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Policy learning over a decade or more and the role of interests therein: The European liberalization policy process of Belgian network industries

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Abstract

When individual actors are involved in a policy process, do they assess and revise their policy preferences according to their interests or are they open to other forms of arguments over time? This study examines the effect of policy actors' interests on policy learning. It is based on a survey conducted in 2012 among 376 Belgian actors (from 38 organizations) involved in the European liberalization policy process of two network industries: the rail and electricity sectors. Borrowing from organizational research and behavioral economics, several hypotheses are drawn from a model of the individual shared by various policy approaches, such as the advocacy coalition framework. A "simple gain scores" approach to the measurement of policy learning is introduced. Regression analyses show that policy actors align their policy preferences with the impacts of policies on their own material well-being (personal interests) and the material prosperity of their organization (organizational interests). This tendency is independent of the importance that policy actors give to their interests in their everyday lives. This suggests that policy actors experience a sort of "interest shift" when they assess their policy preferences over time. This shift, however, exerts a limited influence on policy learning. The theoretical and practical implications are discussed.

Keywords

Policy learning, advocacy coalition framework, personal and organizational interests, bounded rationality, prospect theory, European liberalization of network industries

Introduction

Policy processes involve diverse types of policy actors, ranging from politicians and public officials to company and association managers. As a result of various interactions as well as the gradual accumulation of evidence on policy problems over time, those policy actors acquire, translate and disseminate new information and knowledge (Heikkila and Gerlak 2013). In turn, they maintain, strengthen or revise their beliefs and preferences regarding policies. "Policy learning" is a concept that designates this cognitive and social dynamic.

Human learning is a fundamental intermediate factor of change processes. Change requires actors to create or to deal with new information and new experiences. This results in the enduring acquisition or modification of abstract constructs (Vandenbos 2007). Those alterations, in turn, transform actors' behavioral intentions and their contribution to change (Fishbein and Ajzen 2010). Hence, policy learning is a causal mechanism linking over time the beliefs held by individual policy actors, the revision of those beliefs, the alterations of collective ideas, and policy change.

The present study focuses on the psychological conditions of individual learning within one policy domain. In particular, it examines whether individual policy actors align, over time, their policy preferences with the effect of policy programs on their own interests. I distinguish two categories of interests: the personal interests of individual policy actors

refer to their own material well-being whereas their organizational interests refer to the material prosperity of the organization in which they work.

A better theorization of the psychological factors of policy learning is crucial because it helps to understand its relation with policy change. For example, there are indications that policy actors who acquire more knowledge about a policy problem are more open to considering new, different policy solutions to solving this problem (Leach et al. 2014). Individual policy learning also has other possible corollary outcomes, such as simplifying the emergence of shared interpretations of policy issues or facilitating agreements among policy actors (Brummel et al. 2010; Diduck et al. 2012; Leach et al. 2014). Finally, learning has a "strategic character", as it can help "policy participants to promote their respective policy interests and values" (Real-Dato 2009, 129).

To examine the effect of interests in individual policy learning, I rely on the Advocacy Coalition Framework (ACF: Sabatier & Jenkins-Smith 1993). This approach is most often used to examine the role that coalitions of policy actors struggling with each other play in policy processes. However, the ACF also recognizes that policy change depends on policy learning. To scrutinize the role of cognition in policy processes, the ACF relies on a model of the individual characterized by a bounded rationality and two logics of normative reasoning: a logic of consequences and a logic of appropriateness (Sabatier and Weible 2007).

There are at least two reasons to rely on the ACF in this study. First, the effect of interests on policy learning and policy change has been a long-standing but unresolved debate, in the ACF literature (e.g., Elliott and Schlaepfer 2001; Hsu 2005; Kübler 2001; Leach and Sabatier 2005; Nohrstedt 2005; Sabatier, Hunter and McLaughlin 1987). Second, many policy approaches share with the ACF similar assumptions on individual actors (Dunlop and Radaelli 2013; Zito and Schout 2009). However, the ACF assumptions are particularly detailed. Hence, the implications of those assumptions are clearly testable. This makes the ACF a very good choice to examine the effect of policy actors' interests on the revision of their policy preferences over time.

The hypotheses of this study are not only based on the ACF. They also come from research in political psychology on the role of interests in citizens' social and political attitudes (e.g., Lau and Heldman 2009; Margalit 2013; Martinussen 2008; Sears and Funk 1991), in organizational psychology on bounded rationality (Simon 1991; Greve 2011; Robbins et al. 2013) and in behavioral economics on prospect theory (Kahneman and Tversky 1979; for a review, see Barberis 2012). This research helps drawing the implications of the ACF model of the individual.

