PRICING PRINCIPLES, EFFICIENCY CONCEPTS AND INCENTIVE MODELS IN SWEDISH TRANSPORT INFRASTRUCTURE POLICY

Björn Hasselgren
KTH Royal Institute of Technology
Architecture and the Built Environment
SE-100 44 STOCKHOLM, Sweden
E-mail: bjorn.hasselgren@abe.kth.se

ABSTRACT

In this article the shift of the Swedish government’s policies for the financing through taxation, fees and prices paid for the use of roads and railroads from 1945 until the 2010s is discussed. It is argued that the shift from a full-cost coverage principle to a short term social marginal cost principle can be seen in the light of the controversy between a Coasean and a Pigovian perspective.

The Coasean perspective furthers an institutional view where organizations and dynamic development matters while the Pigovian perspective furthers a welfare economic equilibrium view where organizations are less focused. It is argued that the shift in policies coincided with less interest and focus on the organizational perspective and incentives for organizational efficiency, which can be seen in the public documents from the time.

The government seems to have been guided by a market failure stance since the 1970s which has motivated growing intervention, following a market-economy stance in the first 25 years after the nationalization of roads and railroads. A current opening in transport infrastructure policies with more room for alternative financing, user charges and fees might, even though also consistent with short term social marginal cost principles, signal a revival of a perspective more in line with the Coasean view.

1 INTRODUCTION

Transport infrastructure systems (here primarily roads and railroads) are expensive to build but generally relatively cheap to use for every single additional road vehicle or train. There have been discussions and diverging views in many countries around how to set an efficient framework for the pricing of the use of roads and railroads. Should e.g. the users pay the full cost or only the marginal cost connected to the use of roads and railroads? Is it appropriate for the government to cover a possible financing deficit with general tax revenues, if users pay only the marginal cost? Do such subsidies lead to good overall welfare based efficiency but less strong focus on organizational efficiency?

The Swedish government nationalized roads and railroads in the late 1930s and 1940s. One of the first issues it had to deal with following the nationalization during the second world-war was the financing of the coming investments in both roads and railroads and how to set the fees and taxes for the users of the infrastructure. Since the 1940s this discussion has been reopened on a number of times. In brief two different principles have been applied in this respect; a full cost coverage and a short term social marginal cost based view on taxation and pricing.
These two principles also reflect two different perspectives when it comes to the incentive structure that is applied for the management and financing of the organizations responsible for roads and railroads. According to one perspective a direct link between fees and taxes paid by users and spending by the government is the preferred model (also called ear-marking). According to another perspective other parties than the users, often the general tax payers, via government subsidies or cross-subsidies, should normally pay for major parts of the spending on roads and railroads.

A direct connection between the users and the provider of roads and railroads through the payment channel could generally be expected to give stronger incentives for organizational efficiency and user orientation than a system where funds are channeled through the government. Ear-marking by which tax income e.g. based on fuel taxes is allocated for road-purposes can in this respect be seen as a second best alternative to direct payments by the customers to the infrastructure organizations. At the same time it can be argued that an ear-marking system managed by the government will probably be just as inefficient as other financing mechanisms managed by the government, Wagner (1991).

The different perspectives for how to finance systems such as transport infrastructure were reflected in a series of articles by Ronald Coase in the 1940s and again in the 1970s (1946, 1947, and 1970). The reasoning in the articles seems surprisingly up to date after nearly 70 years. These articles are taken as a theoretical starting point for the following discussion and analysis.

Questions that are focused in this article are:

- Is it possible and relevant to interpret the government’s formation of pricing and taxation policies for the use of roads and railroads since the 1940s in terms of a shift from a full cost coverage principle to a short term social marginal cost principle for taxation and pricing?
- Have the different principles been discussed in terms of their impact on incentives for organizational efficiency in the transport infrastructure system?

The article is based on studies of government committee reports, the government’s proposals to Parliament and the Parliament’s discussions and decisions in relation to the proposals. The studied reports and documents cover the time period from the 1930s up to the 2010s. Whether there is a transport infrastructure policy possible to study, as separate from the overall transport policy, can of course be discussed. It is rather obvious that the two policy areas are separated for roads while generally more closely connected for railroads, in specific until the separation of railroad services from railroad infrastructure in 1989. When it comes to the financing principles these have, however, been discussed as separate themes at a number of times, and are more easily separable from the overall policy discussions.

