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## Governance, COVID responses, and lessons on decision-making in uncertainty

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## Chapter 35

# Governance, COVID responses, and lessons on decision-making in uncertainty

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## 35.1 Introduction

In many countries, the start of the 21st century seemingly provided a renaissance for public transport, with urbanization on the rise and the downsides of individual transport growing ever more obvious. This could be recognized in the investments in new infrastructure (Zhang, 2016), and the focus on public transport in transport policy (Ettema, Friman, Gärling, & Olsson, 2016; Rode, 2013), obviously in some countries more than others, with Europe and Asia being the frontrunners.

When COVID struck on a global level in the early months of 2020, public transport was seen as a possible environment where infections could thrive. Given that, reactions occurred on two levels; travelers were starting to avoid public transport, for fear of infection, and governments were limiting access to public transport, to reduce general infection levels. Or formulated in the framework of this chapter, travelers decided to travel on different modes, governments decided to regulate the use of public transport, from obligatory masks, via maximum occupancy levels, to limiting access to specific target groups, mostly essential personnel, and operators decided to limit services and how to keep staff safe. These decisions obviously reduced levels of patronage, however in very different ways throughout the world.

This chapter discusses the relation between responses to the COVID pandemic and the governance of public transport where those responses occurred. With governance, this chapter means the rulesets that stakeholders use to make decisions between them. In the COVID crisis, for public transport, the key stakeholders were health officials, transport authorities, transport operators, and possibly travelers and staff unions. Key decisions that had to be made on public transport were in core threefold: what limitations would apply to the use of public transport, what services should still be operated, and how to deal with the financial consequences of those earlier decisions. The rulesets conditioning those decisions can be found in the legal context, contracts, and possible agreements made outside these more formalized sets, like oral agreements on the delivery of patronage data at a certain moment (see also Veeneman, 2021; Williamson, 1998).

Obviously, the choice of who is involved in those decisions has a consequence for the understanding of the different issues and consequently for the prioritization of those different issues. Health officials will probably push more for the reduction of travel, as it can be a source of infections and a burden on the healthcare system. Governments might want to balance the possibility of essential staff to still be able to travel with that need to reduce infections. Operators could have a clear perspective on how realistic it is to operate safely and economically with limited numbers of travelers.

Also, the positions stakeholders hold toward various options in changing the supply of services or allowing fewer people on public transport will be dependent on how that roles are divided and how funding is linked to those roles (see [Hirschhorn, 2020](#)).

Here, we will look at the governance of particularly public transport, as that is an interesting case study for how the structuring of decision-making in a certain area of transport drives the type of solutions that are chosen and through those decisions the future of the wider transport system is shaped.

## 35.2 What is governance and why does it matter in COVID times?

As stated above, governance can be defined as the rulesets in place for decision-making with multiple stakeholders involved. In public administration, “governance” has had various meanings, from the actions of government to a more cooperating way of governing. Business administration talks about corporate governance when discussing the role of the board and shareholders. We choose here a generic definition that unifies those by focusing on rulesets for decision-making with multiple stakeholders. That can be as broad as the institution of democracy and as narrow as the way in which the rules set for guard, driver, and dispatcher to decide together on train’s departure (see [Veeneman, 2021](#)). For the purpose of this chapter, and in much more of the literature on governance of public transport, we limit our focus on the governance of the decisions on service design for public transport, mostly between authorities and operators, sometimes with the involvement of traveler representation. More specifically, this chapter focuses on the way that governance structures the interactions between authority and operator dealing with redesign of service levels early in the COVID crisis and coming out of it.

### 35.2.1 Governance as coordination through hierarchy, markets, and networks of stakeholders

[Powell \(1990\)](#) distinguishes between different governance mechanisms to coordinate between the stakeholders: hierarchy, markets, or networks. Those mechanisms all can be used to coordinate between various stakeholders. Governance can concentrate agency toward the top of a hierarchy, for example in the way in which in China high-speed rail systems are developed. Here, the top is expected to coordinate the perspectives of different stakeholders, for example, by considering the location of high-speed railway station in the various regions, considering various interests like regional urban development and national train operation. Or rulesets can use mechanisms of the market to coordinate between stakeholders, where the purchase decisions in competitive market models coordinate toward the preferred products or services, like the competition for travelers between in the Italy between Italo and FS on rail service provision. Or agency can be shared in more cooperative forms, through the mechanisms of network governance, like the cooperation between Belgian, French, and Dutch operators in providing high-speed rail services in northwest Europe, with stakeholders working together in a stakeholder network. The network mechanisms let the various national operators negotiate together to coordinate between their high-speed services and their national and local services to build a layered network. In the COVID context, hierarchy mechanisms could be seen when governments were limiting public transport access to essential users, market mechanisms could be seen in the way that travelers were choosing private transport because of fear of infection, and network mechanisms in the negotiations between operators and authorities on the level of funding provided to operators to stay afloat.