The test of the hypotheses is based on regression analyses of a survey conducted in 2012 among 376 Belgian policy actors who had been involved, during the last two decades, in the European liberalization policy process of two network industries: the rail and

electricity sectors. The European Social Survey suggests that Belgian policy actors are representative of many of their European colleagues regarding the importance they give to their interests in their everyday lives[i]. The liberalization process of network industries offers a good balance between policy changes concerning how to provide products/services to citizens and changes in the interests of policy actors that result from the re-organization of the industries. As the liberalization of network industries began in the 1990s, this research is also consistent with Sabatier (1993)'s contention that policy processes should be considered "over a decade or more" to capture the real nature of policy learning.

This study contributes to the policy science in various ways. First of all, much policy learning research (e.g., Jacobs and Barnett 2000; Meseguer 2004; Pemberton 2003) looks at the entire mechanism linking human cognition and policy learning to policy change. In contrast, this study clarifies the effect of human cognition on policy learning itself. In addition, this study introduces an innovative, "simple gain scores" approach to the measurement of policy learning.

Second, many studies account for policy processes by looking at interests together with beliefs or ideas (e.g., Dehnhardt 2014). Following calls for research focusing on the exact influence of interests (e.g., Hoberg 1996; Nohrstedt 2005), I try to reject the null hypothesis that interests do not exert any influence on policy learning. In addition, most

researchers oppose interests to beliefs and ideas. In this study, I recognize the ideational character of interests by using self-reported measures of interests. This is far more reliable than proxy measures of interests deduced by the researcher on the basis of policy actors' characteristics or affiliations (Darken and Chaiken 2005).

Third, the role of actors' interests in policy processes has been a perennial issue in the policy science (Béland 2009; Genieys and Smyrl 2008). In addition, the ACF shares its model of the individual with various other approaches to the policy process, as well as many public administration and public management studies. Hence, the findings of this study talk to diverse researchers in public policy and administration, within and beyond the ACF community.

This article should be understood as part of the efforts to develop a behavioral approach to the study of public policy (Shafir 2013). The findings of this article will shed light on the psychological conditions of individual-level policy learning. In terms of significance, this means that this article does not make any assumption about the ultimate influence of policy actors' interests on group-level policy learning or on collective action. The actual impact of individual learning on collective processes depends on social interactions, organizational practices and institutional contexts in which it takes place (e.g., Witting and Moyson 2015). In the same perspective, there are not only psychological conditions to individual-level policy learning, but also social,

organizational and institutional factors (Dunlop and Radaelli, submitted). However, research efforts to clarify the behavioral foundations of public policy are crucial because decision-making processes based on bad intuitive psychology are less likely to succeed (Shafir 2013).

This article follows a classical structure in which the theoretical expectations are presented before the research design, the measures and the analysis. Finally, the findings are discussed.

The role of interests in long-term policy learning

Policy learning and policy change in the advocacy coalition framework

The Advocacy Coalition Framework (ACF: Sabatier 1987; Sabatier and Jenkins-Smith 1993, 1999; Sabatier and Weible 2007) conceptualizes the policy process as a political struggle among (coalitions of) policy actors involved in a given policy subsystem. A policy subsystem is a set of "actors from various public and private organizations who are actively concerned with a policy problem or issue such as air pollution control, and who regularly seek to influence public policy in that domain" (Sabatier and Jenkins-Smith 1999, 119).

The ACF assumes that each policy actor holds a belief system composed of three strata. At the first stratum, “deep core” beliefs are very broad in scope (e.g., “I believe that justice is an important value”). At the second stratum, “policy core” beliefs are specific to one subsystem (e.g., “I believe that this policy option increases the degree of justice among groups of the population”) and determine actors’ preferences regarding key policies (e.g., “I believe that this policy option is better than others”). At the third stratum, “secondary” beliefs concern particular issues and decisions within the subsystem (e.g., “I believe that this administrative decision facilitates the implementation of my preferred policy option”).

One important objective of the ACF is to explain policy change, defined as “fluctuations in the dominant belief systems (i.e., those incorporated into public policy)” (Sabatier 1987, 682). For example, policy change can result from major “shifts in the core attributes of the subsystem”, called “shocks”, such as a legal shock or a shock in the distribution of natural resources (Weible, Sabatier and McQueen 2009, 124). Policy actors can also use their resources and coordinate their political activity within “advocacy coalitions” to impose an understanding of policy problems and their preferred definition of policy solutions to other advocacy coalitions (Sabatier and Jenkins-Smith 1993).

