The Evolutionary Policy Maker

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Government plays an important role in market economies. Traditional mainstream economics claims a role in the case of market failures. Traditionally, Original Institutional Economics (OIE),\(^1\) goes a step further suggesting not only a macro economic role, but also a more interventionist government as a developer of industrial and technology policies. In this paper we highlight the role of government\(^2\) in a world as depicted in evolutionary economics. We argue that in situations of bounded rationality and radical uncertainty, government should first be a learning actor.\(^3\) Based on a case study of Dutch technology policy, we will distinguish types of learning and identify the conditions under which a learning government can be effective.

The World of the Evolutionary Policy Maker

According to mainstream economics, governments have a role to play in market economies because markets fail. Natural monopolies, collective goods and externalities are the three basic reasons of market failures. When efficient markets exist, individual actors can take care of the coordination of transactions themselves through market contracts. Departing from the adage, “[i]n the beginning there were markets,” it is argued that individuals with clear and well-protected property rights will negotiate with each other about exchanging rights until a Pareto efficient situation is realized. In this way, externalities will be internalized unless the market on which contracts have to be concluded, do not exist, or when the information is so imperfect or asymmetric that the transaction costs of contracts are too high. New institutionalists like Oliver Williamson and Douglass North would argue that in those cases, markets also fail and government has a role to play in creating a clear and stable environment of property rights, competition policy and the like. Moreover, government should create markets when these do not emerge and design transparent

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information structures. Government is in a special position to do so because it has privileges to create institutions like markets, to create or change the legal rules of the game (taxes, regulations) and to enforce behavior of private actors. New institutionalists would add that government should only correct the market failures when the benefits are higher than the cost of government failures due to principal-agent problems.

In institutional evolutionary economics, government operates in a completely different world: government is not only bounded in her rationality and confronted with information asymmetries, but the uncertainty actors face is of a radical nature (Hodgson 1999). Government, like the other agents, is part of an ongoing process, where no end states can be formulated and rationality is contingent and procedural. Satisfying behavior holds for all actors including government. Economic processes are interrelated with technological, cultural and institutional processes. Such an approach provides insights into path dependencies and irreversibilities. In such an evolutionary world, government cannot and should not "simply" correct the failures of the market, but should play a role that facilitates guides and sometimes directs the process into socially desirable directions. The effectiveness of policy is local; it depends on the situation at hand: in one case, government should only offer options; and in other cases, it should direct technological development. Such a government is aware of its limitations (and those of the other actors) and of the dangers that processes can be captured by powerful interest groups and can become locked into undesirable paths of development. Such a government is also aware of the possibilities of the necessity to explore and to learn, and of the necessity to create opportunities. Based on their picture of the evolutionary world, institutionalists conclude that the state should "foster learning, enhance human capabilities, systematically incorporate growing knowledge and adapt to changing circumstances" (Hodgson 1999). Others add that government should allow for experimentation (Hodgson 1999, 248, 262; Groenewegen and Künneke 2005), and create variety (Metcalfe 1995). Can we become more specific? How can government learn and facilitate learning of the other actors in the system? What are the conditions under which learning is fostered or hindered? The case below might provide some useful insights.

The Case of Dutch Technology Policy: Technological Top Institutes

Historically, the Netherlands is characterized by a consultation economy in which government and "social partners" (representatives of employers and employees) negotiate about "National Agreements" on wages and price developments at the macro level; on collective labor agreements at the sectoral level; and at the micro level, stakeholders consult and negotiate on all kinds of labor conditions (Visser and Hemerijck 1997). Industrial and later technology policy is also embedded in the Dutch consultation model, or so-called tri-partite consultation structure. We observe that until the 1970s, this interactive style of policy-making developed in a relatively stable environment of an economy in which national policies and instruments were effective.
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However, in the 1970s and 1980s, this strongly institutionalized consultation structure increased the rigidity of the Dutch economy, especially with respect to the labor market. Economic crisis (first and second oil shocks) forced the Dutch government, in the beginning of the 1980s, to introduce a severe and unpopular austerity policy and to implement institutional changes in the economic system including the rules of hiring and firing labor and the relatively generous social security system. Government was desperately looking for effective industrial policy instruments to save employment. The crisis gradually changed the post-war mental framework.