Two major economic theoretical perspectives and principles following from these are discussed in the article. On the one hand a neo-classical welfare theory based view. On the other hand an institutional or organizational view. Based on these two perspectives some central terms in the article are clarified here:

- Welfare economics – term used for an economic concept that aims for including all socially relevant aspects of the economic activity carried out, e.g. in relation to a road system, within a perspective where optimal allocation is sought for. In this perspective the operation of a transport infrastructure system is seen as an activity which should be dealt with in a wider public sector (political) perspective.
- Business economics – term used for an economic concept that aims for the analysis of (economic) organizations and their functioning when it comes to resource allocation, management and relations to the economy at large. The private corporation acting on a market is the natural starting point of analyses based on this perspective. The economizing behavior and practices of government agencies might also be analyzed according to these principles.
- In the discussion around these perspectives in the Swedish government reports etc. since the 1940s these two perspectives have been connected to a focus on “external” vs. “internal” perspectives on efficiency.
- Efficiency – from a welfare economic perspective has to do with the overall use of resources in a society in order to reach an optimal resource allocation. Efficiency as defined from a narrower business economic perspective has to do with the economizing activities in any business organization or government administration in order to make the best possible use of and allocation of available resources, primarily within the borders of the organization. Here, neo-classics is connected to the term “welfare based efficiency” or “external efficiency”, while an institutional perspective is connected to “organizational efficiency” or “internal efficiency”.
- Short term social marginal costs and short term marginal costs are terms used when analyzing how the flexible costs related to an economic system or to an organization can be measured, either from a welfare basis or from a business economics oriented approach. Policies for fees/pricing and taxation are often related to these concepts.

2 THEORETICAL APPROACHES TO PRICING

Over time successive investments in roads and railroads have led to the accumulation of a major asset-base which, from an economic point of view, can be treated as sunk costs. One reason is that even if the assets represent a considerable value they have few alternative uses. The cost of tearing down roads and railroads are also considerable.

The operation and maintenance of pavements, platforms, signal systems etc. is necessary for the use of roads and railroads. These operations represent (flexible) marginal costs. The use of roads and railroads induces additional wear and tear of the assets and thus related costs. Combined these costs are more or less equivalent to the short term marginal costs. If costs external to the operation of the system as such, e.g. congestion, noise and pollution, are included a short term social marginal cost construct is arrived at.

There is a sound economic basis for charging the users of the present road and railroad system only for these short term social marginal costs. If also the depreciation of the current systems, as well as investment costs for re-construction and new-construction of roads and railroads are considered, the cost basis is of course considerably much wider than what is represented by short term marginal cost concepts.

According to the principles developed in welfare economics through the late 19th and 20th centuries (Ruggles, 1949) by a number of scholars such as Marshall, Wicksell, Pigou, Hotelling and Lerner, only to mention some, consumers’ marginal utility when choosing different packages of goods and services, should be the basis for the analysis of, and decisions on, resource allocation in the economy. These theories are generally based on assumptions of perfect information, free entry and competition and rational
actors. The view on organizations is less well developed in this view and equilibrium on stable markets or in the entire economy more in focus.

Part of the same view is that decreasing-cost industries, such as roads and railroads could be expected to be organized as nationalized or regulated monopolies in order to avoid inefficiencies, such as monopoly pricing. In these cases (only) short term social marginal costs should, according to the same view, be charged for the use of the products or services. The unfinanced part of the costs, which are not covered for by short term marginal cost pricing based revenues should, according to the same line of reasoning, primarily be paid for by the government, funded with tax revenues.

Coase in his articles on the ‘Marginal Cost Controversy’ (1946, 1947) presented a different view on the preferable way of handling the pricing of services and goods in decreasing cost sectors. The original article was written in relief to the Hotelling-Lerner view, with its basis in marginal cost pricing and support of a system based on government subsidies. Coase presented four arguments in favor of an alternative pricing system based on multipart pricing, with separate payments to cover fixed and variable costs. With such a system the user would face the full cost of the resources that are used for the production of the good or service, which would confer a correct combined price signal.

Coase’s arguments against marginal cost pricing without full cost coverage are condensed into the following arguments:
- Marginal cost pricing would lead to “mal-distribution” of the production factors to different uses, since the full costs of these would not be obvious to the user.
- Marginal cost pricing would lead to income distribution from non-users to users and from tax payers to users.
- Marginal cost pricing if combined with tax subsidies would lead to “other harmful effects” as the economy is more heavily tax-burdened
- Marginal cost pricing would lead to a risk for over-consumption and lack of information on how to spend resources in the future, since price signals are distorted.

