

# Assessing the potential of new institutional economics to explain institutional change: the case of road management liberalization in the Nordic countries

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**Abstract:** Like other network industries, construction and maintenance of transport infrastructure have also seen a recent trend towards liberalization, deregulation, re-regulation, and sometimes privatization. With respect to institutional arrangements, this change implies that previously vertically integrated state-owned enterprises have been replaced by ‘more market’, meaning private ownership and contracts together with regulation by an independent government agency. When economists discuss institutions, this is preferably done in terms of efficiency and equilibrium. We discuss Williamson’s Transaction Cost Economics (TCE) and Aoki’s Comparative Institutional Analysis (CIA) as being two representative approaches of New Institutional Economics in which efficiency and equilibrium are central. What is the applicability of these two approaches to explain institutional change? The case of road management in Nordic countries provides the empirical evidence. We will draw conclusions as to the strengths and weaknesses of the two approaches and add suggestions to complement the efficiency approach, which allow for a more detailed level of analysis, in which also issues of political power are included.

## 1. Introduction

Like other network industries (telecommunications and energy), construction and maintenance of transport infrastructure has seen a recent trend towards liberalization (opening-up to new entrants), deregulation (less sector-specific regulation), re-regulation (more competition-related regulation), and sometimes privatization (private ownership of former state owned enterprises). With respect to institutional arrangements, this change implies that previously vertically integrated state-owned enterprises have been replaced by ‘more market’, meaning private ownership, and contracts together with regulation by an independent government agency. The reason behind this shift is the assumption that the

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institutional changes introduce ‘high-powered market incentives’ that will lead to more efficiency.

When economists discuss institutions, this is preferably done in terms of equilibrium and efficiency. In Transaction Cost Economics (TCE) the central question is about the most efficient governance structures given the characteristics of the transaction. Aoki (2000: 3) has added two interesting problems:

the synchronic problem, whereby the goal is to understand the complexity and diversity of overall institutional arrangements across the economies as an instance of multiple equilibria of some kind, and the diachronic problem, whereby the goal is to understand the mechanism of institutional evolution/change in a framework consistent with an equilibrium view of institutions, but allowing for the possibility of the emergence of novelty.

With his Comparative Institutional Analysis (CIA), Aoki not only introduces the issue of multiple equilibria, but also the issue of dynamics, or the explanation of the process towards a new equilibrium.

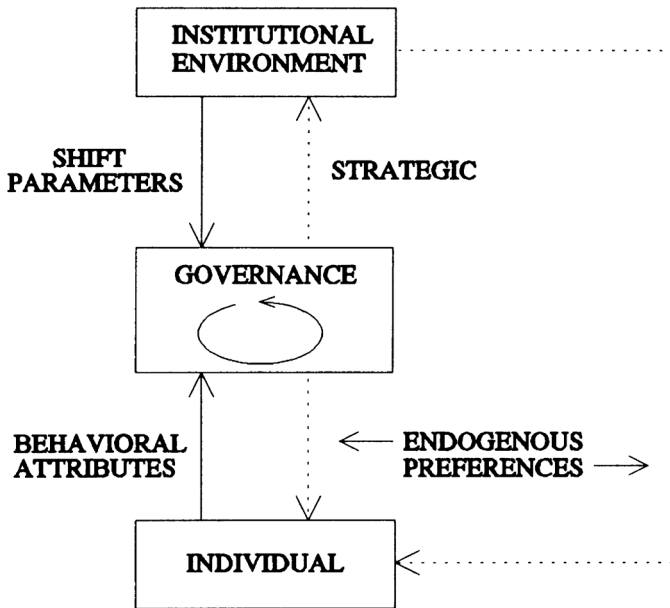
In this article, we will investigate to what extent NIE, more specifically Transaction Cost Economics (TCE) and Comparative Institutional Analysis (CIA), is appropriate to explain institutional change. We proceed along the following lines: in Section 2 we characterize TCE and CIA. In Section 3, we introduce the case of the liberalization of road management in the Nordic countries, which will serve as the source of empirical evidence. In Section 4, we discuss the strengths and weaknesses of the two theoretical approaches. In Section 5, we make suggestions on how to complement the efficiency approaches and provide for a more detailed institutional analysis, which also accommodates inefficiencies and political power play. Conclusions follow in Section 6.

## 2. Transaction cost economics and comparative institutional analysis

The NIE is generally characterized as an approach in which institutions result from efficient economic behaviour. It is a world of boundedly rational and opportunistic actors aiming at the maximization of their utility. Three groups of theories are usually listed under the heading of NIE: property right theory, principal – agent theory and transaction cost economics.<sup>1</sup> The models are methodologically individualistic (actors have attributes and exogenous preferences, as well as one rule of behaviour) and the relation with the environment is modelled in such a way that ‘rigorous’ predictions are possible (Groenewegen and Vromen 1997). The general hypothesis of TCE as developed by Oliver Williamson (1975, 1985, 2000), is about matching transactions with governance structures: if the transaction has specific characteristics (asset specificity, frequency and uncertainty), then the efficient governance structure

<sup>1</sup> A recent overview of New Institutional Economics (NIE) is provided by Richter (2005).

Figure 1. A Layer Schema



is the one that minimizes costs. In other words, the fitter governance structure holds as an equilibrium until an exogenous variable (technology, legal rules of the game, values, norms and preferences of actors) changes.