However, policy change does not only depend on shocks and power relations but also on the beliefs and preferences held by policy actors. The revision of those preferences is a causal mechanism called “policy learning”, which determines policy decisions. The ACF defines policy learning as “relatively enduring alterations of thought or behavioural intentions that result from experience and which are concerned with the attainment or revision of the precepts of the belief system of individuals or of collectivities” (Sabatier 1993, 42).

The belief system of a policy actor (or any individual) is composed of predictive beliefs and evaluative beliefs (Fishbein and Ajzen 2010). In the context of policy processes, predictive beliefs concern the expected outcomes of policy programs (e.g., ‘the liberalization policy will allow new companies to operate trains on the Belgian railways’). In common language as well as in psychological and educational research, the term ‘learning’ most often refers to a process that leads an individual to revise his or her *predictive* beliefs as a result of knowledge acquisition or social interactions. In the ACF, however, ‘policy learning’ is a broader concept: it equally denotes the cognitive and social processes that lead to changes in the *evaluative* beliefs of policy actors. Evaluative beliefs concern the desirability of the outcomes of policy processes (e.g., ‘it would be desirable that new companies are allowed to operate trains’) and, ultimately, the

desirability of policies themselves (e.g., 'the liberalization policy would be desirable'). The latter are called "policy preferences".

Some ACF research has looked at the conditions of cross-coalition policy learning or the role of policy learning in policy change (Weible, Sabatier and McQueen 2009). However, the psychology of individual learning has been rather overlooked. Here, I focus on one result of individual learning: the stability or evolution of policy actors' preferences over time. This is the dependent variable of this study. In this respect, the study adopts a centered perspective on policy actors' evaluative beliefs. But policy preferences have been recognized as "normative beliefs that project an image of how the policy subsystem ought to be, provide the vision that guides coalition strategic behavior, and helps unite allies and divide opponents" (Sabatier and Weible 2007, 195). As policy preferences play a fundamental role in collective action, it is crucial to understand the psychological foundations of their evolution over time.

The nature of interests

Following a consistent body of research in political psychology on the role of interests in citizens' social and political attitudes (e.g, Lau and Heldman 2009; Margalit 2013; Martinussen 2008), the interests of a given entity – for example, an individual or an

organization – may be defined in reference to the material well-being or prosperity of this entity. Restricting interests to material aspects allows for more clarity regarding other concepts such as values (Sears and Funk 1991).

It has been suggested that interests should be analyzed in opposition to beliefs in order to understand their respective role in policy processes (Hoberg 1996, 143; Nohrstedt 2005, 1045-46). In contrast, I follow Sabatier and Jenkins-Smith's (1993, 28) original argument that interests *are* subjective beliefs among others: "while belief system models can (…) incorporate self-interest and organizational interests, they also allow actors to establish goals in quite different ways (e.g., as a result of socialization)". Similarly, Laird (1999) argued that "actors use ideas in order to understand what their interests are, what those interests mean to them, and how to achieve them" (cited by Dudley 2007, 411).

Yet, if interests *are* beliefs, how are they to be distinguished from other beliefs? Two different concepts may be used: "policy interests" and the "generalized importance of interests". On the one hand, policy interests are beliefs about the impacts of a policy on someone's material well-being (e.g., "I believe that the implementation of this policy has improved my salary"). On the other hand, the generalized "importance" or "salience" of interests indicates how much they motivate someone's attitudes and preferences. Policy interests are policy core beliefs – they are specific to the policies of

a given policy subsystem – whereas the generalized importance of interests results from a set of deep core beliefs – they are general in scope.

Finally, policy interests and the generalized importance of interests can concern personal interests or organizational interests. Personal policy interests of individual policy actors are their beliefs about the impacts of a policy on their own material well-being (e.g., "I believe that this policy will increase my personal working conditions"). Organizational policy interests are their beliefs about the impacts of a policy on the material prosperity of the organization which they are affiliated to (e.g., "I believe that this policy will improve the financial situation of my organization"). Similarly, I differentiate the generalized importance given by policy actors to their personal and organizational interests.

Most studies looking at the influence of interests on social and political attitudes focus on personal interests (e.g., Lau and Heldman 2009). Sometimes, typically in studies assimilating parties' electoral performance to interests (e.g., Gilardi 2010), personal and organizational interests are measured together. Indeed, electoral successes serve the interests of individuals as well as the interests of their party. However, as the theoretical and practical implications resulting from the effect of personal and organizational interests might not be similar, I define them differently and measured them with different questions, in the survey of this research.