### 35.2.2 Governance from most market regulation to a wider view

The topic of governance gained traction in public transport from discussions on market regulation in the 1980s ([Beesley & Glaister, 1985](#); [Gwilliam, Nash, & Mackie, 1985a, 1985b](#)) and later shifted from theoretical and normative analyses of competition models to more sophisticated empirical analyses of the interactions between authorities and operators (for example, [Hansson, 2013](#); [Holmgren, 2013](#); [Roy & Yvrande-Billon, 2007](#); [Stanley & Hensher, 2008](#); [Veeneman, 2016](#)). Also, here, we see literature looking at more controlling models, competitive models, and cooperative models in the relation between operators and authorities on designing the services. However, those crudely defined models really only point at separate mechanisms to be used in coordination in decision-making with multiple stakeholders, with sound empirical analyses showing how these different mechanisms are often used in combination. For example, authorities can develop their own ideas on what passengers deem important and force this on various operators (hierarchical coordination), while they require operators to work together to ensure connections (hierarchy requiring cooperation), or they can work with passengers or other regional authorities in choosing a particular bid of an operator in a tendering process (cooperation on a market decision). All these are examples on how these mechanisms can be used in the interaction on making design decisions for the services between traveler, operator, and authority.

Governance research expands its focus beyond the traditional focus on the relation between a transport policy and its effects, more specifically the effect of changing service levels on patronage. Rather, it shows how decisions rulesets are precursors for these decisions about policies, like service levels, and in that form shape their outcomes (see, for example, [Veeneman & Mulley, 2018](#)). Governance research tries to understand how existing governance in a jurisdiction does condition what policies (and also other decisions) are taken, and consequently steer the outcomes even before the policy is put in place. Staying with our railway examples, it helps understand why high-speed rail investments are common in centralized countries like France and China and less so in more federalized countries like the United States and Australia. So, governance research has explanatory power for the policies that are in place in a particular country or region and the countries success and failure in a specific transport area.

### 35.2.3 Governance as rulesets in the sociotechnical system of public transport

So, public transport is a complex sociotechnical system ([De Bruijn & Herder, 2009](#)), with a great deal of stakeholders understanding different parts of the public transport reality and valuing different things in that system. A fair evaluation of the performance of such system should cover that a variety of stakeholders, rather than optimizing for the single stakeholder that holds most agency. Public transport is better if performs broadly as a system to travel by, work in, live next, and more. From a policy perspective, there is a wide variety of public values important, including performance on occupancy, energy, safety, subsidy, and again more. And COVID added the performance in keeping infections limited. To let any complex sociotechnical system perform on such variety of indicators is a challenge, and governance can help give the various stakeholders the right position in the decision-making process. Rulesets can help stakeholders decide on system changes, bringing a broad starting point to develop public transport performance. For the sake of this chapter, we simplify this perspective to key stakeholders in service design. Although we will keep a wider perspective on the values that these stakeholders bring to the table, the COVID crisis also had the effect that value priority became clear. Keeping public transport afloat was the top priority for many, with less attention for other important values.