### *Transaction cost economics: the synchronic and diachronic problem*

With respect to the synchronic problem quoted above, TCE representatives suggest to analyse governance structures as embedded in an institutional environment of specific informal (values, norms, attitudes) and formal institutions (legal rules). Figure 1 presents the so-called three-layer scheme (Williamson, 1985: chapter 13), showing that transaction costs minimization does not take place in a vacuum. The institutional environment of values, norms, attitudes, and also of the laws and regulations has an impact on the choice of governance structure as a 'shift parameter'. To coordinate for example a specific transaction, a firm in a Japanese environment of norms, legal rules and habits will opt for 'subcontracting', whereas in the US the firm will choose integration to coordinate exactly the same transaction.

With respect to the diachronic problem quoted above, TCE theorists have attempted to include the dynamics of institutions in their analytical framework. The concepts of farsightedness and selection by competition are central. Farsightedness refers to the idea that actors anticipate future (opportunistic) behaviour and create safeguards to protect themselves. In cases where uncertainty and complexity are more or less absent and actors have equal access to resources and similar perceptions of the future, they might indeed be able to anticipate the

future correctly. If in addition competition is effective, it can be safely assumed that the most efficient governance structures will be imitated and the predictions of TCE will be fulfilled. But if these conditions are not met, there is ample reason to assume that actors are not able and will not be forced to select the 'fitter' structures. Without more detailed information about the actors, their perceptions, the complexity and uncertainty about the environment, as well as the selective forces of competition, no prediction about the efficient outcome of the selection process can be made. To put it more precisely: with the introduction of the institutional environment as a 'shift parameter', TCE is able to cope with the synchronic problem, while the diachronic problem is placed into the black box of an assumed selection process of the 'fitter' governance structure. When and how that process will really end in an efficient equilibrium is not part of the TCE analysis (yet).<sup>2</sup>

### *Comparative institutional analysis*

The Comparative Institutional Analysis (CIA) of Masahiko Aoki (2000, 2001, and 2007) builds upon the framework of TCE and attempts to answer the question why on the one hand multiple equilibria exist (the synchronic problem) and how the process towards an equilibrium can be understood (the diachronic problem). Aoki's contribution lies in his analysis of the process of institutionalization by means of evolutionary game theory, in which actors maximize their trade-offs in each move they make in a sort of self-organizing process. This takes the analysis a fundamental step further than TCE, which only assumes a competitive selection process. In Aoki's analysis, individual actors minimize costs in selecting institutional arrangements and the selection process drives the system towards an equilibrium. That is to say, agents' beliefs and actions become mutually consistent over time. In contrast to traditional game theory, players in CIA do not have complete knowledge of the objective structure of the game. In fact, actors have incomplete and subjective cognitive views. During the interaction process, the players of the game create shared beliefs about the structure of the game. Aoki formulates the notion of enforceability in terms of the establishment of an equilibrium: players can freely select the strategies from a set and when none of the players has an incentive to change his or her strategy any more, an equilibrium is established. In this 'institutions-as-an-equilibrium-approach', institutions are defined as the outcome of interactions of

2 Although TCE is presented as a 'comparative institutional analysis', Williamson (1998: 33) also claims his framework to be dynamic. 'What I should like to emphasize are that 1) theories of organization that feature adaptations should not be described as 'static' and 2) theories that rely on administration to accomplish cooperative adaptation (sometimes by fiat) are very definitely concerned with 'management'. The upshot is that transaction costs economics is very much an intertemporal, adaptive, managerial exercise – although this is not to say that more dynamic theories or more prominent provisions for management are unneeded.' We take the position that TCE indeed compares static situations, but does not analyse the process in between (see for a discussion Groenewegen and Vromen, 1997).

individual actors who maximize their pay-offs. Over time the actors experience that information and coordination costs are lower when moving closer to the equilibrium. In the equilibrium state, costs have eventually been minimized. Institutions are then beliefs held by agents and they exist in the minds of actors; they are socially constructed equilibrium states. Put differently, institutions are ‘compressed information’ of an equilibrium of the game, stabilizing and reproducing the rules. Beliefs and expectations about the way in which rules are applied by the other agents make for their continuity in the system. Thus, institutions are the result of a long-term learning process by and among mutually dependent actors. They become ‘objective’ in the sense that they are shared by groups of actors as being a ‘reality’, while at the same time remaining endogenous in the sense that the actors themselves initiate the changes departing from subjective perceptions and preferences. Finally, institutions are double in the sense that they enable and constrain actors in their opportunities at the same time.

Aoki makes two important contributions: With respect to the synchronic problem, it is shown that ‘history matters’ and that multiple equilibria can exist because different systems follow different trajectories. With respect to the diachronic problem, Aoki demonstrates how the process towards a new equilibrium can evolve. In doing so Aoki explicitly allows for feedbacks between the actors and their environment: during the evolutionary process, perceptions and preferences are formed endogenously. The world remains one of efficiency and equilibrium.

In applying CIA to the cases of the American and Japanese firm, the A- and J-mode, Aoki analyses the complementarity between institutions of the larger political, socio-economic system. Aoki (2007) refers to complementarities between domains. For example, the institution of ‘Life-Time Employment’ of the J-mode is analysed as part of the subcontracting and banking system (see also Williamson, 1991). At this point it is important to note that the analysis of both Williamson and Aoki remain at a relatively high level of abstraction: they analyse ‘the’ American and ‘the’ Japanese firm in relation to ‘the’ financial system, ‘the’ labour market, ‘the’ subcontracting system and embedded in ‘the’ political system.