Theoretical expectations on the relation between interests and policy learning

The ACF model of the individual is based on two important assumptions that lead to contradictory expectations regarding the role of interests in policy learning. The first assumption is that the belief system of policy actors is internally coherent (Sabatier and Jenkins-Smith 1993). In particular, policy actors develop over time a specialized knowledge which allows them to formulate policy preferences that are consistent with their beliefs. This suggests that they are naturally able to opt for policies that fit their interests (e.g., "I believe that my personal interests are important and I believe that this policy improves my material well-being, so I believe that it is a desirable policy").

However, the second important assumption of the ACF is recognizing that individuals' rationality is "bounded" (Sabatier and Weible 2007). This assumption results from a "behaviouralist turn" (Zito and Schout 2009) adopted by the ACF in parallel with many other approaches to the policy process (Dunlop and Radaelli 2013), and borrowed from organizational research (Simon 1991; see also Greve 2011; Robbins et al. 2013) as well as behavioral economics (prospect theory: Kahneman and Tversky 1979; see also Kahneman 2011; for a review, see Barberis 2012). Bounded rationality suggests that policy actors' ability to formulate policy preferences that are consistent with their beliefs is limited. Indeed, the information available about policies can be of poor quality or low

quantity. In addition, the inherent ability of individuals to process this information is limited, especially in contexts of uncertainty or urgency (Birkland 2006; Moynihan 2008; Svenson and Maule 1993).

When information, time or ability to process information are limited, prospect theory (Kahneman and Tversky 1979) suggests that individuals tend to rely on "shortcuts" or heuristic-based modes of reasoning. For example, due to a so-called "devil shift", policy actors tend to exaggerate the political risk represented by other actors having different policy preferences: they see those actors as more evil and powerful than they are in reality (Leach and Sabatier 2005; Sabatier, Hunter and McLaughlin 1987). The devil shift results from cognitive biases such as risk aversion or loss aversion, meaning that individuals dislike risks and losses more than they like certitudes and gains (Kahneman and Tversky 1979). Similarly, as a result of the "certainty effect" (Kahneman 2011; McGraw et al. 2010), policy actors generally prefer to rely on their pre-existing normative and perceptual beliefs rather than admitting that they are wrong (Leach et al. 2014; Sabatier and Jenkins-Smith 1999). All in all, bounded rationality sheds skepticism on policy actors' propensity to changing their policy preferences over time and to revising them in a way that fits their policy beliefs. Hence, the null hypothesis of this research states that policy actors do not significantly tend to align their policy preferences with their interests over time.

However, despite the lack of extensive empirical evidence, there are several reasons to think that policy actors are rational enough to maintain consistency between their policy preferences and their policy interests over time. First, some ACF research suggests that interests are a tangible driver of policy processes, with an impact on the formation and behavior of advocacy coalitions (e.g., Elliott and Schlaepfer 2001; Hsu 2005; Kübler 2001) as well as policy change (Nohrstedt 2005; Hoberg 1996). However, in those studies, the concept of "interest" covers very diverse empirical realities. In addition, the ideational character of interests is not always really well recognized in their definition and measurement.

Second, the role of interests in the formation of citizens' social and political attitudes was demonstrated by a consistent body of research in political psychology (e.g, Lau and Heldman 2009; Margalit 2013; Martinussen 2008; Sears and Funk 1991). However, those studies are inconclusive about the strength of the interests-attitudes connection.

Third, as explained above, policy actors' ability to opt for policy decisions that are consistent with their interests is limited in contexts characterized by uncertainty or urgency (Birkland 2006; Moynihan 2008). However, the members of a policy subsystem are, for the most part, experienced policy "elites". For this reason, "there are strong grounds for assuming that most actors will have relatively complex and internally consistent belief systems" (Sabatier 1993, 181). In addition, the present study focuses

on long-term policy learning. In the long run, policy actors should have more opportunities to structure and organize their policy knowledge. This should allow them to align their policy preferences with their interests, which leads me to the first alternative hypothesis of this research: in the long run, policy actors tend to align their policy preferences with their policy interests.