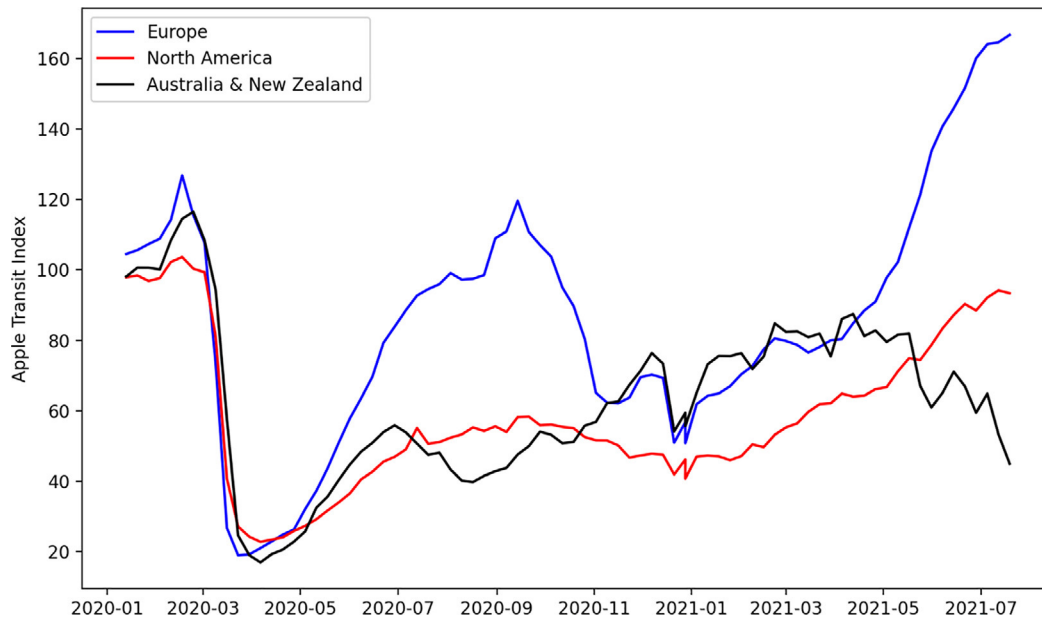
For COVID responses, governance can be seen as relevant in two distinct ways. First, with lockdowns and consequently patronage down significantly, in many public transport systems changes were made limiting service provision. How that decision was made depends on the way that the relation between the authority and operator was set up. This chapter has a first look at a few distinctions between different countries in the effect of decisions made, in a quick empirical analysis of a single case and hypothesizing based on that limited selection. Second, with countries, regions, and cities now opening services up again, the decision has to be made to what extent public transport service will be brought back to original levels. Here, we will have a look at governance under uncertainty and what a governance perspective could provide in terms of guidance on that decision. But first, we'll provide a quick overview of the way in which the decisions in various regions of the world panned out in terms of people choosing for public transport.

## 35.3 COVID responses and their effect of patronage

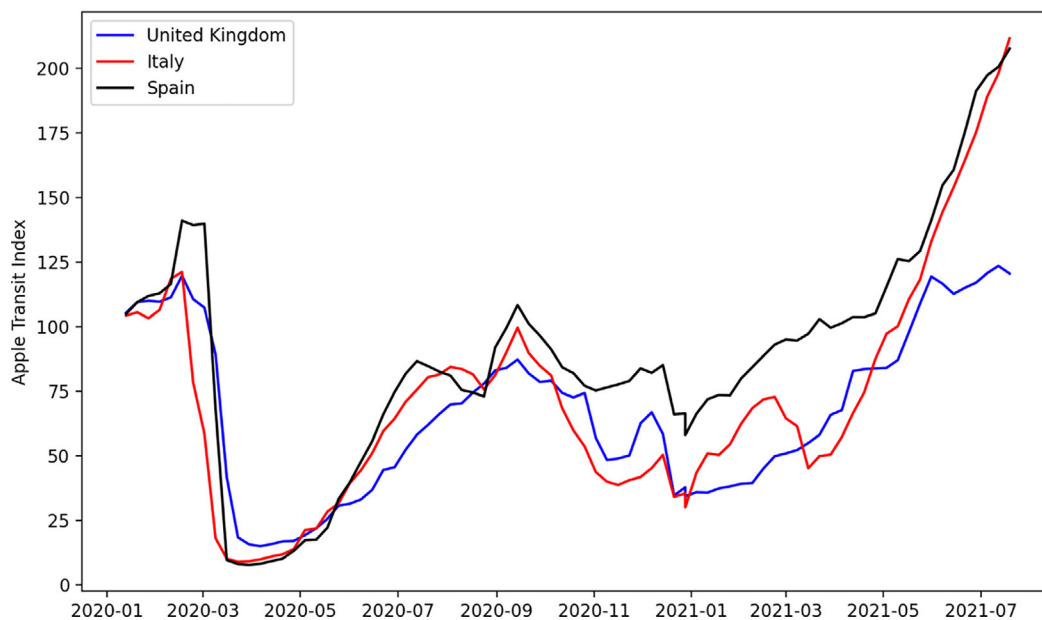
After COVID hit in early 2020, the reactions in various regions were different, both in terms of policies and in terms of the following use of public transport. Here, we will look at the differences we see on a global scale and at the more extreme outcomes in terms of public transport use and modal split. For that, we use the REBEL dashboard of COVID recovery that uses Apple data as proxies for public transport and car use. We only included regions that have sufficiently reliable data on that data set, which means that Asia is underrepresented. Indicatively, we'll link those outcomes to the existing governance in the region. In all cases, we have set 100% early January 2020 and all graphs show the development until June 2021. Keep in mind that the January 1st baseline can be an underrepresentation due to Christmas holidays in many countries.

