

Boosting public transport



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A closer look at funding and financing innovation



PPPs are indeed complex, but could represent an efficient use of resources if the private partner shows the expected capacity to manage and innovate. TRAM Barcelona (shown) provides some interesting lessons.

These are difficult times for urban public transport (UPT), in particular for the most developed economies. The financial crisis is still hurting many countries, but even in those showing signs of recovery, it has left a legacy of macroeconomic instability. Public finance difficulties are severely affecting the continuity of the funding models being currently used in urban and metropolitan areas both for new investment and to cover operational deficits.

This article aims to introduce some concepts to allow a more focused debate on the issues at stake and on how financial innovation could contribute to dealing with some of them, notably through an increasing participation of the private sector in public transport financing.

A complicated financial context for urban transport authorities

The financial crisis has represented a massive increase in public deficits and, as a consequence, of the public debt of many developed countries. In general, urban and metropolitan ar-

reas in these countries heavily depend on budgetary transfers from central or regional governments, so both direct and indirect financing is being constrained by on-going austerity measures to contain macroeconomic imbalances. Their direct involvement in the financing of new investments is being cut or postponed, but also their direct contributions to subsidise operational

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deficits of public transport are being questioned. Budgetary transfers to local authorities may also be reduced, affecting – indirectly – their ability to support public transport.

The result of austerity measures at the higher administrative levels means that urban and metropolitan authorities responsible for public transport and their operators are suffering from lower investment levels, typically through the extension of deadlines, even for committed projects, and from fewer resources to make up their shortfall in revenues to cover the operation of the existing system. In

many cities this shortfall is increasing, as growing unemployment is reflected in declining patronage. This may lead to unsustainable debt levels for public operators precisely when their public status has less positive effects on the interest they pay to lenders...

Local authorities are confronted with growing requests in social programmes to reduce the impacts of the economic crisis on households. Public transport is critical to ensure mobility to jobs and services and is thus seen as an essential component of any policy aiming at preserving the quality of urban life. However, as will be seen, the relationship between its costs and its benefits and their impact on public finances are not properly addressed. As a consequence, the risks of either holding back urban growth or getting into a financially unsustainable situation are particularly high at this stage.

Economic and financial issues

In discussions on UPT financing, the undeniable qualitative arguments about the benefits of public transport are usually well known, but a necessary quantification of the costs and benefits is somewhat lacking. The challenge is to establish solid arguments to justify to decision makers the need to sustain the system and ensure proper financing.

There is some confusion among many urban transport professionals between the economic and financial aspects of investments and operations. The link between these aspects, which is critical for decision-making, appears to require some further clarification.

The socio-economic justification of any action on the UPT system must be based on an adequate return for society of the resources "spent" to carry out such action through investment, maintenance and operation. Benefits are essentially measured through the benefits both for the users (reduced travel time and improved reliability, information and comfort) and for

other users (as capacity is freed-up in other parts of the system, including on streets) and through externalities. There are well-established procedures to assess the economic interest of a transport project¹, although they still require refinement for the urban setting. Whilst often not required by national authorities, socioeconomic analyses are critical to obtain funding from international institutions, including long-term loans from multilateral banks.

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Improvements are needed to properly evaluate the variety of impacts of transport on the urban area, notably its quality of life from a better environment, or impacts affecting wider 'society': reduction in greenhouse gases, positive macroeconomic effects, etc. The precise definition of the 'society' for which the calculations should be carried out is a discussion that specialists are rarely engaged in, but it is not only important for proper economic analysis but also for financing. Should it be limited, in urban areas, to the administrative borders of the authority making the decision (and probably paying for most of the investment) or should it include a wider region? It is clear that many UPT users are visitors and they are not paying taxes (or the same amount of taxes) to the responsible authority. The question of external beneficiaries is seldom raised but it should be given due consideration because it is in the end the argument to justify the participation of regional and national authorities in the financing of UPT investments.

Another important point is that financial aspects have an impact on socioeconomic benefits and should

be analysed in terms of efficiency. For instance, fares have an obvious impact on ridership and thus on the benefits of the project, but it must be remembered that they are essentially money transfers (i.e. they do not represent a global loss of resources) and therefore are not included in the cost-benefit analysis. On the other hand, having the investment financed by public or private sources has macroeconomic implications that are relevant for society.