Coase’s discussion emphasizes the central role of the producing organization and its relation to users or customers. The organizational view can be traced back to Coase’s 1937-article ‘The Nature of the Firm’. This is a difference towards the neo-classical welfare view, with its limited focus on organizations. A parallel discussion is of course the market failure/government failure-divide where situation e.g. with less than perfect information or public choice inspired arguments have been used as support for either one of the two failure alternatives. See Medema (2009) for an historical overview of both this discussion and of Coase’s contribution.

While this discussion goes back at least to the 1930s Lindsey (2006), reflecting on the later development of economists’ views on road pricing up to the 2000s, notes (p 315) that the more institutional sentiment that Coase represents has not been the core element of economists’ handling of issues related to road pricing in general (as an area of academic interest close to the theme in this article). The view represented by Pigou has though, since the 1940s, largely been developed by a number of scholars such as Vickrey, Walters and Mohring. Pricing of road-use based on short term social marginal cost has been the basis for these later scholars’ writing. Small, Winston and Evans, among others, according to Lindsey, have shown that under some assumptions congestion and road damage charges can pay for the costs both for capacity and maintenance (p 312). This line of theorizing has also been possible to express in
mathematics and in graphical form, which has probably added to the strength of this view among economists, and also to its strong influence on the public discussion of the pricing issues.

The institutional view, which was exemplified by road and railroad-related themes in Coase’s 1940s articles have, according to Lindsey, not been widely developed with further applications in this sector of the economy. As an exception the writings of Gabriel Roth can be mentioned. Roth (2006) has edited one of the later works where a number of articles discuss the prospects and favors of a more privatized road provision, but has also published a number of books in this field since the 1960s. A similar approach is presented by Winston (2010). Winston suggests privatization experiments to be introduced as a means for addressing many of the problems of the US transportation system, such as lack of innovativeness, lack of resources and slow productivity growth. These two examples show that the institutional view is represented also by contemporary scholars, even if the welfare or neo-classical view is generally the stronger in discussions around transport infrastructure.

While Coase favored a system where roads and railroads were financed without government subsidies the more recent institutional studies mentioned above seem mostly to focus on an improvement and methodological refinement of the application of short term social marginal cost based financing models. By reducing cross-subsidies between different transport modes, and striving for setting prices and fees more in line with actual marginal costs (including e.g. congestion induced costs and external effects) an improved external or welfare based efficiency could be achieved than in many present systems.

This seems to be a view where a move from weaker to more powerful incentives is sought for, while not necessarily meeting Coase’s requirements, aiming for full cost coverage. Even if short term marginal cost pricing could be expected to raise sufficient resources to cover the full costs of roads in urban congested areas this would clearly not be the case in less populated areas. There would thus still be need for substantial tax-financing if these models are applied. This is of course something that is generally truer when it comes to railroads with its high infrastructure costs.

Coase
Organizational efficiency
Institutional framework
Full cost coverage

Pigou
Welfare optimization
Neo-classical framework
General tax revenue
Marginal cost coverage
Ear-marking

Figure 1, Coase and Pigou – different views on cost coverage and financing
The different perspectives are summarized in Figure 1 above. The x-axis shows different views on whether marginal cost or full cost coverage should be favored. On the y-axis the dichotomy between ear-marking (all government-collected revenues are directly allocated to the supplier) and the handling of revenues as general tax revenues is displayed. Coase’s model, placed in the upper left, combines full cost coverage with ear-marking (which is not explicitly stated by Coase but might be assumed from the general reasoning in the articles). The Pigovian welfare model is displayed in the lower right, combining marginal cost coverage with the treatment of revenues from taxes and fees as general tax income.

It could be argued that the Coasean view is more closely related to the first welfare theorem, aiming for an efficient allocation of resources through market processes, while the Pigovian view, also reflected by scholars like Wicksell, is closer related to the second welfare-theorem, where redistribution of resources through, possibly, political decision-making, is introduced. Blaug (2007) argues that the second theorem even “emerged out of a discussion of the principle of marginal cost pricing applied to public enterprises” such as natural monopolies.