First, this chapter considers the global development of public transport ridership in Europe, North America, and Australia and New Zealand (see [Figure 35.1](#)). The regions all show a clear drop in March 2020, in which month most countries went into a lockdown. In Europe, public transport grew again quickly, even though we know that several countries still had limitations in place. Public transport in Europe opened up again from May 2021, which is in line with the stronger position public transport holds as an alternative mode, in terms of policy focus, and as such as a priority for reopening. The other regions in the graph have a stronger focus on the car, leading to less of a resurgence of public transport use after the first wave had passed.

In the database, we selected from the global set the three cases in which between June 2020 and June 2021 public transport made the quickest resurgence (see [Figure 35.2](#)). Those three cases are all in Europe: The United Kingdom, Spain, and Italy. In Spain and Italy, the index doubled in June 2021, showing a clear resurgence.



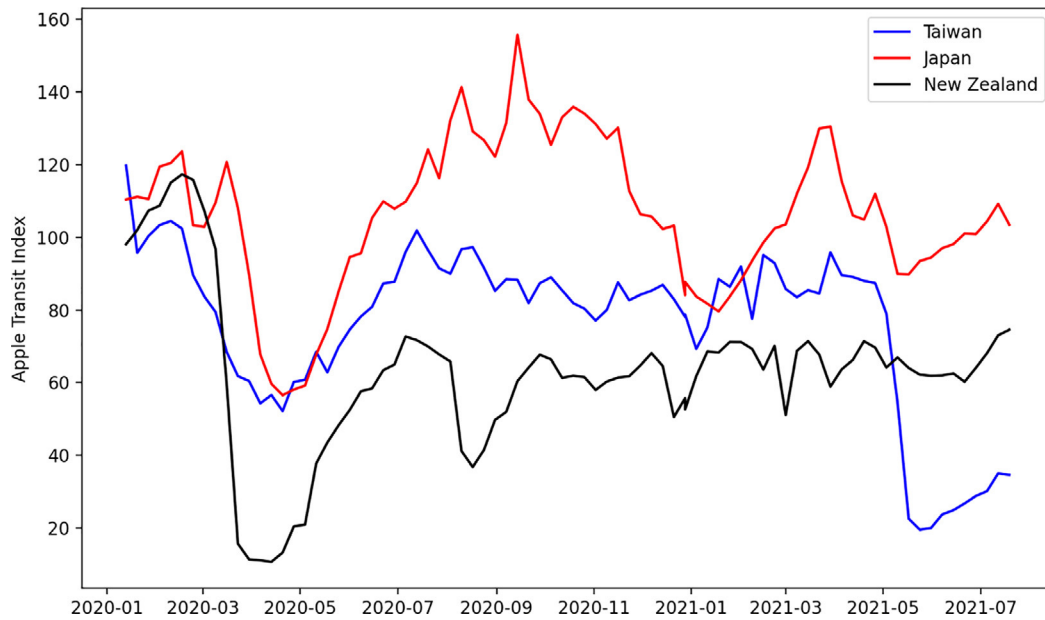
**FIGURE 35.1** Public transport travel during the COVID pandemic across Europe, North America, and Australia and New Zealand. (Source: Rebel COVID recovery platform.)