The question we address in this article concerns the relevance of TCE and CIA to actual (as opposed to abstract, stylized) processes of institutional change. For that purpose, we introduce the case of actual institutional change in the liberalization of road management in the Nordic countries.

### **3. Road management liberalization in the Nordic countries**

#### *The institutional structure before the transition*

Until the early 1990s, all Nordic countries, with the exception of much more decentralized Denmark, have for many decades had very comparable

institutional structures for infrastructure management. Norway's, Sweden's, and Finland's public road system consisted of relatively small national Ministries of Transport, sizeable Road Agencies and regional directorates throughout the country. Whereas the Ministries were only responsible for general policy frameworks, the much larger Agencies did both more detailed policy-work and the planning of construction and maintenance activities all year through. Moreover, they were also responsible for physical maintenance work and had the relevant equipment for this, but left actual construction work of new roads to private construction firms through contracting. The Agencies' headquarters did most of the general physical and financial planning and programming, while the regional directorates had funds allocated from headquarters for regular maintenance activities and new projects that had been approved. Private contractors already had an important role in the construction business, but were not yet (allowed to be) active in the field of maintenance, since their competences were still restricted to construction. The larger infrastructure construction firms were (and are) big national players, while two Swedish ones (*NCC* and *Skanska*) are even global players. They often ran the project management and could choose between a great many smaller companies as subcontractors to do the operational (physical) work. Another salient feature in the three countries was the unusually strong position of the labour unions and the vehemence with which these defended workers' rights in the sector making dismissal all but impossible. Finally, at the level of high politics, the relative dominance of a large social democratic party stood out, outflanked on the left by smaller radical and green parties. On the other side of the spectrum, there was a right-wing block of mid-sized liberal, centre and conservative parties that went along with the progressive and public-minded consensus. One could say that at an abstract national level of aggregation, the three systems were roughly the same. Seen from more nearby, minor differences become apparent: the dominance of the social democrats is greater in Sweden than in the other two, while Finland and Norway have specific ethnic or regional parties of their own. Furthermore, the way in which policy areas were divided over ministries were not identical, the size and number of regional directorates were not the same, and the market positions of the respective national infrastructure construction firms differed. In short, the three Nordic institutional structures were roughly similar, but had subtle institutional differences.

### *Political-economic change in Scandinavia*

From the late 1980s onwards, the political climate began to change, in the Nordic countries as elsewhere. Complaints about the costliness of slack in the road agencies started to replace arguments about safeguarding infrastructure quality through public planning and control. What public agencies or corporations did, private contractors could do cheaper, and they could also innovate faster and

easier. This new philosophy was called New Public Management. Reference was made to experiences in Britain, Australia, and New Zealand where savings in the order of 20% or more were achieved through contracting with private companies. And, finally, Public Private Partnership (PPP) grew in popularity, implying that public sector organizations should transfer as much guidance and control over infrastructure construction and maintenance as possible to the private sector. Integrated packages of Design, Build, Finance, and Operate (DBFO) could be handed over to private players that could work both more efficiently, more effectively, and be more customer friendly. In all three countries, albeit at different moments, the dominance of the social-democratic party gradually evaporated and the liberal and conservative parties became more favourably inclined to neo-liberal and neo-conservative ideologies. This process set out in Sweden before the other two, but also halted sooner. The consequences of the shift to 'more market' remained more restricted there. The social democrats regained power and even though their left-wingism became more moderate, they remained by far the biggest party. In Finland and Norway, the balance of power shifted more permanently and also had a more lasting impact on the management of infrastructure sectors, including roads.

#### *Liberalization without an autonomous organization in Sweden*

Of the three countries, Sweden was also the first to develop and implement ideas with regard to the liberalization of road management (along with other infrastructure sectors). In the early 1990s, the Swedish economy was hard-hit by an economic recession and this provided the ministries of Finance and Transport with the ideal political climate for a policy reversal. With a left-wing government losing control over public spending and inflation and a conservative one elected in office more favourably inclined to New Public Management, the tide for road management was about to turn. Sweden's two huge construction firms, *NCC* and *Skanska*, were in favour of road maintenance liberalization and the introduction of PPP, since they felt they had enough resources to face up to the challenge. The same attitude applied to most of the very small firms, but they had less of a say in the process. The market structure in Sweden can be characterized as highly oligopolistic and cartel-like. The left-wing opposition parties and the labour unions stood united in their opposition to the proposed policy change and many employees within the Road Agency were also less than excited about the potential trimming down of their organization. Their management, however, was willing to follow the new policy-line and to take on further institutional and organizational reform. Negotiations at high political and administrative levels resulted in a peculiar compromise. New players were allowed to enter the market and to compete for four-year maintenance contracts in all regions in Sweden, but the administrative and management division of the Road Agency was not put at a distance or separated from the public enterprise part. Nor was it privatized. In addition, no employees were to be dismissed; they could

at the most be forced to accept a job elsewhere in the country if there was no work for them at their current location. For the enterprise division of the Road Agency this meant they had to compete with private contractors on equal terms, but had no free reign in their management. In addition, private parties could raise complaints about unequal competition, since the construction division of the Road Agency could not defend itself against claims from private parties that in open tenders it received favourable treatment from the administration division.

Later, under a new left-wing coalition, no further steps were taken and the ambitious managing director of the Road Agency, a proponent of change, was replaced by a more moderate one with no desire to take developments any further. That half-way institutional structure is still in existence in Sweden and the changes have had a lasting impact on the market position of the various players. Though the united Road Agency remained the biggest player in the market, it lost a substantial part of its market share to *NCC* and *Skanska*. Small contractors won occasional small portions alongside the three big players.