Furthermore, the ACF borrows from organizational research (March and Olsen 2008) that policy actors' attitudes are not only driven by interests but also by a logic of appropriateness (Sabatier and Weible 2007). This means that the course of policy actors' preferences is determined, not only by interests, but also by various other internalized values, norms and rules. In other words, policy actors can differ from each other with respect to the generalized importance they give to their interests. If policy actors are internally coherent, the more they give importance to their interests in their everyday lives, the more they should align their policy preferences with their policy interests. This leads me to the second alternative hypothesis: the relation between the revision of policy actors' preferences and their policy interests should be stronger when policy actors give more importance to their interests in their everyday lives. In statistical terms, this means that the importance that policy actors give to their interests would 'moderate' the relation between policy interests and policy preferences over time.

As the influence of personal and organizational interests is assessed separately, each alternative hypothesis has two versions, summarized in Table 1 and represented in Figure 1.

Hypothesis 1.1 (Effect of personal policy interests): Policy actors align their policy preferences with their personal policy interests over time.
Hypothesis 1.2 (Effect of organizational policy interests): Policy actors align their policy preferences with their organizational policy interests over time.
Hypothesis 2.1 (Moderation effect of the generalized importance of personal interests): The relation between personal policy interests and the revision of policy preferences over time is stronger when policy actors give more importance to their personal interests in their everyday lives.
Hypothesis 2.2 (Moderation effect of the generalized importance of organizational interests): The relation between organizational policy interests and the revision of policy preferences over time is stronger when policy actors give more importance to their organizational interests in their everyday lives.

Table 1. Alternative hypotheses

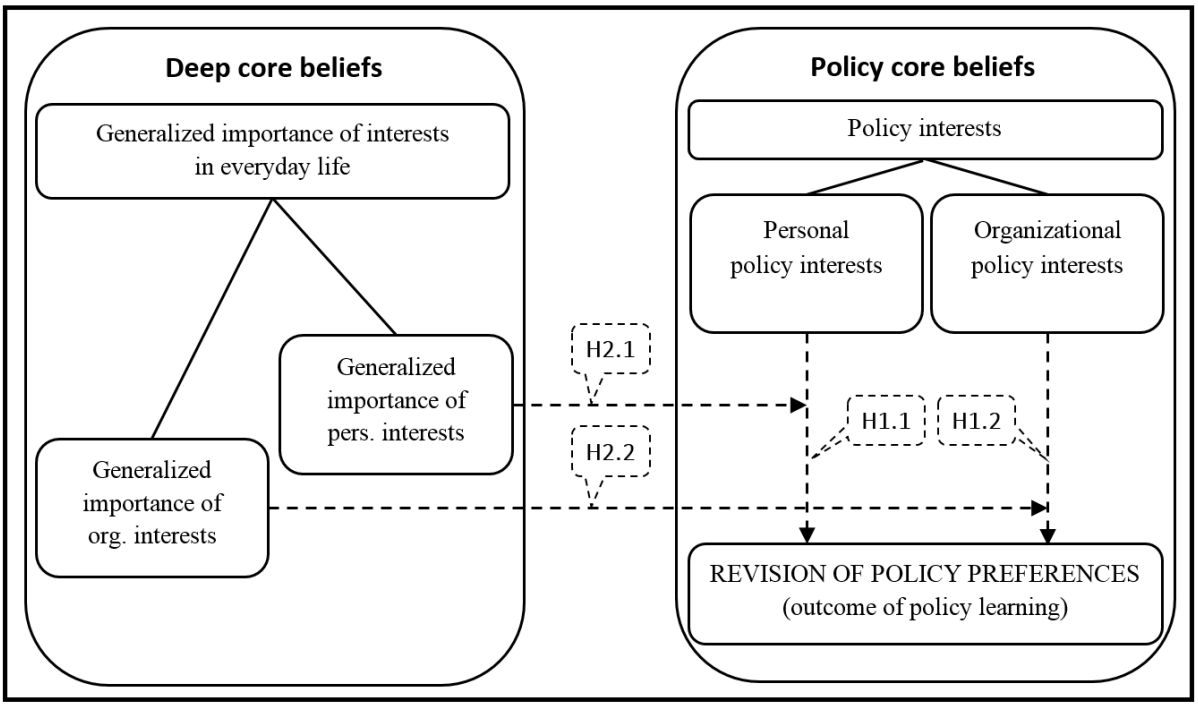


Figure 1. Analytical framework and alternative hypotheses of the study

Research design

To examine the role played by interests in policy learning, a web survey was submitted to the Belgian policy actors involved in the implementation of the European liberalization policy process within two network industries: the rail and electricity sectors. Network industries "are characterized by the delivery of products or services to final customers via a 'network infrastructure' linking upstream supply with downstream customers" (European Commission 1999). Network industries are typical in sectors like telecommunications, energy, transport or postal services.