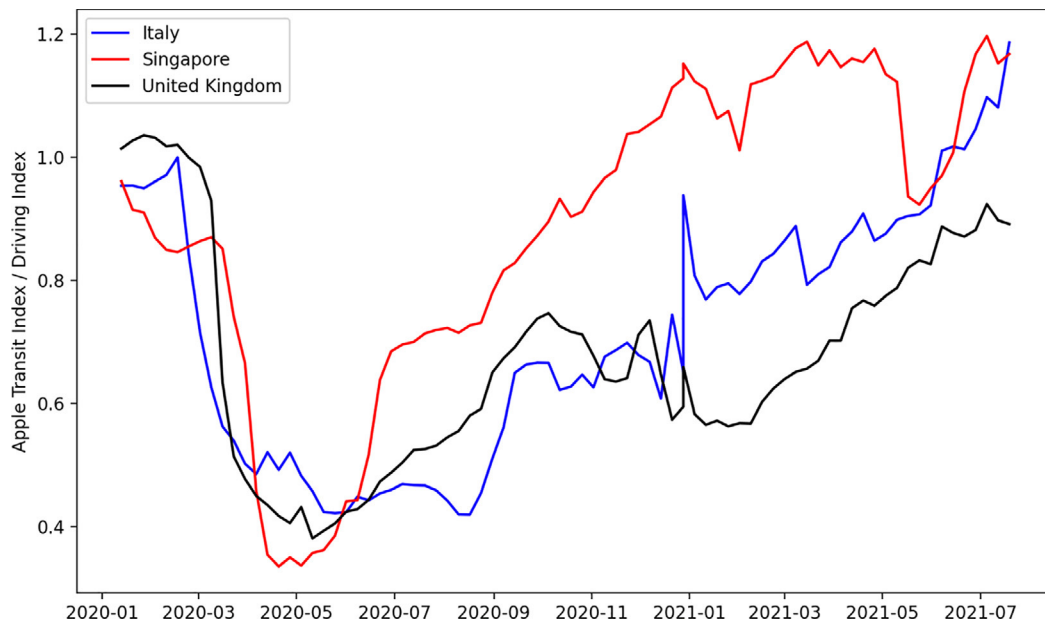
**FIGURE 35.2** Public transport travel during the COVID pandemic in the most rapid resurging countries, the United Kingdom, Italy, and Spain. (Source: Rebel COVID recovery platform.)

In the database, we selected the three cases in which between June 2020 and June 2021 public transport made the least of a resurgence (see [Figure 35.3](#)). Those three cases are all islands in Asia Pacific. It is clear that in Japan and Taiwan, the reduction of travel by public transport was far less than in many other countries. Minima are around 60% of the baseline of January 2020. For these cases, policies aimed at the reduction of infections through hygiene during travel and less on limiting use. This did not lead to higher infection rates overall than in those countries limiting use. Also in New Zealand, the resurgence wasn't there, as only in 2021 lockdown led to significantly less use of public transport.

The fear of infections in public transport could have led to a stronger use of the car, as travelers might feel less exposed to the risk of infections. That should be visible in the ratio between the transit index and the driving index (see [Figure 35.4](#)).



**FIGURE 35.3** Public transport travel during the COVID pandemic with the least resurgence, Taiwan, Japan, and New Zealand. (Source: Rebel COVID recovery platform.)



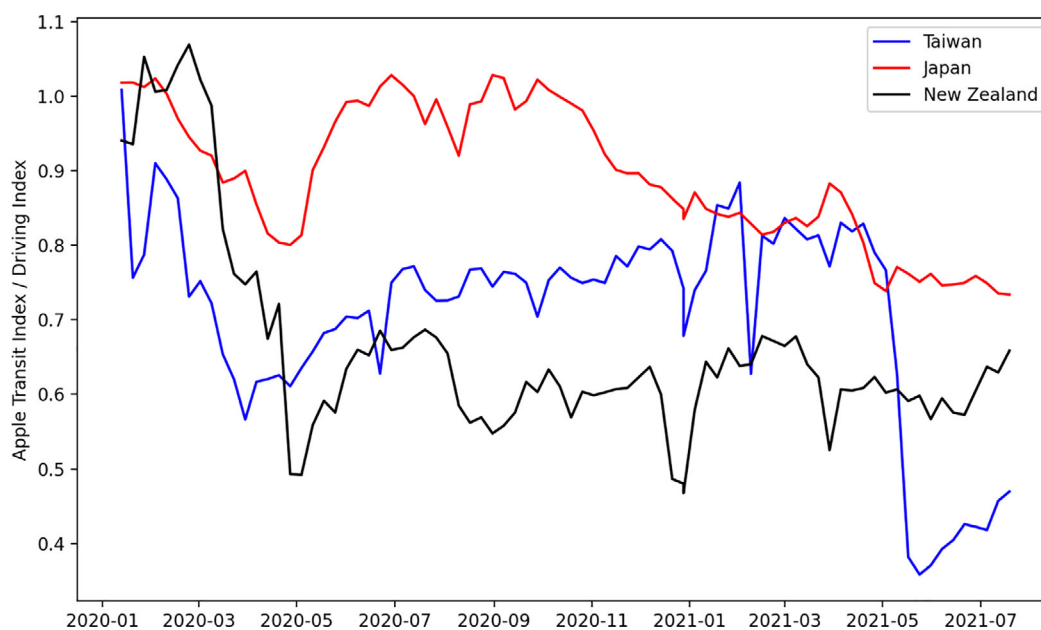
**FIGURE 35.4** Cases with the least modal shift from public transport toward the car: Italy, Singapore, and the United Kingdom. (Source: Rebel COVID recovery platform.)