Contracting prices initially fell by approximately 20%, while quality did not fall noticeably, but these cost savings came at a price (Jong, 2002; Pakkala *et al.*, 2007). The Road Agency incurred substantial financial losses, but could not operate as a regular firm since it could not get rid of its surplus of employees. The private parties accused the Road Administration of unfair practices, but could not put any actual evidence on the table. In fact, collusive practices have been reported (and convicted) in which all three of the big players were involved (Jong, 2003). Moreover, all three have recently raised complaints that price levels are now so low that the maintenance market is no longer interesting for them. If they should indeed decide to leave the market, this would leave very few players for the bidding process. No examples of PPP have been reported in Sweden and the liberalization process has stalled somewhere halfway and reached an apparently sub-optimal equilibrium. It is as yet too early to tell how stable this equilibrium is.

The net results of the institutional reform in Sweden can be summed up as follows (Jong 2002, 2003; Pakkala, 2002; Pakkala *et al.*, 2007):

- Cost savings of 20–30% have been achieved without demonstrable loss of quality. This implies indirectly that the total sum of the savings in production and transaction costs is clearly positive, although it is impossible to provide a break-down of the different cost components.
- Liberalization has allowed new private entrants to absorb more than 30% market share.
- There has been no privatization of either the administrative side of the Road Agency responsible for the tendering process or the department conducting the physical construction and maintenance work.



- Neither has there been a corporatization leading to an autonomous (public) Road Enterprise. As a consequence, no autonomous or independently managed organization has been created for the Road Agency's construction and maintenance department. It cannot lay off employees deemed superfluous or otherwise operate as a private firm.
- Moreover, the Road Administration's department responsible for the tendering process is susceptible to accusations of opaque and unfair practices without being able to defend itself.

### *Creating an independent public enterprise before liberalization in Finland and Norway*

Finland eventually pursued the introduction of quite similar reform ideas, but there the ministries of Finance and Transport were able to push their agenda only a few years later. Support for liberalization measures was weaker if not absent among private contractors *YIT* and *Lemminkäinen*, which were much smaller than *Skanska* and *NCC* and feared losing market share to an independent Road Enterprise in the construction business rather than hoping to enter and gaining market share in the maintenance market. The other players in the Finnish institutional structure adopted similar positions as the Swedish counterparts and in fact learned from them. Economic crisis hit Finland later, namely in the late 1990s which opened a window of opportunity for a centre-right government and the above-mentioned ministries to realize the hoped-for institutional reform and, as a result, budget cuts. Interestingly, the Finnish players had learned from the Swedish case and had noticed that the order in which liberalization had taken place had severely weakened the Road Agency. The players in Helsinki therefore settled for a different arrangement and the Road Agency took a more pro-active stance. They decided to first split the Road Agency in two: the actual Road Administration doing the policy-making and tendering and a (public) Road Enterprise vying with new private parties for three-year maintenance contracts (first autonomous organization, then liberalization, no privatization). The new Finnish Road Enterprise, however, achieved a much better and more dominant position: it inherited some vital assets, its competitors were smaller and less inclined to compete, and the workers considered superfluous were hired and paid by the state for five years for infrastructure construction chores, after which they were expected to have found new jobs (independent management, but curtailed by political agreements). Foreign rivals such as *Skanska* and *NCC* could, in principle, enter the market but did not do so as easily as in Sweden for lack of market experience in Finland. In exchange, an informal agreement developed that barred the new Road Enterprise from the construction market for five years to take away the private parties' concerns. Finland saw prices going down by about 30%, even more than in Sweden, but the process saw one more winner. The decimated Road Administration regained self-confidence by transforming itself into an esteemed agency looking after open tendering,

and service quality monitoring and regulation. It reinvented itself, as did the Road Enterprise. Whether the Finnish status quo now is a steady state, is hard to tell. The Road Enterprise would like to see itself privatized, but there is no sense of urgency for more change among any of the other players: there is a widespread feeling that the tendering process as it now exists is largely fair. *YIT* and *Skanska* had already entered the maintenance arena from the start, while *Lemminkäinen* reacted some years later, but has recently also shown interest in becoming a serious player. In Finland, several experiments with PPP-projects, in which construction and maintenance contracts are united for 25-year periods are currently underway.

In 2002, under a newly elected right-wing government, Norway came to formally adopt an institutional reform very similar to the one adopted in Finland. There, too, the public Road Enterprise was corporatised and PPP-projects were increasingly experimented with. Minor differences with the Finnish circumstances were the more rapid introduction of the reform leading to some start-up problems, more funds available for new PPP-projects leading to a faster growing (generally positive) experience with these projects, and a more sceptical attitude towards the possibilities of technological innovation in such integrated construction-cum-maintenance contracts. However, the new equilibria the Finns and Norwegians found as institutional models can be seen as largely the same. Interestingly, in Norway, there was no objective sense of urgency due to any economic or budgetary crisis as the Swedes and Finns had faced (Norway has the disposal over huge oil reserves), but rather a feeling of running behind the other Nordic partners. Regular meetings and conferences within the framework of the Nordic Road Federation confront different Nordic nationals with each other's developments. This type of benchmarking can be seen as leading to a subjective perceived sense of urgency, where countries that have not adopted reforms 'learn' they are laggards.