Since the 1980s, many network industries have been subject to a liberalization policy process (Genoud 2004; Geradin 2006). The implementation of this European process in national policy subsystems may be considered a major policy change. Gradually, the network activities have been unbundled. Previously, a state-owned company (or "incumbent") had a monopoly on the management and commercial exploitation of the network. Nowadays, a public "infrastructure manager" is responsible for the maintenance and security of the infrastructure, whereas the incumbent competes with other private companies (or "new entrants") for use of the infrastructure. In addition, various independent regulatory agencies have been created at European and national levels.

This study focuses on two national subsystems of policy actors: the Belgian rail and electricity policy subsystems. In the railways, the European liberalization process began in 1991, with European directive 91/440/EEC. The implementation of this process, in Belgium, began with the Royal decree of 5 February 1997 (for more details, see Dehousse and Gadisseur 2002; Moyson and Aubin 2011). A similar process of liberalization of the European electricity sector was launched with directive 96/92/EC. The implementation of this process, in Belgium, began with the Federal Law of 29 April 1999 (for more details, see Declercq 2000; Declercq and Vincent 2000a, 2000b; Glachant and Perez 2011).

The web survey was administered between April and November 2012 to 1256 people holding top to middle positions within 51 public and private organizations involved in the liberalization process. Given their position, those people had been regularly involved in the implementation process of the European liberalization policy: they form two policy subsystems[ii]. The response rate of the survey was 32.88% (413 policy actors out of 38 organizations). This is very good, considering that web surveys conducted with email invitations and one reminder typically reach a response rate of 25% (Kaplowitz, Haddock and Levine 2004)[iii]. The survey invitation was personally addressed to each of the invitees ("Dear Mr./Ms. 'Name of the invitee',") and sent to their individual, professional email address. Hence, it can fairly be assumed that the survey was filled by

the invitees themselves. Together with the results of the survey, the anonymous ID of survey participants was provided, along with their language (French or Dutch), their gender, as well as their hierarchical level within their organization of affiliation. On those dimensions, the distributions of the sample and the population are similar, which suggests the sample is well representative.

Measures

Dependent variable

The evolution of respondents' policy preferences was measured with the "simple gain scores" method. Respondents were requested to report their initial policy preferences with the following question: "At the beginning of the liberalization process or – if later – when you were involved in the Belgian rail/electricity sector for the first time, what was your position about the following major principles of this policy?" Four likert-type items ranging from "Very unfavorable" [-2] to "Very favorable" [+2] were submitted in each sector. In each sector, the two following items were used: "the application of regulation by independent regulatory bodies" (item 1); and "the unbundling of operations on and management of infrastructure" (item 2). In the rail sector, two additional items were submitted: "the introduction of competition in the railway transport of freight (item 3

rail) / international railway transport of passengers (item 4 rail)". In the electricity sector, the additional items were: "the introduction of competition in the generation and supply of high-voltage electricity (item 3 electricity) / low-voltage electricity (item 4 electricity)".

Then, the respondents were invited to report their current policy preferences with the following question: "And today, what is your position about the following principles?" The items used for reporting the initial preferences were submitted again. To get an idea of how respondents' preferences evolved over time, initial preferences' values were retrenched from current preferences' values. This provided a new list of items or "gain scores" – four in the railways and four in the electricity sector. Those scores measure the evolution of respondents' policy preferences toward the liberalization between the beginning of this policy process and 2012 (i.e., the year of the survey). For example, a minimum score of [-4] indicates a respondent who had a very positive opinion [+2] about a liberalization principle at the beginning of the policy process and turned out to be very negative [-2] about this principle in 2012. Inversely, a respondent got a maximum score of [+4] when his extremely negative opinion [-2] had become extremely positive [+2] in 2012.

Factor analyses were conducted on the list of four gain scores, in each sector separately. The exploratory factor analysis suggested to keep all scores in each sector. The

confirmatory factor analysis validated this structure in the rail sector ($\chi^2 = 0.21$, $p = 0.90$; RMSEA = 0.00; SRMR = 0.014; CFI = 1.00) as well as in the electricity sector ($\chi^2 = 0.69$, $p = 0.71$; RMSEA = 0.00; SRMR = 0.009; CFI = 1.00)[iv]. The scores of the two factors were normalized to get one scale common to the two sectors. This scale ranges from [-6.99] to [+6.99]. This is the dependent variable of the present study. The items of the dependent variable, as well as their statistics, are reported in the Appendix.