This opened the possibility to renew government policy in a fundamental way: a shift from a defensive industrial policy to an offensive technology policy was made. This was reinforced by the changing economic vision of science and technology policy in the early 1980s. Influenced by new scientific insights on innovation, the Innovation Paper (1979) entailed a more commercially oriented vision on innovations (Van der Steen 2006). This Innovation Paper, followed by three additional White papers marks the evolution in the technology policy of the Dutch government from the 1980s onward.

After the publication of the Innovation Paper, the division of labor between the various Ministries changed and a new directorate was created at the Ministry of Economic Affairs. Before, the Ministry of Education, Culture and Science was primarily responsible for science and innovation policy, whereas in the new vision on innovation, the Ministry of Economic Affairs was the primary innovation policy maker. Within the new setting of the Ministry of Economic Affairs and the adopted mental framework of the Innovation Paper, new policy routes evolved in the 1980s.

The core of technology and innovation policy in the nineties was epitomized in the second white paper, “Economy with Open Borders” (1990). This paper reflected the increasing importance of globalization for the performance of the Dutch economy and the consequences for technology policy. Internationalization of technology, competition and finance made national industrial policy obsolete. National policy instruments were also limited, especially by the developments at the European level, marked in 1989 by the Maastricht Treaty. There was a deeply felt need for a new policy focus and a new toolbox for technology policy. This was formulated in terms of “industrial clusters,” which became the central approach in the 1990s. In the Netherlands, this new approach evolved into a collective awareness about new potential roles of government to adapt technology policy instruments into a more pro-active style of policy making.

In this process of policy change, the new Minister, Koos Andriessen, a former businessman, and a small group of policy entrepreneurs in the Minister’s inner circle played a crucial role. As a political “outsider,” he was able to introduce the new mental map for the Ministry. His political term resulted in the “Globalization Debate” (1994), an open debate, in which leaders from government, business and academia expressed their concerns and discussed solutions to the central question: “What is the competitive position of the Netherlands in the world and how can we increase its economic performance?” On one hand, this Debate reflected typical Dutch consultation and cooperation between all parties involved. On the other, the
debate broke with the tradition of long time-consuming negotiations and discussions via tri-partite consultative bodies in different layers of society. Because of the commonly felt sense of crisis, it “was allowed” to question and change the traditional Dutch consultation framework and to move to concrete measures quickly.

One of the central outcomes of the debate was that the Netherlands needed “Technological Meccas” – centers of scientific excellence useful for innovation in industry. This idea of “Technological Meccas” would later develop into the policy instrument of the Technological Top Institutes (TTIs).

The new Minister of Economic Affairs, Hans Wijers, installed in 1994, placed the “Technological Meccas” high on the policy agenda. The third white paper, “Competing with Knowledge” (1994), is the first official document that referred to the TTI policy instrument. The paper provided a refinement of the policy problem, but the new policy instrument was not yet defined. The decision about the content of the new policy instrument was the result of separate policy learning paths (policy variety) of the Ministry of Economic Affairs, the Ministry of Education, Science and Culture, and the Ministry of Agriculture, in conjunction with their separate policy networks. Parallel with the interactions in the three separate policy networks, a small interdepartmental project group was established to define the policy instrument. This resulted in the fourth white paper, “Knowledge in Action” (1995), in which the TTIs were defined. Therefore, the final definition of the TTI instrument was a compromise between the policy makers of the different ministries concluding that a TTI should be established within the existing knowledge infrastructure, should execute excellent scientific research that is flexible, interdisciplinary and important for the Dutch industry.

**Stylized Facts of a Learning Government**

From 1945 (the end of the Second World War), until the beginning of the 1970s (the first oil shock), the Dutch socio-political system developed gradually along the path of the consultation economy. We observe incremental learning processes with respect to the role of government as a partner in the tri-partite negotiations and its industrial policy. The Dutch consultative political economy stimulated “patterned, cumulative policy learning,” characterized by commitment to incremental change and an interactive style of policy-making. Until the 1970s, this post-war cooperative style of the state and political economy reduced uncertainty, created order and facilitated “on path” policy learning within a particular existing policy trajectory.

