ Grupos ou associações de cidadãos de outras cidades
- ☐ As “Jornadas de Junho” (Manifestações dos 20 centavos que ocorreram em 2013)
- ☐ Negócio local
- ☐ Outros — por favor, especifique: .....

Como funciona Tarifa Zero hoje?

Existem rotas/linhas dentro da sua municipalidade que operam com cobrança de tarifas?

- ◯ Não
- ◯ Sim — Por favor, especifique quais rotas não tem tarifa zero e porque não:

.....
.....
.....
.....

Existem usuários do sistema que são obrigados a pagar?

- ◯ Não
- ◯ Sim — Por favor: especifique quem e porque:

.....
.....
.....
.....

Existem horários durante os quais os usuários estão obrigados a pagar?

- ◯ Não
- ◯ Sim — Por favor: especifique quando e porque:

.....
.....
.....
.....

Para fazer uso da tarifa zero, precisa-se de um bilhete/uma passagem/um passe/um cartão..?

- ◯ Não; não há passagens, nem máquinas para validar elas
- ◯ Sim
  - Por favor especifique: elas precisam ser validadas?
    - ◯ Sim
    - ◯ Não
- ◯ Nenhuma das opções acima — por favor especifique:

.....
.....
.....
.....

Custos e financiamento da Tarifa Zero

Quem é o proprietário da rede de ônibus?

- ◯ A rede é possuída inteiramente pela município
- ◯ A rede é possuída parcialmente pela municípioe e parcialmente por parceiros privados — por favor, especifique o nome do parceiro privado:
  .....
- ◯ A rede é possuída inteiramente por uma empresa privada, contratada pela municipalidade — por favor, especifique o nome do parceiro privado:
  .....
- ◯ Nenhuma das respostas acima (por favor, descreva a estrutura de propriedade:
  .....
  .....
  .....

A introdução da tarifa zero afetou ou alterou de alguma forma a estrutura de propriedade da rede de transporte público?

- ◯ Não
- ◯ Sim (por favor, descreva como:)
  .....
  .....
  .....
  .....
- ◯ Não sei (se possível, indique uma pessoa quem poderia saber a resposta a esta pergunta:)

Como é financiado o sistema do transporte público?

- ◯ Subsídios do governo (por favor especifique qual governo e o nome do subsídio:)
  .....
  .....
- ◯ Impostos locais arrecadados sobre os habitantes
- ◯ Impostos locais arrecadados sobre as empresas
- ◯ Rendas de publicidade
- ◯ Renda de aluguel de veículos e outros equipamentos
- ◯ Outro: por favor especifique:
  .....
  .....
  .....
  .....

Desde a introdução da Tarifa Zero, mudou/mudaram a(s) fonte(s) do financiamento do sistema?

- ◯ Não
- ◯ Sim (por favor, descreva como:
  .....
  ....
  .....
  .....

- ◯ Não sei (se possível, indique uma pessoa quem poderia saber a resposta a esta pergunta:
  .....)

As perguntas seguintes são bastante especificas. Se não tiver as informações, não precisa preencher. Se tiver a resposta, por favor indique a fonte dos dados.

Qual foi o orçamento operacional anual* da(s) empresa(s) que opera(m) a rede de transporte público:

**custos totais relativos a trabalhadores/funcionários, operação e manutenção de veículos, depreciação de veículos, fontes de energia (combustível, eletricidade) e seguros.*

- no último ano **antes** da introdução de tarifa zero?
  ano: .....
  valor: .....
  fonte de informação: .....

- no primeiro ano **após** a introdução de tarifa zero?
  ano: .....
  valor: .....
  fonte de informação: .....

- *(se o ano fornecido em b. for inferior a 2019)* em 2019?
  ano: .....
  valor: .....
  fonte de informação: .....

Não sei — se puder, por favor forneça os dados de contato de uma pessoa que poderia fornecer informações sobre este assunto:
.....
.....
.....

Qual foi a receita tarifária anual:

- no último ano **antes** da introdução de tarifa zero?
  ano: .....
  valor: .....
  fonte de informação: .....

- no primeiro ano **após** a introdução de tarifa zero?
  ano: .....
  valor: .....
  fonte de informação: .....

- *(se o ano fornecido em b. for inferior a 2019)* em 2019?
  ano: .....
  valor: .....
  fonte de informação: .....

  Não sei — se puder, por favor forneça os dados de contato de uma pessoa que poderia fornecer informações sobre este assunto:
  .....
  .....
  .....

Qual porcentagem do custo operacional foi fornecido pela cobrança de tarifas de usuários..

- o ano <u>antes</u> da introdução de tarifa zero?
  ..... % (ano: .....)
  fonte de informação: .....

- o primeiro ano <u>após</u> a introdução de tarifa zero?
  ..... % (ano: .....)
  fonte de informação: .....

- *(se o ano fornecido em b foi inferior a 2019)*: em 2019? .
  ..... %
  fonte de informação: .....

  Se não souber a resposta às perguntas acima, por favor forneça os dados de contato de uma pessoa que poderia fornecer informações sobre este assunto:
  .....
  .....
  .....

Qual era a estrutura das tarifas do transporte público (por exemplo, tarifa única, tarifa integrada, custo do bilhete único, cartão de viagem mensal, tarifas com desconto para grupos/rotas/tempos de viagem específicos)

a. no último ano **<u>antes</u>** da introdução de tarifa zero?