A cross-sectional survey comparing retrospective and contemporary data is not the best possible tool for assessing the evolution of policy actors' preferences over time. A panel survey, for example, could be even more appropriate. Still, this study offers a valid and reliable method that significantly improves existing approaches to the measurement of policy learning for two reasons.

First, the simple gain scores method overcomes the two possible types of systematic error in the measurement of policy learning. The first possible type of systematic error concerns the measurement of preferences change. In particular, respondents could be tempted to provide socially desirable answers – e.g., respondents willing to show that they are stable and reliable people or, on the contrary, that they are able to change their minds. The second possible type of systematic error concerns the measurement of policy preferences themselves. In particular, the survey concerned professional issues and was distributed in a professional context. Hence, there are good reasons to suspect

respondents' willingness to appear more or less favorable to the liberalization process when he or she worked among colleagues militating for/against this policy, for example.

The existing studies which measured policy learning are relatively scarce and relied, most often, on one set of items on preferences change ("did you change your opinion on…": e.g., Montpetit 2007). Such an approach does not control for any type of measurement error mentioned above. In the simple gain scores method, in contrast, two sets of items – one about past preferences and one about current preferences – are used and compared by the researcher. On the one hand, this drastically decreases the ability of respondents to strategize regarding the social desirability of the reported changes in their preferences. On the other hand, the simple gain scores approach does not remove systematic error in the measurement of preferences themselves. However, simple gain scores modeling of preferences change protects regression results from the possible effects of such a measurement error – it provides unbiased results (see below).

Second, this study addresses recollection issues. Indeed, it can be difficult to remember past preferences (Janson 1990). However, a confident attitude toward memory is a reasonable indicator of its accuracy (Roediger 2012). In turn, conviction is a reliable indicator of attitude confidence/certainty (Holland, Verplanken and van Knippenberg 2003). Hence, respondents were also asked to report their degree of conviction in their policy preferences on a 5-point likert scale. The respondents who reported to be

"completely unconvinced" [-2] or "rather unconvinced" [-1] of their past or current preferences were removed from the sample (32 respondents were removed).

In addition, this study focuses on policy actors which have been involved in the European liberalization process for a long time. As this process has been a major and long-term policy change in network industries, there are good reasons to think that policy actors have good memories of their past preferences regarding this change. Indeed, research in cognitive psychology suggests that the importance of an event or process, as well as the number of opportunities to hear and discuss it, increases the accuracy of memories on past opinions toward it (Kvavilashvili et al. 2003; Neisser et al. 1996).

Independent variables

Personal policy interests were operationalized with three aspects of the policy actors' own material well-being which were likely to have been influenced by the liberalization process: their salary (like in Martinussen 2008), but also their material working conditions and promotion possibilities. Whether these aspects had actually been influenced by the liberalization process over time was assessed by the respondents themselves, with likert-scale items, ranging from "Strongly disagree" [-2] to "Strongly agree" [+2]. The aggregation of these items results in the ordinal variable "Personal

policy interests" ranging from [-6: "the liberalization policy has influenced my personal interests very negatively"] to [+6: "the liberalization policy has influenced my personal interests very positively"].

Similarly, organizational policy interests were operationalized with two aspects of the material prosperity of policy actors' organization which were likely to have been influenced by the liberalization process: its finances as well as its success. The aggregation of likert-scale items results in the ordinal variable "organizational policy interests" ranging from [-4: "the liberalization policy has influenced the material prosperity of my organization very negatively"] to [+4: "the liberalization policy has influenced the material prosperity of my organization very positively"].

The generalized importance of interests may be expressed by subjective beliefs (Clore and Schnall 2005). For example, "I believe that earning a good salary is very important" is a good indicator that personal interests are important for an individual. The importance given to salary, but also professional opportunities and material working conditions, were assessed by each respondent thanks to three likert-type items. The aggregation of these items results in the ordinal variable "importance of personal interests", ranging from [-6: "I don't pay any importance to my personal interests"] to [+6: "I pay a great deal of importance to my personal interests"]. The importance given to the finances and success of the organization were assessed by each respondent

thanks to two likert-type items. The aggregation of these items results in the ordinal variable “importance of organizational interests” ranging from [-4: “I don’t pay any importance to my organizational interests”] to [+4: “I pay a great deal of importance to my organizational interests”].