What must be stressed here is that decision making should be based on proper cost-benefit analysis and thus on a quantification of costs and benefits for the different options at stake (against the reference scenario of do-minimum), taking into account the efficiency effects of the financial arrangements. It is not sufficient to show the positive aspects of UPT, because there are always different possibilities of action within the system and because taxpayers will be increasingly demanding with regard to the use of public money.

Financing public transport operation and the debate on subsidies

To have a proper understanding of financing issues it is essential to estimate the changes in the cash flows of the various stakeholders following the action to be undertaken. Forecasting the evolution of the individual cash flows over time enables the expected profitability to be calculated for each stakeholder. A global financial profitability can also be calculated by putting all cash flows into a single flow of revenues and expenses. Only if this is positive may the financial sustainability of the action be ensured. But, even if this is the case, the financial returns for the different stakeholders can be extremely unbalanced. Indeed, when the effects of the action are analysed, comparing the costs of investment (or amortisations), maintenance, operational expenditure, taxes and other disbursements, such as travel

insurance, on the one side and the revenues from fares and other commercial activities and subsidies on the other, the internal rates of return for the companies and administrations involved may end up being quite good for some of them whilst low or negative for others.

Actions generating a substantial redistribution of financial impacts are not exclusively new investments. The implementation of an integrated fare system in metropolitan areas, for instance, may have comparatively modest costs and quite obvious benefits for UPT users and be clearly justified from the socioeconomic point of view. But it could become very difficult, not so much for its technical complexity than for the perception of unbalanced financial impacts among stakeholders. At the end of the day the solution often implies additional subsidies from public authorities (i.e. taxpayers). However, even if revenue redistribution among operators is not affecting the cost benefit analysis, the macroeconomic effects of making taxpayers pay for the benefit of users should be taken into account in decision-making.

Indeed, this cash transfer from taxpayers to UPT users is a major issue when debating about the financing of UPT. Overall, the economic justification of subsidies comes from the value of the generated externalities. However, the level of subsidies must have an economic logic based on the principle that the utility of the trip for the marginal user (the one that is just willing to make the trip with the existing fare) plus the marginal positive externalities generated by the trip must be higher than its marginal cost.

Unfortunately decisions on fares, which are critical for the financing of UPT, are often taken without due regard to their socioeconomic consequences. They are often based more on short-term political views than on optimisation of public resources and on the financial sustainability of the UPT system. Some famous examples

on the provision of free UPT services demonstrated the need for economic rationale in setting fares.

Setting the right fare levels is an ongoing issue for most UPT operations across the world and this explains why coverage ratios are so different and do not follow any pattern related to geographical or land use characteristics or to economic and social variables.

Subsidies for UPT will increasingly have to compete with other socially-oriented measures (from education to urban rehabilitation) and good governance would require that all of them be subject to similar efficiency requirements. Improved knowledge of demand elasticities, but also of the external effects of UPT, will thus be needed to justify future financial subsidy claims.

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Financing new investments in urban public transport

Urban public transport needs continuous improvement just to maintain patronage, but if the objective of urban areas is to reach more efficient and more liveable cities, new investments to upgrade and modernise the system are constantly needed. Given that the system in most OECD cities normally relies on subsidies, it is obvious that new developments will require a substantial amount of taxpayers' money to be implemented. Traditionally this money has come from the budget of national, regional and/or local administrations. However there is a clear trend towards the incorporation of private funds in the financing of UPT investments. This is mostly due to the difficulties in raising public funds for this purpose, a situation that has been aggravated by the financial crisis.

At this point, it is worthwhile underlining some of the principles that should frame any financial arrangement, notably the search of the most efficient solutions for society.

First, a UPT project must be feasible. This means that it should be included in a coherent UPT plan, be the optimal solution for its purpose, technically sound and show an acceptable socioeconomic internal rate of return. A bad project will sooner or later create problems for the operators and the responsible authorities. But this is not ruled out for good projects either, in particular because cost and demand forecasts are often unreliable.

Once decided, the project must be funded. As traditional financing through public budgets is being questioned, public promoters try to attract private capital. However, conventional concession models such as "build, operate and transfer" models (BOTs) used in toll motorways, where there is no financial contribution from the public sector, are not readily applicable in a context of subsidised operations. Therefore UPT investments will usually require public-private partnership (PPP) solutions with non-recoverable contributions from the public sector. This entails quite complex structures involving substantial transaction costs (tenders, contracts, etc.) and possibly some additional supervision costs during the project's life cycle. The justification for private participation in any operation is that the increased efficiency brought about by the private partner and the possible macroeconomic benefits of reducing public expenditure should be higher than the loss of resources that the foregone transaction costs represent.