Another interesting view also connected to the welfare theorems but closer to public choice theory, is represented by Wagner (2007), who argues that the traditional dichotomy between a “market square” and a “public square” where peoples’ life are spent, is a prerequisite for the development of welfare economics. In real life, however, Wagner argues, that it could be questioned whether this dichotomy really exists and further as regards whether there is only one, or more public squares, opening for a polycentric view. Wagner argues that a model where a more dynamic view on resource allocation could be a way forward in developing an alternative theoretical framework for discussion on “good management” and resource allocation. This view resembles some of the views also discussed by Coase favoring negotiations and the institutional framework in societies as important for achieving an efficient use of resources. There are clearly differing views on the proper basis for analysis and policy development in this field.

3 EXAMPLES FROM SWEDISH TRANSPORT INFRASTRUCTURE POLICY

Three rather distinct time-periods can be observed when it comes to the government’s formation of pricing and financing policies for roads and railroads since the 1940s.

- The full cost coverage period 1945-1978
- The mixed pricing policies period 1979-1988
- The social marginal cost period 1989-

The following discussion is organized following these three periods.

3.1 The Full Cost Coverage Period

Following the nationalization of roads and railroads in Sweden by the late 1930s and early 1940s the government initiated the post-war planning in the transport-sector. The first post-world-war two Transport Committee started its work in 1944. It presented its final report in 1947 (SOU 1947:85). The overriding principle for the management, planning and financing of transport infrastructure was defined to be to aim for broad...
social welfare based efficiency, expressed as the highest possible output in relation to
the resources used in the sector. In addition to this a principle of full cost responsibility
for every single transport mode was proposed, echoing pre-war policies in this field.

Overall the Committee had a positive view on the value of free enterprise and
competition as a basis for the development of a sound and efficient transport system,
more than leaning towards centralized planning. Dynamism, technological development
and competition were seen as superior aspects of a free market, compared to a
government controlled development or “dirigisme”. This was a reasoning coming close
to discussions raised in, at the time, current discussions raised by both Hayek (1944)
and Schumpeter (1942), favoring entrepreneurial activity and with a critical view on
planning and government intervention. The two representing different views on the
possible future outcome of the balance between market and hierarchy; with Hayek
favoring market solutions and Schumpeter projecting an inevitable “march into
socialism”.

The 1944 Transport Committee’s proposals were, according to Sannerstedt (p 5,
1979), never followed by any explicit proposals by the government. When reading the
government’s yearly budget bills for the years following the war-end it is obvious that
the government instead focused on the need for tackling the overriding economic policy
dilemma; a strong demand driven growth in consumption and imports and the necessity
to balance this demand against the major needs for investments in most areas of the
economy. To set up a separate road-management structure with an independent (from
the government) set of accounts, as suggested by the 1944 Transport Committee in
order to strengthen the business economic efficiency-incentives in the road
administration, was never proposed by the government. This is presumably explained
by the government’s willingness to preserve discretion in fiscal and budgetary matters.

The future of the general transport policy was however again in focus of the 1953
Transport Policy Committee, reporting in 1961 (SOU 1961:23). It presented a coherent
plan for a sustained market oriented transport policy with focus on deregulation, where
major remaining war-time regulations should be abolished. The basic strategy, with the
focus on a business economic inspired framework and a cost responsibility principle,
was also to be left unchanged.

The basis for (undefined but seemingly close to welfare) efficiency of the system
was, according to the Committee, that the true (mainly direct financial) costs of the
different transport modes were reflected in the prices and taxes that the transport users
met. This was a direct link to the cost responsibility principle of the 1940s and 50s. This
policy would enable choices in each single situation to be efficient as the costs of the
services would be reflected against the willingness to pay for these services. It would
also lead to a subsequent separation of transport flows to the different modes according
to their relative strengths.

The Committee also discussed marginal cost-based pricing principles (at the time no
specific definition of whether social or business economic efficiency was focused),
which were said to be the correct pricing principle for the existing network at any given
time. The Committee had, at the same time, the view that for new-construction the users
should be charged the full costs of the projects. In a situation with a strong projected
investment growth full-cost coverage would set a frame for the total investment
volumes. There had been similar concerns over risks for over-investment, discussed in
the government’s long term economic policy committees, set up by the ministry of
finance. This risk, it was argued, could be met by this two-tier pricing policy.
The Transport Policy Committee’s work was commented on in the government’s proposal to Parliament in 1963 (1963:119). The government more or less endorsed the proposals of the Committee, as did the Parliament. This decision also summarizes and formalized the rather strong focus on the cost responsibility principle which had been dominating in the actual government policies since the mid-1940s.