After the 1970s, the economic crisis triggered a fundamental change in the perception of the role of the state and the social partners in the consultation process: more market incentives and responsibilities at the individual level; government at arm’s length; and less central agreements between social partners. The crisis created a sense of alertness, in which government could take the lead in initiating the new way of thinking.

The case demonstrates the importance of political, institutional entrepreneurs like ministers Andriessen and Wijers. They were able to get the message across using the white papers as an effective means of communication and the
"Globalization Debate" as a platform. It is important that the institutional entrepreneurs, who initiate the process toward fundamental change, have access to political (and, if necessary, financial and organizational) resources. It is equally important that they are able to communicate with the other actors in the system (like employers, unions, research institutes, and the like) in such a way that their initiatives are considered positively and do not give rise to opposing actions (strikes and no debate). This requires that other actors recognize themselves in the new policy initiatives, that their language is spoken (shared mental maps) and that their interests are served, or at least not unequally damaged. Naturally, institutional changes imply that some actors will lose more than others, and there will always be opposition. The point is that the case shows that the policy maker should stay close to the existing perceptions and shared mental maps and carefully take the distribution of costs and benefits into account. This connects to institutionalist concepts of "cognitive distance" and "the principle of minimal dislocation."\(^{14}\)

The case shows how individual action became collective action and how the change was managed. It is important that the policy maker makes decisions at a certain moment, and is able to manage a variety at another moment. The policy paper "Competing with Knowledge" (1994) provided a refinement of policy problem formulation, but the new policy instrument was not yet defined. The case reveals a process in which the different Ministries were able to learn about the instrument of the TTI along their own trajectory in consultation with their own networks. The Ministry of Economic Affairs clearly aimed at a complete re-description of the "centers of excellence" into new TTls and was strongly pushed by the interests of "big business," Small and Medium Sized Enterprises (SMEs), industry organizations, and scientific economic advisors. The Ministry of Education, Science and Culture, as well as the Ministry of Agriculture had divergent ideas about the ideal TTI and in conjunction with their own networks developed divergent policy proposals. Both the aims and vested interest of groups differ across policy makers and the case shows that such variety should be carefully managed to provide an important stimulus in the learning process.

**Types of Government Learning**

Based on the above we distinguish three types of learning processes\(^{15}\) for government, each with its own set of conditions for effectiveness.

**"Normal" Policy Learning**

The first type of learning takes place within a well-defined institutional framework, with harmonious relationships between the hierarchy of the institutional layers\(^{16}\) and based on clear and stable shared mental maps of the actors involved. The learning process is one of incremental change toward perfection ending in a range of instrumental options. It is the situation of stable preferences of actors, including government, of clear signals that actors can code and decode with certainty. Imitation, experimentation, and trial and error are all possible within the existing policy
trajectory, but without disturbing its basic features; in other words, a novelty is absorbed and molded so it fits well in the system and can contribute to further perfection.

The main condition for this type of learning is stability in the sense of no external shocks and stable preferences. This requires long-term relationships based on trust and reputation, continuous interactions that facilitate stable policy learning. Government as well as other actors should have clear-shared mental maps that allow for this type of "normal learning" as Denzau and North (1994) would call it.

Re-description and "Direct" Learning

The case study demonstrates that government can jump to another type of policy learning; the policy maker can "re-describe" the institutional foundation as discussed in North (2005). New cognitive models and new habits of thought develop in the process toward the new "logic." Crisis is the initiator and political and institutional entrepreneurs invest in new ways of thinking.

What are the conditions under which such a type of policy learning, a switch towards a new path, can be made? Next to individual action of institutional entrepreneurship, there should also be a trigger to "collective action." There must be access to resources, and economic and political pressure should exist that moves the system into the new direction. A careful balance between exploitation (making more efficient use of existing structures) and exploration (initiating and implementing new structures) should exist, as well as an awareness that cognitive distance should not be too large (Noooteboom 2000). Preferably, the new vision should be materialized in projects with a clear "demonstration effect" so actors see the benefits of the changes.