The three countries in which public transport did best in terms of holding out to the car were Italy, Singapore, and the United Kingdom. Singapore opened up public transport soon and only in May 2021 restricted it again.

Finally, the three cases in which public transport lost most to the car are the same as the once that public transit lost most in general, with not a clear distinction between the development of public transport index or the model split ratio (see Figure 35.5).

From this picture, it becomes clear that cases having a strong focus on public transport, like Japan, Taiwan, Singapore, and the United Kingdom, perform differently in terms of resurgence. They seemed to have kept public transport open for longer and do not show a resurgence beyond the baseline of January 2020. Beyond those numbers, authorities and operators must have worked together on developing, implementing, and evaluating different measures, leading to limitations and





**FIGURE 35.5** Cases with the most modal shift from public transport toward the car: Taiwan, Japan, and New Zealand. (Source: Rebel COVID recovery platform.)

the subsequent effects on travel presented in this section. In terms of governance, the stakeholders involved seem to have been pushing for more public transport-friendly ways of reducing infections. It illustrates how the two things strengthen each other: a governance system that builds strong public transport also chooses to protect that strength when a crisis hits, and it seems that they have found ways to keep infections low and ridership up. Obviously, the data only implies these kinds of dependencies. The next section will look deeper into those real-world negotiations between the stakeholders on COVID—measures in public transport and how they can be understood from the governance of, in this case, Amsterdam in the Netherlands.

## 35.4 Governance and the rethinking of services after COVID

In many countries, regions, and cities, the decision was made in the spring of 2020 to limit travel, by asking people to work from home, reserve the use of public transport to select groups of travelers, or constrain the use of public transport in different ways, for example, requiring the use of face masks and later negative COVID tests or vaccination passports. Those decisions were generally made in an arena with primarily public health experts often on a national level, rather than with public transport representatives. Obviously, these limitations decided from a health perspective reduced the level of income for public transport and decisions had to be made in a second arena, that of the authority and the operator, and mostly on a regional level, on how to deal with that reduction of revenue.

We carried out a case study of the process of decision-making on service-level reduction in Amsterdam (see [Hirschhorn, 2021](#)) in 2020. This section is heavily based on that research. The case study provided us with an overview of factors that played a role in decision-making on service-level reduction. We linked that to existing literature on governance on public transport to come with a number of factors that seemed to play a major role in the way in which decision-making on service reduction given the lack of fare box revenues could pan out.

In the Amsterdam case, three observations sprung up from the analysis on how governance conditioned the decision-making on service-level reductions was made. First, the regional authority in the region had little agency on two key factors: the limitations set to travel in public transport and the funding available to compensate for the lack of patronage. Both were decided upon on a national level. For funding for public transport, the region is getting an earmarked sum from the national government. There was uncertainty about what would happen with that funding. For the limitations of travel, they were set as general national limitations, with a strict advice to work from home and have public transport only available for those in key functions, like health care.

Amsterdam public transport has a high cost recovery rate (the local operator GVB had a cost recovery rate of 65% in 2019), so a large part of the revenue of the operator came from fare box revenues in its net cost contract. Because of national



COVID policies, the expectation was that revenue would drop substantially, and indeed, the GVB fare box revenue went from 331 M€ in 2019 (with costs being 479 M€) to 181 M€ in 2020 (with costs being 464 M€).

### 35.4.1 Governance and its effect on the decisions

That uncertainty on how the national government would deal with the fall in revenue put a particular focus on the decision-making process between the regional authority and the operator when they discussed limiting the services. They could not focus that on the levels of funding that would be available, and to maximize services on that level of funding. This was something they had no control over. Neither could they maximize the fare box revenue, as they had no control over which passengers were allowed to travel and which not. Hence, authority and operator build scenarios for service levels at specific levels of demand.

Second, the region is a cooperation between 15 municipalities, with the governance setup along cooperative lines between those municipalities. These municipalities have different characteristics, some more urban and some more rural, and as such do have different interests. This means that any substantial change in services can change the balance between service provisions in the various types of municipalities. In the negotiations between the authority and the operator, there seemed to have been a strong focus on making decision-making as objective as possible, with a strong focus on modeling expected numbers of passengers in the new scenarios of COVID measures, with avoiding introducing new policy priorities. This to do justice to the different interests of the various municipalities in the region.