Unfortunately, this obvious requirement for efficiency is systematically left aside in most discussions about financing, as short-term objectives, often linked to election deadlines, drive decision-making without

proper consideration of society's long-term wellbeing. Indeed, the dominant position adopted by some public authorities within a PPP does not facilitate the cooperation required to optimally manage a project in the particularly complex and dynamic set up of UPT.

Just as an example of the issues that must be resolved and fall completely outside the private partner's remit, let us quickly analyse a typical case of a new rail line within a consolidated UPT system with integrated fares. It is probably easy to demonstrate that the time savings and other internal and external benefits justify the investment. But most users of the new line will probably be existing users already paying the integrated fare. Transferred and generated users (i.e. those producing additional revenues) will contribute a modest amount compared to investment and operational expenditure, thus the overall deficit of the UPT system will increase unless fares are increased; a reasonable course of action as users get a better service. The relevant authority is then bound to either make the unpopular decision of raising fares or postponing the decision and being confronted with a higher subsidy, meaning more transfers from taxpayers to users. As postponing the decision is politically less sensitive, it is the most common and explains the reduction in coverage ratios (particularly if infrastructure and rolling stock amortisations are included) of those areas that have invested more.

To balance the budgets, as the recourse to debt is increasingly difficult to use, some new financing sources have been explored (seldom with the necessary socioeconomic evaluation), usually targeting the private vehicle. Making cars pay for the externalities they cause is fair and efficient, but there are difficulties in applying urban tolls or similar systems and their economic justification, if these are essentially based on pollution impacts, given

that this will probably change in the future with growing numbers of electric cars. A more refined calculation of externalities, which should include the occupation of street space and other car-related nuisances that must be better identified and monetarised will be required to justify the internal transfers in the transport system. The innovation in technologies that would facilitate the collection of tolls and taxes from cars to finance UPT will have to be shored up with a better understanding of their impact in order to make efficient decisions.

Just showing the positive aspects of UPT is not sufficient, because there are always different possibilities of action within the system and because taxpayers will be increasingly demanding with regard to the use of public money.

A similar approach should be adopted for other sources of income that are being explored. Using the facilities for commercial use (i.e. shopping) involves displacing activity from some existing commercial areas to these 'transport areas', as it is difficult to imagine that there will be an overall increase in sales. From society's point of view this transfer should be analysed in terms of the additional resources put into the new shops and the global benefits for the city, which may be doubtful if the effects are pure transfers². However, if these commercial facilities are used to create a 'seamless' urban space³ that would make UPT more attractive and generate/transfer users, the benefits may justify the resources invested. Importantly, the profit considerations expected from private entrepreneurs should not be driving the investment decisions of public authorities or public companies, which should act for the wellbeing of society in seeking maximum global efficiency.

So, financing mechanisms, whether public or private, have socioeconomic implications that the decision maker should take into account.

Are PPPs the solution for the lack of funds for urban public transport?

Private capital is an obvious alternative funding source, but it will only be attracted to the sector if its expected profitability is at least as good as in another sector offering similar risk levels. Two points are worth mentioning here:

- 1) Profitability in a financially negative operation (in terms of total costs and revenue from fares), as most UPT investments are, will depend on the financial contributions of the public sector in the initial investment, in periodic operation subsidies or in both.
- 2) Risks in urban area construction and in the tightly regulated market of UPT are particularly high.

Private sector financing can thus only be expected under a partnership that distributes risks and rewards in such a way that the aspirations of both partners are sufficiently satisfied. The public sector will have to make the decisions that are most efficient for society and take on board those risks that are inherent to the project and cannot be transferred to the private partner under a reasonable risk premium. The private sector may accept most construction, rolling stock purchase, maintenance and operational risks and, possibly, some demand risks when properly framed. But not only force majeure risks will have to be publicly covered. Those stemming from the effects of political decisions (from fare setting to the provision of transport alternatives) have to be absorbed by those who generate the unforeseen conditions.