.....

.....

b. <u>após</u> a introdução de tarifa zero?

.....

.....

c. se for diferente do descrito em b., qual é a estrutura tarifária hoje?

.....

.....

A operadora de transporte público ou as autoridades locais obtiveram alguma receita adicional ou economia relacionada à tarifa zero?

- ◯ Subsídio de autoridades locais (municipais ou regionais)
- ◯ Subsídio de autoridades supra-locais (nacionais ou federais)
- ◯ Impostos locais cobrados sobre os residentes adicionais ou aumentados
- ◯ Impostos locais cobrados sobre as empresas adicionais ou aumentados
- ◯ Maior receita com publicidade
- ◯ Aumento da receita do imposto de renda pessoal (por exemplo, relacionado ao crescimento populacional)
- ◯ Outro — por favor especifique: .....

Quais foram os volumes anuais de passageiros:

a. no ano **anterior** à introdução de tarifa zero?
   ano: .....
   número: .....
   fonte de informação: .....

b. no ano **após** a introdução de tarifa zero?

   ano: .....
   número: .....
   fonte de informação: .....

c. *(se o ano fornecido em b. for inferior a 2019)* em 2019?
   ano: .....
   número: .....
   fonte de informação: .....

Como os volumes de passageiros são contados após a introdução de tarifa zero?

- ◯ Não são contados
- ◯ Por meio de sensores nas portas de veículos
- ◯ Através da validação do bilhete ao entrar no veículo
- ◯ Através da validação do bilhete ao sair do veículo
- ◯ Por meio de observações de agrimensores
- ◯ Outro — por favor especifique:

  .....
  .....

Quantos veículos-quilómetros foram percorridos pela rede de transporte público:

a. no ano **anterior** à introdução de tarifa zero?
   ano: .....
   número: .....
   fonte de informação: .....

b. no ano **após** a introdução de tarifa zero?

   ano: .....
   número: .....
   fonte de informação: .....

c. *(se o ano fornecido em b. for inferior a 2019)* em 2019?
   ano: .....
   número: .....
   fonte de informação: .....

Qual é a capacidade média atual dos veículos na rede de transporte público?

..... passageiros

Avaliação da introdução da Tarifa Zero

A mudança para Tarifa Zero mudou a qualidade do transporte público?

◯ Não

◯ Sim (por favor indique como):

☐ aquisição de novos veículos — por favor especifique quantos e quais:
.....
.....

☐ redesenho de rotas existentes — por favor especifique como:
.....
.....

☐ adição de novas rotas — por favor especifique como:
.....
.....

☐ adição de novos modos de transporte público (por exemplo linhas de bonde, trólebus, etc.) — por favor especifique quantos e quais:
.....
.....

☐ redesenho da rede inteira do transporte público — por favor especifique como:
.....
.....

☐ aumento de frequências de transporte público — por favor especifique como:
.....
.....

☐ aumento da velocidade operacional média do transporte público — por favor especifique como:
.....
.....

☐ renovação dos espaços em volta dos pontos de embarque e desembarque do transporte público — por favor especifique onde e como:
.....
.....

☐ outro — por favor especifique:
.....
.....

Mudou o número de trabalhadores no transporte público na sua municipalidade?

◯ Sim (se souber, por favor especifique a diferença:
.....)

◯ Não

◯ Não sei

Que aconteceu com a função dos cobradores? (por favor sublinha e completa a(s) resposta(s) relevantes)

◯ Foram mantidos dentro dos ônibus, agora cumprem outra função — por favor especifique: .....

◯ Receberam assistência ou treinamento para serem aproveitados em outras áreas da empresa — por favor especifique:
.....

◯ Não foram mantidos

A introdução de Tarifa Zero levou a um aumento de problemas de segurança no transporte público (por exemplo vandalismo, falta de respeito aos trabalhadores, bagunça, ..)?

◯ Não

◯ Sim — por favor especifique o que acontecia e qual era o tamanho do(s) problema(s) em relação à rede e aos custos operacionais:
.....
.....
.....
.....
.....

Realizou-se pesquisas sobre o impacto da Tarifa Zero na rede do município ...

- na participação percentual do transporte público na divisão modal dos transportes?
  - ◯ Sim
  - ◯ Não
- nos hábitos de transporte dos habitantes da sua municipalidade?
  - ◯ Sim
  - ◯ Não
- o perfil dos usuários do transporte público (por exemplo gênero, renda, etnia, emprego, etc.)?
  - ◯ Sim
  - ◯ Não
- novos grupos de usuários de transporte público?
  - ◯ Sim
  - ◯ Não
- os hábitos de escolha de local de moradia dos habitantes? Sim/não
  - ◯ Sim
  - ◯ Não
- as padrões de localização de empresas ou instituições?
  - ◯ Sim
  - ◯ Não

Se uma das respostas às perguntas anteriores é “sim”, gostaríamos de receber os documentos com os resultados dessa(s) pesquisa(s). Pode(m) ser mandado(s) a marijke.vermander@vub.be e wojciech.keblowski@vub.be.

Gostaríamos de ter a oportunidade de lhe fazer mais algumas perguntas no futuro.

Como podemos entrar em contato com o senhor/a senhora?

Nome: .....

E-mail: .....

Telefone: .....

Seus dados não serão distribuídos para outras pessoas além da equipe de pesquisa.

Muito obrigada pela sua colaboração!