The net results of the reforms in Finland and Norway can be summed up as follows (Jong 2002, 2003; Pakkala, 2002; Angervuori, 2005; Pakkala *et al.*, 2007).<sup>3</sup>

- Cost-savings of 30% or more have been achieved without demonstrable loss of quality. In terms of the sum of the savings and the breakdown of the various components, the same applies as in the Swedish case.
- Liberalization has allowed new private entrants to absorb an almost 30% market share.

<sup>3</sup> Empirical testing of hypothesis and measuring transaction costs has been problematic in TCE from its inception. For instance Masten (1996) shows the difficulties of measuring directly transaction costs and explains how Williamson and others opted for indirect testing so-called reduced form hypothesis. Also in our case we are not able to measure transaction costs and benefits directly.

- There has been no privatization of either the administrative side of the Road Agency responsible for the tendering process or the department conducting the physical construction and maintenance work.
- A corporatization of the department conducting the physical construction and maintenance work has taken place, leading it to become an autonomous (public) Road Enterprise. Its some 450 people deemed superfluous have been made state employees for a maximum term of five years charged with work on public infrastructures. Regulations and work processes for the Road Enterprise have been imitated from the private sector as much as possible.
- Moreover, the separate Road Administration has become a market engineer focused on fair competition and safeguarding value-for-money for the public in awarding PPP and maintenance contracts to the Road Enterprise and its private competitors.

### *Differential path-dependency in the three countries*

When analyzing the above empirical descriptions of the three institutional systems, we can observe the following:

- 1 When looked from up high, at a relatively general level of aggregation, one can observe a Nordic model of road management, both in the situations before and after the paradigm shift. But when looking at them more closely, subtle but important institutional differences are identified that have an impact on the options actors can choose from and to some extent also on their performance.
- 2 While the equilibria that Finland and Norway have reached are similar and stable (privatization of the Road Enterprise is under consideration but would not seriously distort this equilibrium), the equilibrium Sweden ended up in is less stable and clearly different from the two others. Apparently, one can speak of multiple equilibria here. The institutional systems in the three countries were slightly different, which resulted in different outcomes.
- 3 The paths followed by the relevant actors in each of the three systems were different. Sweden's institutional change was prompted by a financial crisis in the early 1990s, while Finland's transformation was due to a similar phenomenon experienced there by the late 1990s. Interestingly, Norway's path was not at all the result of a crisis situation, but rather a sense of urgency provoked by the feeling to be lagging behind its Nordic counterparts in terms of its institutional modernization. Apparently, one can speak of multiple paths here. Although the reform crossings in all three look mostly the same, different choices can be made leading to different equilibrium outcomes.
- 4 The dialectics of progress apply because the actors in the late-comer countries explicitly drew lessons from events and experiences undergone by the actors in the pioneer countries. The actors in the Finnish system avoided certain choices made by their Swedish colleagues, because they found their results disadvantageous. Likewise, the Norwegians acquainted themselves with the results of the Swedish and Finnish institutional reforms and consciously opted for the Finnish trajectory.

#### 4. What can TCE and CIA explain about the Nordic road reforms?

##### *Evidence in the case for which the TCE and CIA approaches are useful*

The Nordic case provides ample evidence to which the TCE approach can be applied fruitfully. We can conclude from Section 3 that a single (public monopoly) equilibrium in all three countries has been converted to two different (public–private contracting) ones: one in Finland and Norway where the Road Enterprise was corporatized and one in Sweden where this did not happen.

In order to make a comparison between the institutional structures before and after the institutional reform, and more particularly their relative efficiencies, it is helpful to consider the relationships between the players. Before the reform, ministries allocating budgets for projects and regular activities to Road Agencies had little control over the way their funds were spent. Likewise, Road Agencies in all three countries suffered from lack of information in their interaction with regional offices, providing space for information asymmetries and abuse of this situation by agents. The institutional structure was prone to both budget maximization and the accumulation of slack or ‘X-inefficiencies’ in the agent’s bureaux. In a similar vein, long-lasting contracts with private firms for infrastructure construction were also susceptible to rent-seeking behaviour on the part of these contractors. These agents would present their case too positively before a contract was awarded, while acting less than responsibly once the contract period was running. In all these instances, principals were dissatisfied by the control they had over their agents, felt that transaction costs to gather relevant information on the quality of their infrastructure management were unacceptably high and quality of public service was low, or too much time and money was spent on procedural matters.

When comparing two equilibria an analysis can be made concerning production costs, transaction costs, and benefits such as lower/higher quality and lower/higher levels of technological innovation and worse/better scores on HSE indicators (health, safety, and the environment).

As seen above, the total savings in all of the three countries are substantial, but they refer to a reduction in the total costs (sum of production and transaction costs), and are not specified in (types of) production costs and transaction costs. Both budget maximization and slack have probably been reduced through a professional market-like tendering procedure. The fact that in Sweden superfluous employees have not been laid off and that in Finland and Norway these are temporarily paid for from public sources, somewhat dilutes this efficiency increase.