3.2 The Mixed Pricing Policies Period

Through the 1960s there was a growing public discussion on the future development of the transport system as road traffic and private car ownership grew. One of the outcomes of the discussion was that there were political claims for the railroad system to be protected from further closures and questions were also raised whether the projected and prolonged strong growth of the number of motor vehicles was reasonable. The proper estimation of the social costs of the road-system, and the possible application of the economic principles also for the railroads was therefore one of the concerns in the late 1960s and early 1970s when discussing transport policy.

In order to answer to the public pressure for a revised transport policy as the critique against the perceived road-transport favoritism, and the cautions that the railroad-system was disadvantaged by the prevailing policies, the government decided to set up a new Committee, the 1972 Transport Policy Committee.

The government at this time aimed for a redirection of transport policy. The Committee expressed the main features of the new transport policy to be the wider welfare based (economic) goals. Within a framework of government ownership of transport infrastructure and welfare economic principles the transport services organized either as government agencies or private sector operations should, however, still be carried out with the overriding aim to achieve a more narrow organizational efficiency.

In a report from the Committee in 1978 (SOU 1978:31), focusing on the cost responsibility principles and fee-structures, the view that the cost responsibility perspective should be abolished for both railroads and roads was however advocated.

The Committee thus emphasized the wider welfare based economic perspective when it came to the management, financing and planning of transport infrastructure. The importance of organizational efficiency in the production of the services and the management of the government agencies in the area was only briefly discussed. Only one paragraph was included in the 1978-report (p 41) discussing the need for a focus on the internal efficiency of the agencies (and other organizations) in the transport sector. Little was said in this respect other than that “intense rationalization- and cost-reduction” should be the focus of the organizations and that “motivation” is important as the marginal cost principle would probably not give the best prerequisites for (internal) efficiency.

The government sent its proposal to Parliament in 1979 (1978/79:99). The 1963 goal for transport policy was proposed to be changed in line with the recommendations from the 1972 Transport Policy Committee. A new overriding goal for transport policy reflecting the shift to a welfare economic stance was proposed by the government.

Short term social marginal cost based pricing was seen as the preferable principle for future decisions on the prices and taxes in the area, and primarily when it came to the use of the existing network. At the same time the difficulties in applying these
principles were reflected on. The fiscal objectives of the government were also emphasized, showing that the full cost perspective was still valid to some extent.

The Parliament endorsed the proposals. The 1979 parliamentary transport policy decision did, however as it turned out, not have enough stability and impact to change the actual policies as it had been intended. The road and railroad agencies were still acting more from an internal efficiency perspective than from an overriding social perspective. The government therefore had initiated a renewed work for analyzing the transport policies already by the mid 1980s.

A number of reports were presented by the ministry of communication during the 1980s as a result of preparations for a coming transport policy decision. One of the reports concerned the cost responsibility of the transport sector, and was published in 1987 (DsK 1987:4). In this report the connection between the financing principles and the organizational or internal efficiency of each separate transport mode was discussed. It was argued that a cost-responsibility principle would give stronger incentives for organizational efficiency than if fixed costs were covered by general tax-income. The report finally proposed something close to a mix of the 1963 and 1979 transport policy decisions in these respects.

The government, in its proposal to Parliament in 1988 (1987/88:50), concluded that the principles of the 1979-decision had not fully been implemented in the sector. The different market-conditions in the sub-sectors where the transport modes operate had, according to the government, over time been more influential than the overriding political principles as decided in the transport policy decisions.

As the communication minister discussed the cost-responsibility principle in the transport policy area the conclusions and proposals came close to the proposals in the 1987 ministry initiated report. Short term social marginal cost based prices/fees and taxes were thus proposed to cover short term costs while a (full) cost responsibility principle was proposed to cover fixed costs, which should be borne as far as possible on a per transport mode level in the system.

Competition between the transport modes and the importance of the free choice of transport service customers and users were further emphasized in the proposal. Here, the government took a step back from the more vaguely formulated principles from 1979, where the basic principle was that the financing gap, following the introduction of short term social marginal cost based prices/taxes, should be covered by general government financing rather than by sub-sector cost responsibility.