Third, the operator and authority have a cooperative relation on the development of services. The authority felt responsibility to make funding available and started, with other authorities in the country, advocating for additional funding for the now financially struggling operators. The authority itself had no substantial funding available to balance the reduced revenue stream. The regional and its main municipality (Amsterdam) started advocacy at the national level for funding for the operators. The Netherlands also has a close cooperative platform of authorities, operators, and travelers. This platform soon took the role of key advocacy group to the national government. This led in October 2020 to a costs base compensation of 93% of the total costs for the services that were provided despite the reduced demand, a measure that was reapplied in 2021.

### 35.4.2 First lessons from Amsterdam

Paradoxically, the more the public transport system was operating on passenger revenues rather than on subsidies, by being efficient and attractive to passengers, the larger the percentage of the funding was under threat of reduction of patronage during the COVID crisis and the bigger the financial problem was after patronage was cut. In short, attractive public transport systems were financially hit harder than systems needing a great deal of financial support. For the authority and operator of free public transport in Luxembourg, recalibrating the service levels to the lower demand was a matter of cutting already-budgeted costs. All marginal costs avoided would end up as a budget surplus at the end of the year. For the authority and operator of profitable public transport like in London, with high levels of cost recovery, reducing the service levels to lower costs was essential. The lack of revenue would end up at the end of the year as a budget deficit. And with public transport having relatively low percentage marginal costs (with energy being the mostly flexible and staff, infrastructure and vehicle costs being mostly fixed), the potential of cost reduction was limited. Whether that budget deficit would end up with the operator or with the authority would depend on the contract type. In London, with mostly gross cost contracts, that would fall on the authority. In large parts of the Netherlands, with mostly net costs contracts, that would fall mostly on the operator.

In the Amsterdam case, we see a number of design factors of governance play a relevant role. These factors could play a major role elsewhere: the authority being a cooperative of municipalities; the lack of a tax base in the region for the authority; the existence of a national platform of travelers, operators, and authorities with an existing strong position set the governance scene for the negotiations between the operator and the authority; and the net cost contract with the operator. Obviously, this being a single case study, we have no means of comparing the process in detail to other regions. In addition, we see two conditions that seemed to have played a major role: the high level of cost recovery from the fare box and the availability of funding at the national government.

However, here, we will briefly discuss our hypotheses for these different factors. The first factor is the net cost contract of the operator in the region. Obviously, the negotiations between the operator and the authority are different when the revenue from the fare box is zero (in case of free public transport) or when the revenue risk is for the authority (in case of a gross cost contract). In case of free public transport, there is no fare box revenue and revenue will clearly not be a relevant factor in the negotiations between the operator and the authority. In that situation, it is likely that the negotiations will be focused on cost reduction. In such cases, the subsidy to the operator is already budgeted by the authority, and probably there

is no strong push for cost reduction. This is clearly different from the Amsterdam case, with high uncertainty about funding. In case of a gross cost contract, it would be the operator pushing for cost reduction with the authority likely pushing for revenue maximization, which generally are contrary goals. Expectation would be that negotiations are more antagonistic and would focus on open book cost calculations and revenue modeling exercises.

Second, the authority in Amsterdam is a cooperative of different municipalities. We saw that this limited the inclination to change policy priorities. Our hypothesis is that in more singular jurisdictions, with the authority having a single political entity to serve, changes in policy priorities could have been more likely, for example focusing on high corona infection regions. A more hierarchical governance would have made it easier to change policy priorities, but in the Amsterdam case priorities of the different municipalities as secured in existing policies stayed the same.

Third, the region lacks a tax base and cannot generate own funding for public transport. We saw that the region itself could not muster additional funding to compensate for the reduced revenue from the fare box, as it has no substantial tax base that could be used for public transport and is dependent on transfers from the national government. This could have led to a redesign focusing on minimizing costs, as the authority had no means of compensating the substantial loss of revenue. However, the swift reaction of the national government, mobilized by a national concerted effort to make a sound financial arrangement for the sector by the national platform of regional authorities, operators, and travelers, made that the focus could move away from reducing costs and toward facilitating the demand left as efficiently as possible. The lack of that availability of funding on a regional level, without the stepping in on the national level, could have focused decision-making in the region far more on reducing costs.

Concluding, we expect negotiations on service reduction after the COVID-crisis hit between authorities and operators to have been different in various governance contexts. In this section, we show a number of governance aspects that have driven the negotiations in Amsterdam and the Netherlands and present a number of expectations in other governance context, particularly in the relation between the operator and the authority. In the next section, we will have a look at the decision on how to cater for the growing demand as public transport is opened up again.