Transaction costs can also be deduced indirectly. Experts involved have suggested that less is spent nowadays on procedural matters, monitoring, and haggling with regional offices, whereas the costs for hiring consultants have gone up. Overall, the ‘administration costs’ are believed to be at the same level as five years ago (Angervuori and Altamirano, 2006). This leads to the careful

conclusion that the cost-cuts were mostly generated in the area of cheaper production. Finally, institutional reform itself is also a time-consuming and costly process, even though these transaction costs are normally left outside the discussion when two alternative institutional structures are compared with regard to their efficiency. Benefits can be manifold and depend very much on how these are operationalized. Proponents of liberalization claim that contracting in the new situation leads to higher quality of road construction and maintenance, more organizational and technological innovation, whereas opponents suspect that private operators will just tick down the contractual list of things to be done without paying due attention to overall quality, since they are not working with their 'heart'. Furthermore, even the public enterprise will now be forced to show such behaviour to cut costs and remain competitive. A TCE framework would allow for both types of interpretation, as benefits are a rather subjective category and complicated to measure. The drafting of good-quality measures ('Key Performance Indicators') and systematic monitoring could prevent this lack of clarity, which is exactly what Finnish and Norwegian policy-makers are currently working on. Until now the quality of maintenance activities as such has proven to be hard to measure and reports indicate that no significant improvement or deterioration has been achieved as compared to the situation before the reform.

In all the aspects and elements described above, Transaction Cost Economics and Comparative Institutional Analysis can help the analyst in providing meaningful insights into the relative efficiency of various institutional structures and also into the behavioural tactics of actors, as well as how incentive structures evoke particular (in)efficient modes of behaviour from the players. We therefore conclude that TCE and CIA certainly delivers useful concepts to address Aoki's synchronic problem in a satisfactory manner.

### *Evidence in the case for which TCE and CIA are less useful*

The case of the Nordic liberalization of road management also shows a number of situations and developments which fit uneasily with a process in which actors are supposed to be driven by motives of efficiency choosing solutions ever closer to a new equilibrium. It is true that one can distinguish an evolution towards a new equilibrium and that actors, in the course of time, come to adopt new perceptions of what makes for good institutional structures for road infrastructure management. It is perhaps also true that they come to embrace newly shared beliefs about the rules of the game and that this involves institutional learning, but in addition to that we see some obvious elements of political power play which is absent in both Transaction Costs Economics (TCE) and in Comparative Institutional Analysis (CIA). In the case on Nordic road management, we have seen a self-organizing spontaneous 'equilibrium-seeking' process, a process of social, cognitive, and ideological learning from actors in foreign countries not identified in the official actor system and we see

conflicts and pressures to reach contradictory and unstable compromises. We have also seen the impact of a wider public, growing increasingly critical of public infrastructure provision and perceiving the 'old system' as old, inefficient, and failing, resulting in the overthrow of left-wing governments.

The above characteristics, (1) political power play and (2) social and cognitive learning amongst actors within the national institutional setting and between national systems, show a much more whimsical evolutionary process. Stable equilibria exist alongside rather unstable ones. It has little to do with a gradual smooth learning process among actors in the institutional system in the direction of stable cost-minimizing equilibrium. For the explanation of mechanisms behind that type of more bumpy institutional change, other theoretical concepts seem more relevant, which model actors differently from the way TCE and CIA do<sup>4</sup> (Campbell, Hollingsworth, and Lindberg, 1991).

Then, the actors are seen as being part of an actor constellation, which comprises the relations of interdependency and mastering of key resources. What are the dependency relations among the actors? For example, when we consider the Ministry of Transport in all three countries as change agents or institutional entrepreneurs (Fligstein, 2001; Greenwood and Suddaby, 2006), they need political and legal backing from the political parties in office and their representatives in parliament, financial backing from the Ministry of Finance (which is normally easy to get for budget cutting initiatives), they need the organizational and informational support from senior people in the former Road Agency to implement the changes and they need some support from future private contractors in the road maintenance industry. In addition, a not too antagonistic connection *vis-à-vis* the labour unions and left-wing parties is also an asset. In other words, the whole constellation of actors in the field matters, since almost all of them have political, legal, informational, organizational, and financial power resources or policy instruments required to make an institutional transition work. Once these actors have reached an agreement amongst each other as to how these resources will be deployed, things can get moving. But before that stage is reached, a whole lot of massaging needs to be done. At the outset of processes of institutional transformation, some actors that benefit least from the existing structure experience a strong need or drive for transformation and generate or pick up new ideas that later become the kernel of a new policy paradigm (Hall, 1993) or policy belief system (Sabatier and Jenkins Smith, 1993). In our case, some of the actors have received and actively sought information about developments and institutional models across the border, being the New Public Management philosophy. We can call this process of

<sup>4</sup> See the work of Douglass North (1990) and Denzau and North (1994) for an analysis of change of institutions. Interesting are the view of Fiori (2002) and Zouboulakis (2005) on the evolutionary character of North's idea of institutional change. In this article we address the so-called Williamsonian school of the NIE and not the more dynamic one of North (Groenewegen *et al.*, 1995).

learning through *benchmarking*, *imitation*, and *emulation* from among a variety of generated ideas (Westney, 1987; Jacoby, 2000; Meseguer, 2004, 2006). Public and private actors in the infrastructure business have intense contacts with counterparts in other Nordic countries through the Nordic Road Federation and in world forums such as PIARC.<sup>5</sup> They can learn from a pool of ideas, observe developments in other countries from a distance, and take from them what they find useful for their own context. Institutional entrepreneurs in all three countries learned lessons from Anglo-Saxon countries and from each other and as a result their perceptions of how the administrative process works and what makes for good management was altered. This, in turn, leads to weak or strong adjustments in their preferences with regard to the institutional structure. When this process of idea adoption, perception change and preference adjustment has been completed, they become domestic proponents of those ideas. This defines them as institutional entrepreneurs. If the set of ideas constitutes a more or less integrated whole, it has the potential to revolutionize the institutional structure and can be defined as a policy paradigm or policy belief system. In the case above, it was especially the Ministries and some change-oriented parts of the Road Agency that acted as institutional entrepreneurs, while most of the workers and the labour unions represented the old and opposing policy paradigm.