The period from 1963 to 1988 was clearly marked by a mix of principles and shifting policies. The period started and finished with more or less similar formal policies; a market oriented policy with an aim for full cost coverage, with a foreword for social cost benefit inspired calculation methods to guide investment decisions combined with short term social marginal cost based pricing/taxation principles.

3.3 The Social Marginal Cost Period

The 1988 parliamentary decision seems to have had as limited impact on the "real world" practical policies as the 1979 decision had. By the mid 1990s the government once again saw it as necessary to analyze transport policy and another government Committee was launched. The focus was a general reform of transport policy. The Committee proposed a widened role for transport policy to explicitly include areas such
as regional policy, sustainability, traffic safety etc. This marked a shift to a more politicized agenda for transport policy.

The report (SOU 1997:35) from the 1996 Transport Policy Committee was also more openly political in its style than earlier reports in the policy area. Transport policy was described as a political policy area where the main focus should be the achievement of political goals, rather than to see transport policy and transport systems primarily as functional systems.

The Committee reflected on the issue of internal and external efficiency of the transport system with a view that a cost responsibility principle would give a sound framework for internal efficiency, more so than a welfare economic based framework with tax-funding of fixed costs. A number of reasons were, at the same time, presented as support for rejecting the cost-responsibility principle.

In a few sections in its final report (p 138 ff) the Committee concluded that the former (1963 and 1988) policies were deficient as guiding principles. The (once again) new policy was proposed to be that short term social marginal costs should be the basis for fees and taxes. Financing of fixed costs should (normatively expressed) be covered for by general tax revenues. At the same time some additional financing from users should be possible in specific cases, to open for efficiency gains in addition to what social cost benefit analysis shows. This should probably be seen as a sign of the Committee’s view that social cost benefit analyses did not capture all of the possible social gains in society as a result of transport infrastructure projects. This is however not to say that such additional financing would actually improve social net-welfare.

In its proposal to Parliament in 1998 (1997/98:56) the government presented a view close to that of the 1996 Transport Policy Committee. However, as in earlier decisions that have been reflected on in this article, the government was more pragmatic in its stance than the Committee working with the questions. The government thus, in its basic “transport policy principles” (p 36 ff) clearly outlined that, even though transport policy was one policy area among many other and that transport issues mainly are to be treated in relation to the political goals and not primarily as a functional system, transport services at the same time have to be based on the principles of decentralization of demand and user choices. It was, according to the government’s proposal, through the active choices by users and customers of transport systems that efficiency (here obviously in terms of welfare efficiency) and development can be achieved.

When it comes to the view on the cost responsibility in the transport sector the government was clear that the basic principle should be that prices and taxes should reflect the short term social marginal costs of the use of the transport infrastructure system, with a focus on internalization of external effects.

The decision in 1998 has been confirmed by two later decisions on transport policy in 2006 (2005/2006:160) and 2008 (2008/09:35). Short term social marginal costs as basis for the charging of fees and taxes has become the new cost responsibility principle of transport infrastructure policy since the late 1990s, and it is also part of the EU transport policy framework.

This third period clearly marks a shift towards a policy with short term social marginal cost pricing and an internalization of cost elements representing external effects when it comes to transport infrastructure, signaling a more open attitude towards government interventionism in the systems compared to earlier. The focus on the
incentives for organizational efficiency in the government agencies managing the systems seems to have been reduced compared to earlier periods.

4 CONCLUSIONS

The questions that are focused in this article are on the one hand whether it is possible and relevant to interpret the government’s formation of pricing and taxation policies for the use of roads and railroads since the 1940s in terms of a shift from a full cost coverage principle to a short term social marginal cost pricing and taxation principle. On the other hand it is discussed whether the different principles have been discussed in terms of their impact on incentives for organizational efficiency in the transport infrastructure system.

The answer in short is that it seems reasonable to analyze the development of pricing and taxation policies for transport infrastructure in terms of a shift from a Coasean to a Pigovian view on these issues. Further the government’s focus on incentives for organizational efficiency seems to have become weaker over time in parallel to this shift.

It is interesting to see that these two perspectives are connected to the two theoretical welfare theorems and indeed also to discussions about their applicability as a yardsticks for a proper discussion on resource allocation in the producing organizations and on a societal level, as reflected on e.g. by Blaug, Medema and Wagner.