Innovative Policy Learning

In the third type of learning, the policy maker is a creative entrepreneur. First, on a structural basis, government stimulates experiments outside existing paths; variety in itself is an objective. Second, government carefully designs "neutral" selection mechanisms to avoid lock-ins and dominance of interest groups. Finally, government actively learns internally as well as with other actors (learning how to learn). This not only demands a type of government that is entrepreneurial, but also one that is innovative in the true sense of the word.

Conditions under which such a type of learning could flourish are related to the idea of open systems of innovation, in which government aims for creation and stimulation of variety. This demands specific characteristics of the civil servants (including certain knowledge and learning capabilities, and large open networks).

Conclusion

According to the methodology suggested by Wilber and Harrison (1978), we developed "themes" and a "typology" based on a case study. We realize that more case material is needed to further specify the typology and to become more precise about the conditions of effective government policies.
Notes

1. See Malcolm Rutherford (1994) for an extensive comparison between New and Original Institutional Economics.
2. In this text, we interchangeably use government, state and policy maker as synonyms.
3. Other scholars, who have referred to policy-making from an evolutionary perspective are among others, Geoff Hodgson 1999, chapter 11; Stan Metcalfe 1995; Gerhard Wegner 1997, Jan Fagerberg 2003 and Francois Moreau 2004. Ulrich Witt (2003, 77) argues that although policy interventions are pervasive in all modern economies, so far the theory of economic policy-making has rarely been addressed as an own object of theoretical reflections in evolutionary economics.
4. Contingent rationality refers to the context (different context different rationality), whereas procedural rationality should, according to Herbert Simon (1976), be understood as the opposite of neoclassical substantive rationality.
5. For the case study, we combined three data collection methods. First, we analyzed external documents such as newspaper articles, publications on this topic and white papers available to the public. The second method entailed a review of more than 20 internal documents of the Ministries and their internal communications on the topic, including participation in three governmental meetings. Thirdly, we conducted 15 interviews with civil servants and scientific advisors involved in the case study. For the interested reader, more specific information on the design, operationalization and references can be found in Marianne van der Steen (2006).
6. At the level of the national culture, individualization and the breakdown of the so-called Dutch pillar system, led to increased flexibility and less commitment in the political system, which further decreased the effectiveness of existing policies. The reorientation of the political economy toward more market-orientation reinforced these changes (see van der Steen 2006).
7. Since the 1980s, new insights in the economic literature demonstrate that innovation is the driving force of economic growth; and, in the revival of evolutionary economics, the non-linear characteristics of innovation were acknowledged changing the vision on science and technology policy and potential roles for government.
8. These new policy routes are discussed more extensively in van der Steen (2006).
9. The concept of industrial clusters was based on the work of Michael Porter. Industrial clusters are defined as economic networks of interdependent firms, knowledge-producing agents and customers, linked to one another in a value-adding production chain (van der Steen 2006).
10. New policy roles emerged such as the government as a broker and demanding customer.
11. This small group of policy entrepreneurs operated relatively autonomously from the usual inter-organizational procedures of policy-making at the Ministry and at the same time in direct and close interaction with scientific advisors, business leaders and international economic bodies such as the Organization for Economic Cooperation and Development (OECD).
12. The initiative of the Ministry of Economic Affairs to translate the "Technological Meccas" into a clearer policy instrument was embodied by the concept of the "Centers of Excellence." Initially the idea was to set up new institutes, but more importantly, the ministry stressed the relevance of high-quality research for business and industry.
13. These observations connect to the "themes" in Wilber and Harrison (1978).
14. Cognitive distance refers to the difference between the cognitive structures of the people involved: there should be sufficient variety to create innovations, but the cognitive difference should not be too large to insure interactions. For more about the optimal cognitive distance, see Nooteboom (2000). The principal of "minimal dislocation" refers to the existence of so-called progressive institutions. In changing the institutional structure, government should avoid damage to those progressive institutions, which are effective in realizing social goals (Bush 1993).
15. One could think of a so-called-type of learning where just reproduction takes place (Groenewegen and Künneke 2005). This type is not considered relevant for the case described in this paper.
16. For a discussion on the hierarchical institutional layers and their dynamics, see Groenewegen and van der Steen (2006).
17. Exogenous shocks can cause a crisis in the system. In addition, endogenous developments can result in a crisis (see Aoki 2001 on punctuated equilibria).
References


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