Once institutional entrepreneurs have started to identify with the new set of ideas and are willing to deploy their resources in such a way as to initiate the transformation, the time may not yet be propitious. What they can do is push change of perception and preference by promoting the new ideas as strongly as possible in all arenas. The less actors are satisfied with the current situation, the more likely they are to adopt the new ideas and adjust or mitigate their preferences. At any rate, some actors that clearly stand to lose from the new policy paradigm, as is true in the case for the average workers in the Road Agency and their people in the regions, can never be expected to adopt the new paradigm willingly. To shift the balance of power, a window of opportunity is required. This may come about through change in political office, as happened in all three countries at some stage, through a severe financial or political crisis leading to an immediate sense of urgency, as happened in Sweden and Finland at different moments, or by actively evoking a sense of urgency, as was done in Norway, where the feeling of lagging seriously behind the Nordic brothers fell on fertile soil. In many cases, it is a combination of the above factors. A

<sup>5</sup> In the public sphere, the Nordic Road Federation is an active body in which actor representatives exchange experiences in a sort of Community of Practice and provide lead to changes in perceptions and preferences change through ideational variety and provide ammunition for negotiation on institutional change at home. The players study the characteristics of each other's institutional models and imitate and emulate. As the case of the Finns and the Norwegians above shows, they do not imitate blindly, but emulate, i.e. they learn eclectically. They adopt the more promising elements of the Swedish model and circumvent the mistakes.



tactic helping institutional entrepreneurs to push through the new paradigm and have it implemented at the political and administrative levels is often spreading the rumour that bureaucracies spend too much, decide slower, and are less innovative than private enterprises. Moreover, they are claimed to show no customer-friendliness and generate excessive slack because jobs are secure and budgets are incrementally increased by a fixed rate each year. Since most or all of these claims are hard to prove or disprove by detailed information, rumour steps in. Most of these arguments have undoubtedly been used on many occasions in the debate between proponents and opponents. Crucial here is the way in which proponents of change deploy their political strategies and tactics to build actor coalitions strong enough to push through the reform.

Eventually, the opponents had to capitulate in all three countries, but the manner in which this happened was not the same. In fact, even when the change agents clearly had the upper hand, they still had to fight the inertia of existing arrangements. Employers in the Nordic countries never could lay off workers as easily as in Britain, Australia, and New Zealand, since they were 'locked into' a different institutional structure. Path-dependency gave both the Road Agency and the labour unions a much stronger say in the transition process than would have been the case in Anglo-Saxon countries. To some extent, labour unions and public enterprises could use the lock-in of switching costs of their institutional structure to perpetuate their strong positions and restrict the pervasiveness of the institutional change. They were able to deploy their power resources in such a way that the new equilibrium came closer to their preferences than it would have been had the British model been copied more literally. When comparing the three Nordic countries, it even stands out that in the Swedish case the labour unions were most successful in their resistance. They could bar any dismissals and so weakened the position of the Road Agency in the long run. The interactions between the various actors in the actor constellation led to a new (sub-optimal) equilibrium outcome where the wishes of the institutional entrepreneurs and labour unions were best honoured (liberalization and no independent management), while the others were losers. The order in which the process evolved in Finland and Norway was different, since there the Road Agency operated much more proactively than the labour unions.

The direction institutional transformation evolves is not predetermined. Things could have evolved in Finland as they had in Sweden or the other way around, or Norway could have adopted the Swedish instead of the Finnish model (and in fact considered that for a long time), but previous institutional arrangements and actor constellations and the dialectics of progress do make some scenarios and institutional outcomes more plausible than others.

### *Adequate level of aggregation*

This leads us to the important issue of modelling at the right level of aggregation. Economists would tend to overlook the institutional subtleties and concentrate



on the headlines of the Nordic model of road management reform and conclude at that relatively high level of analysis that some inefficiencies tend to persist in all three and proclaim that a further process of game theoretic development is needed to let them reach a really stable final equilibrium. They would also disregard the changes in needs, perceptions and preferences among actors and the political interaction process by which changes are blocked or pushed through. Analysts focusing more on the actor constellation and all the concomitant factors mentioned above will develop a much more detailed contextualized picture of the institutional system. They will observe small, but sometimes vital differences between the three Nordic structures. In short, they model their system at a lower level of aggregation, including the necessary details to understand the mechanisms behind change.<sup>6</sup> They analyse how needs for change arise, where new ideas come from and what the impact of strategies and tactics in the political process is on their adoption. Finally, they observe how some equilibria are stable, but others are unstable since some (powerful) actors in the system are still dissatisfied and still feel the need for change and start pushing and overhauling when they get the opportunity. Such is likely to be the case in Sweden in the field of road management currently.

## 5. Ten steps for institutional change

In the above sections, we have made an attempt to demonstrate which concepts additional to the TCE framework are required to explain actual institutional change. We came to the conclusion that this framework is generally not sufficient for understanding the mechanisms behind the evolution of needs, ideas, perceptions and preferences nor for seeing through the strategies and tactics used to push them through. To the extent that authors have tried to deal with this issue, and Masahiko Aoki in particular, they have described institutional change as a derivative of players coming to shared beliefs and conceptions of the world around them and each other's motives. But even in their work, it has remained unclear where these actors had their new ideas from and, more importantly, how the processes of power play between actors for political and ideational hegemony developed. Aoki (2001: 3) himself realized the limitations of the approach:

Game theory provides a useful tool for understanding the self-enforcing nature of institutions. However, it is unlikely to provide a complete closed theory of institutions. To understand why one equilibrium is chosen and not others, we are required to make use of comparative and historical information and engage in inductive reasoning as well ... I regard them (the institutions) as endogenously created through the interactions of agents in a relevant domain and thus self-enforcing.