## 35.5 Conclusion

Quality public transport is public transport that creates value for a wide variety of stakeholders: various types of travelers, but also the workers, the neighbors, and the wider civil society the services cater for. We see that in the variety of public values related to public transport, from quality of service, to safety for the workers, to limitations of noise nuisance for the neighbors, to reduction of emission of greenhouse gasses for future generations, and much more. Governance of public transport is the ruleset that helps those deciding about public transport services to create that wider value.

This chapter looked at the way in which governance has conditioned the decision-making on COVID limitations for public transport and the way in which these had to be reflected in the choices to reduce services in a specific jurisdiction. This chapter looked at how the jurisdiction is organized, in terms of funding and direction, and the way in which the contract between the authority and operator is set up, and how these aspects are expected to have an influence on the decision-making.

We saw that different countries which clearly have different governance of public transport showed different results. Hypothetically, these results could be traced to the governance and the existing role of public transport in the modal split. We added a case, showing on a more detailed level how decision-making in the Amsterdam case was driven by the roles of the national and regional governments in decisions on funding public transport.

When we look through the case at the governance landscape of public transport, it seems that for long the focus has been on finding a larger role for private operators and market mechanisms in the governance. A key take-away seems to be that in a crisis like COVID, governments were again asked to dampen the risks of the private sector. This seems to be a strengthening factor in a rethink of extent of the role of the private sector in public transport.

COVID decision-making simplified the focus on the one hand, as keeping the services afloat was the key challenge. On the other hand, improvisation had to be undertaken, something that a lot of governance systems are not necessarily good at. It will be interesting to see how governance will condition the way in which the reopening of public transport and upscaling of the services will take place. We see two scenarios in that regard for operators and authorities. In a first scenario, they might take the risk to go back to pre-2020 levels of service to attract people back and find funding to bridge a temporary lull in demand. In a second scenario, they could avoid that risk of overservicing and keep services reduced longer, with the risk that now travelers will be attracted more to private modes and patronage will stay lower. Which of those will play out in a specific jurisdiction obviously is related to the governance of public transport and the way in which the ruleset allows for risk taking and long-term focus.

## 35.6 Messages

### 35.6.1 Key findings

- Countries with a lot of control over public transport in the hands of governments with execution by market operators have a faster recovery of ridership than both countries with public operation or with open markets for private operation.
- This is the best recognizable in the differences between the continents, Europe (mostly government controlled competition), North America (mostly government operation), and Australia and New Zealand (more mixed models).
- Obviously, the causality is probably linked with the spatial structure and travel patterns in Europe being also more aligned with public transport as a major mode.
- Public transport in countries with well-functioning public transport with high-cost recovery rates were hit harder, as the lack of patronage from COVID and the related reduced fare-box revenues took a larger part out of the total revenue stream. In highly subsidized systems, the revenue stream stayed mostly intact.
- The reaction on the COVID crisis could be distinguished on the line “focus on what is important” or “spread the burden.” Governance by a single jurisdiction seems to be favoring the former, as a single jurisdiction has the agency to simply change priorities to what is important in the crisis. Governance through negotiations between different municipalities seems to favor the latter, with a focus of objective sharing of the burden allowing for swift decision-making in the crisis, without invoking reluctance from the municipalities involved.
- In those cases that extra funding is needed to keep public transport going while patronage is falling (because of COVID limitations), being dependent on transfers from higher levels of government for funding adds complexity and can limit the possibility to recover.
- Not being prepared could lead to a large upset of the current public transport market (like major operators going bankrupt) and public transports future potential, if public parties are not willing to step up. That often requires a rethink and temporary dismissal of existing governance structures, which are not set up for crises.

### 35.6.2 Policy recommendations

- Understand the value of public transport also in the case of the reduction of travel in time of crisis like COVID.
- Develop a mode of crisis governance, with agreements developed beforehand between operators and local, regional, national, and possibly federal government.
- Build scenarios of how a crisis could develop for public transport and relate those to funding and decision strategies in those cases that public transport needs to be adapted as the result of an (inter)national crisis.

### 35.6.3 Research recommendations

- Start wider research into the robustness of various governance models, into their ability to deal with rapidly changing contexts, like the COVID crisis. Link national and regional COVID responses in public transport to the governance in place and the effect on patronage during and after the crisis.
- Change the evaluation of governance models in research from “optimizing for a specific goal” like efficiency to “ability to deal with change,” like implementing transitions and dealing with crises. In the upcoming future, change will be the constant.

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