A pricing and tax policy in line with (Coasean) multipart pricing was used for road financing from the 1940s until the early 1970s. Fixed taxes for vehicles related to the weight of the vehicle were combined with per liter taxes on fuel. Ear-marking of collected tax-revenues for road purposes made the connection between the users and the providing government administrations rather close. For railways the pricing structure during the same time period included different pricing models tuned to the different market segments, but under a (formal) full cost coverage policy.

Welfare economics-based (Pigovian) pricing and taxation models have been dominating for road and railroads since the 1970s. Short term social marginal cost pricing and taxation models have been introduced leading to increasing tax revenues from road-transport as inclusion of cost-elements representing e.g. external effects have been made. Government subsidies to meet the financing deficit primarily in the railroad system have become more important for the system’s financing. Ear-marking as a principle has also become less obvious and to some extent even been abolished formally by the introduction of more strict fiscal regulation in Sweden aiming for preserved macro economic and fiscal balance.

A possible way to interpret this change in policies might be that there has been a shift in focus of the discussion from a view close to Coase’s standpoint in the 1940s, where organizations matter for the possible achievement of good allocation of resources in the transport infrastructure sector and where the good and professional management of the road and railroad agencies was an important concern for the government and government committees analyzing the policy area. The present focus, which has grown stronger since the 1970s, has been that maximization of welfare-surplus in the transport infrastructure sector should be the overriding goal of the government’s policies.

This shift in policy stance is presented in Figure 2 below. Naturally, this figure might simplify and overstate the strength of the change in the policies. There are a number of divergent developments at any time in most sectors of the economy, and this is the case...
also in transport infrastructure, why the development is more ambiguous in reality. The figure however, gives an indication of the broad development.

The shift might be interpreted as a departure from the focus on organizational or internal efficiency of the producing organizations and their relation to the users to a focus on external efficiency. As Figure 2 shows this focus-change has also been combined with a move from a principle of ear-marking of the government’s revenues from (primarily) road transport to be used for road-maintenance and investments, to a model where all government revenues are treated as general tax revenues to be used at the discretion of the Parliament and government in yearly budget decisions. There is a tendency that the ministry of finance has acted in order to preserve overall financial and fiscal stability while the ministry of communication/enterprise (the responsible ministry for transport infrastructure at different times) has been more interested in the development of the transport infrastructure system.

The incentive effects connected to the different pricing principles have been discussed in the public documents as exemplified in the article. However, the focus on incentives has become less marked over time. The post second world-war discussion was clear in this respect. Entrepreneurial discovery and organizational efficiency was in focus. Later discussions on these matters have been less developed and perhaps have been taking place more as administrative processes in the relation between the ministry and the responsible agencies. A shift from stronger to weaker incentives for organizational efficiency seems to have been paralleled with growing subsidies from the government to the railroads and the stronger fiscal interests as a motivation for road transport taxation.

![Figure 2, Shifting cost coverage view and financing policies for transport infrastructure](image)

If Coase’s cautions towards policies of this kind should be listened to we should expect the overall efficiency of the operations of the organizations in the road and railroad systems to have been reduced, as the incentives for efficiency has become weaker.
One additional observation is that the government, at least since the 1990s, has acted with a market-failure stance as the dominant view on the functioning of the transport infrastructure system, quite a move from the market-economy stance expressed e.g. by the 1944 Transport Committee. There are less obvious examples where the government has acted in order to strengthen the institutional arrangements, such as proprietary rights, in order to foster a more efficient spontaneous process of negotiations between parties involved in possible market-failure situations.

The possible reciprocity of such negotiations and the institutional variance that Coase (1960) pointed to as important for efficiency and sustainability have not been a focus of the government’s policies. The government’s interventionist stance might instead have enforced less efficient structures compared to those Coase suggested, if analyzed from a cost efficiency and customer perspective. The fulfillment of the wider political goals developed over time for the infrastructure sector might though have been improved.

Lately there are signs of a more open view from the government toward alternative financing as congestion charging, road tolls for specific sections of the road system and raised rail-road fees, even if these are also often framed in terms of short term social marginal costs. These measures also have brought a higher degree of ear-marking in the financing. It might be the case that the current development is something of a revival of the Coasean view on transport infrastructure financing with a stronger organizational focus in Sweden.

REFERENCES


- **Government and Parliamentary documents**


Government Bill 1963:119 ”Riktlinjer för den statliga trafikpolitiken m.m.”, Stockholm.


Transportforskningsberedningen (TFB), ”Transportsektorns effektivitet och finansiering”, 1987:10, Stockholm.