<sup>6</sup> Hodgson (1998) considers the detailed specification of general concepts one of the main characteristics of institutional analysis

In the second part of Section 4, while respecting the principle of conceptual parsimony (making use of as few theoretical concepts as possible to explain phenomena), we introduced a number of terms we feel are key to explaining actual processes of institutional change. Below, a stylised stepwise overview is given (see also Campbell, Hollingsworth, and Lindberg (1991) and Seo and Creed (2002)).

- 1 The starting position is that of the old equilibrium, where particular institutional rules and organizational forms apply and where actors largely abide by these rules, even if some see their preferences fulfilled in it more substantially than others.
- 2 In the course of time, satisfaction among certain actors in the system, most probably those benefiting least from the equilibrium situation, fall below a certain threshold value. The need for institutional change among some actors becomes too strong to resist.
- 3 As a result of step 2, the dissatisfied actors dropping below this threshold value engage in a search for ideas to base an alternative institutional system on. These may exist inside the system, but they are actually much more likely to be found outside the institutional system. In other words, these actors become institutional entrepreneurs.
- 4 In the environment, which is likely to consist of many players operating at the different (international) levels or in other policy areas, a pool of ideas is found where institutional entrepreneurs can draw lessons from. They benchmark their own institutional equilibrium with equilibria existing elsewhere, and they adopt these ideas and begin with a process of imitation and/or emulation.
- 5 Adoption of alien, but promising ideas among these institutional entrepreneurs leads to an alteration of their perception of policy issues, leading to a break with the beliefs they previously shared with other players in the old institutional system. They undergo a profound change in their policy belief system.<sup>7</sup>
- 6 Since actors in institutional systems cannot endure inconsistency between their perceptions and their preferences, an adjustment of the preference will follow soon after the perception has changed.
- 7 From then on, the mission is clear for the institutional entrepreneurs: they begin to spread the ideas of their new policy belief system or ideology and divulgate it among all other actors, with a particular focus on those whose satisfaction with the old equilibrium is also weak. To effectuate this, they bring their power instruments or resources into the play and exert pressure on other actors. These resources can be of various kinds (knowledge, funds, staff spending time on communication, political lobbies, legal power etc.) and can be deployed in various strategic ways.
- 8 The success of the action undertaken in step 7 is far from guaranteed, and hinges on moments when windows of opportunity open. This is only the

<sup>7</sup> This connects to Denzau and North's (1994) punctuated equilibria.

case at certain points in time when new political or bureaucratic officials are chosen, a financial crisis is so deep that transformation is forced on to the system, or when a deep sense of urgency is felt by crucial dominant actors. Once this happens, the stage is set for the institutional entrepreneurs to get their ideas accepted and institutionalized.

- 9 Still, then, the conditions for the change and the shape the new institutional equilibrium will acquire are to be decided. Even though the institutional entrepreneurs and their allies now find themselves in a position of power and can take the initiative to change the rules of the game, they do depend to some extent on the reactive moves made by the formerly dominant actors. The results of these negotiations determine what the new institutional equilibrium will look like. Actors gradually come to share new beliefs, albeit like in the old situation some will benefit more than others.
- 10 Eventually, after the negotiations waged in step 9, a new institutional equilibrium is reached where the new policy belief system, new perceptions and new preferences have come to be adopted by all actors in the system. However, the new equilibrium is only stable to the extent that a stable majority feels the fulfilment of their preferences is sufficiently safeguarded in this new equilibrium. If this is not the case, dissatisfied actors in the new system may become institutional entrepreneurs who, at their turn, initiate an attempt at reversal along the same lines as described above.

## 6. Conclusion

In this article we explored the relevance of the TCE/CIA framework to understand the synchronic and diachronic problem identified by Aoki. Based on the application of these insights to the case of the liberalization of road management in the Nordic countries, we have suggested that the efficiency and equilibrium approach is relevant for issues of comparative static analysis, as well as for situations of gradual evolutionary change driven by efficiency. Cases characterized by low levels of complexity, low levels of uncertainty, high levels of shared information, similar perceptions, and effective competition, all fit the efficiency approach. In such cases, an equilibrium is already in place, or a self-organized evolutionary process towards a 'neutral' equilibrium is likely without a paradigm shift and/or an extensive power struggle. Actors should be either well informed or develop at least convergent conceptions of the signals they receive. In addition to that, a broad-brush description of national institutional systems (A-models for the United States, J-models for Japan, G-models for Germany and N-models for the Nordic countries) is applied in such cases to reach comparatively generic inferences on generalized institutional models. Especially Aoki deserves credit for bringing the elements of historical legacy and perception change into New Institutional Economics (see also North, 2005 and Greif, 2006). However, for situations in which conflict and learning 'from outside' dominate, we suggest

to complement or substitute the efficiency approach with theoretical perspectives which allow for a more detailed multi-disciplinary analysis.<sup>8</sup>

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<sup>8</sup> Recent work of Douglass North (2005) and Avner Greif (2006) are in line with this recommendation.

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