As PPPs are established for a long period (otherwise, as we have mentioned, transaction costs will rule out this option), it is impossible to establish contracts that identify all

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potential conflicts of interest. Thus both an equal partnership and a fair mechanism to resolve conflicts (i.e. clear technical arbitration mechanisms) are needed to ensure the long-term success of a PPP venture. Local and metropolitan authorities are not very used to this type of partnership and some UPT PPPs have failed over the years. However, there are also positive examples that provide interesting lessons.

The case of Barcelona TRAM, a PPP under the metropolitan transport authority (ATM), overseeing an integrated tariff system over 253 municipalities, with almost 5 million inhabitants, in the metropolitan region of Barcelona, provides a few lessons that could be of general interest⁴:

- 1) A joint venture of construction, industrial and financial partners could become a solid private partner if the management structure is well established from the beginning.
- 2) The inclusion of a new infrastructure in an integrated fare system could lead to a substantial increase in the subsidies required by the system. The reduced initial impact on public finances (less initial investment) leads to higher deficits over the years, particularly where public transport already has a majority share of all trips in the urban area and thus the new investment is essentially transferring users from one mode (or line) to another.
- 3) Introducing a private operator in an UPT system run by public companies could be successful. Incorporating the public company as a minority shareholder of the private company could help to eliminate frictions.
- 4) The interference of the public partner should be clearly framed. In particular investment decisions taken for political reasons after the PPP contract is signed may be very disruptive of the partnership, as imposed losses are unacceptable for the private partner. Besides, they

imply changes in the initial bidding conditions, which could lead, in some cases, to complaints from other bidders and end up in court.

- 5) Integrated, long-term planning is essential to establish the conditions for the development of the PPP. Concessions should contemplate whole sub-systems for which integrated operations and economies of scale are obvious. Flexibility and transparency should be introduced into the bidding processes to reduce transaction costs.

Unfortunately... short-term objectives, often linked to election deadlines, drive decision-making without proper consideration of society's long-term well-being.

The complexity of PPPs for UPT projects should not be underestimated, but they could represent an efficient use of resources if the private partner shows the expected capacity to manage and innovate and is allowed by the public partner to deploy this. The entrance of private operators in a publicly run UPT system may also enhance competition in an environment that often has meagre incentives for improvement. Finally, some macroeconomic impacts, particularly welcome at the time of tight public budgets, may also contribute to making PPPs a valid option to accelerate the development of UPT.

Conclusion

Globally, but particularly in OECD countries, the financial crisis is constraining public investment and expenditure. In the case of UPT, new investments are especially penalised by the situation and promoters are forced to review their funding sources. However, to attract private capital public agents will have to change their approach and become real partners within PPPs.

The role of the public sector to ensure the best use of scarce resources will have to include financial considerations. In this sense, decisions on new projects, but also on fares and on operations will require a detailed cost-benefit analysis and an impact analysis of the impacts of the decision on the various stakeholders.

Urban public transport is critical for the well-being of citizens, but the need to justify the proper amount of taxpayers money to be put into the system through investments and subsidies is particularly acute in a period of crisis for the public sector. Improved governance and decision-making processes based on better knowledge of the operation of the UPT system and economic quantification are thus becoming a necessity.

¹ See Turró, Mateu "Railpag. Railway Project Appraisal Guidelines", European Commission and European Investment Bank, 2004 (www.eib.org/projects/publications/railpag-railway-project-appraisal-guidelines.htm) for a global view that includes a relation with financing issues.

² The comparison with airports, converted in shopping malls, would be interesting, but the context is clearly different.

³ Metro Hong Kong has interesting experiences and proposals in this regard.

⁴ For more detailed information on TRAM financing, see www.trambcn.com

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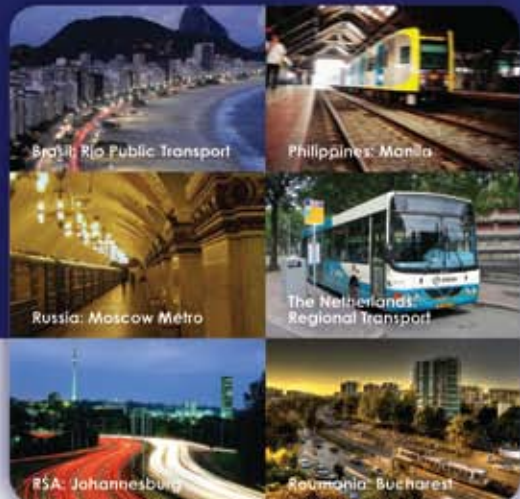
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