All independent variables have a cronbach alpha equal to, or higher than 0.70 (see Appendix). This study also accounts for the sector in which the respondent worked (rail sector = 0; electricity sector = 1) as well as several covariates: gender (male = 0; female = 1), age (from less than 20 year old = 1; to more than 70 year old = 12; by intervals of 5 years) and educational level (1 = secondary education or less; 2 = undergraduate; 3 = graduate or more). Battaglio and Legge (Battaglio 2009; Battaglio and Legge 2009) also suggested that “satisfaction with democracy” and “political curiosity” (called “political interest”, in their own study) are two political predispositions regarding liberalization processes. These variables were measured with the two following likert-type items: “I find that the Belgian democracy works well these days” and “I am interested in politics”.

Analysis

The summary statistics, in Table 2, show that policy actors’ preferences have not evolved very much over time. This is especially true in the railway sector, with a mean close to

0, and consistent with previous findings (e.g., Leach et al. 2014; Sabatier and Jenkins-Smith 1993). This does not decrease the importance of examining the role of interests in policy learning: in fact, interests can be a factor that limits changes in policy actors' preferences. On average, with a mean of 1.63, policy actors' opinions regarding the liberalization policy have evolved more positively in the electricity sector than in the rail sector. A possible explanation is that the liberalization process has been deeper and has become more consensual in the electricity sector than in the rail sector, where the monopoly of the incumbent on the national transport of passengers is still applicable but discussed. Furthermore, in the two sectors, the standard deviation suggests quite much inter-individual variation. Covariates have approximately the same means in each sector, except that policy actors are older in the rail sector than in the electricity sector. Gender was introduced as a numeric (dummy) variable, in the regression analyses. Concretely, there are 27 female respondents in the rail sector and 30 in the electricity sector.

Out of the 413 survey respondents, 32 were removed because they were not confident enough about their past policy preferences (see above) and 5 others were removed because they did not provide any answer to one or more questions used for constructing the independent variables. The missing values of gender, age, and educational level were replaced by their mean (consistent with Allison 2002). Hence, the final sample is

composed of 376 respondents: 185 in the rail sector and 191 in the electricity sector. They come from 38 different organizations: 12 in the rail sector and 26 in the electricity sector.

	Rail sector					Electricity sector				
Variable	***N***	**Mean**	**SD**	**Minimum**	**Maximum**	***N***	**Mean**	**SD**	**Minimum**	**Maximum**
DEPENDENT VARIABLE										
Evolution of policy pref. on liberalization (factor scores)	185	0.35	2.42	-6.99	6.99	191	1.63	2.24	-6.99	6.99
INDEPENDENT VARIABLES										
Importance of personal interests	185	2.49	1.77	-6.00	6.00	191	2.25	1.93	-6.00	6.00
Personal pol. interests in liberalization	185	-1.30	2.73	-6.00	6.00	191	-0.52	2.58	-6.00	6.00
Importance of organizational interests	185	2.82	1.10	-4.00	4.00	191	2.91	1.09	-4.00	4.00
Organizational pol. interests in liberalization	185	-0.66	2.04	-4.00	4.00	191	-0.50	2.02	-4.00	4.00
COVARIATES										
Gender	185	0.15	0.35	0.00	1.00	191	0.16	0.37	0.00	1.00
Age	180	7.13	2.13	1.00	12.00	190	6.67	2.13	1.00	12.00
Educational level	181	2.50	0.79	1.00	3.00	189	2.78	0.50	1.00	3.00
Political curiosity	185	0.79	1.05	-2.00	2.00	191	0.699	1.12	-2.00	2.00
Satisfaction with democracy	185	0.02	0.96	-2.00	2.00	191	-0.11	0.94	-2.00	2.00

Table 2. Summary statistics

To analyze the role played by interests in policy learning, this study relies on simple gain scores modelling, in which the difference between respondents' final and initial preferences is regressed on the independent variables. In "residual gain scores" modelling, in contrast, the initial attitudinal level is introduced as a regressor of the final

attitudinal level, next to the other independent variables (Allison 1990). The respective advantages of the two approaches have been subject to much debate, recent studies suggesting that they most often lead to similar results (Johnson 2005). There has been wider consensus, however, that simple gain scores modelling is more appropriate when some error in the measurement of the initial attitudinal level is suspected (Johnson 2005). Indeed, in simple gain scores modelling, measurement error is entirely within the dependent variable whereas, in residual gain scores modelling, the error in the measurement of the initial attitudinal level appears in the independent variables. In the present study, error in the measurement of initial policy preferences is suspected (see above). Hence, the simple gain scores approach offers a better model specification and unbiased results.

The data were analysed with clustered robust linear regression models (Fox 2008), in Table 4. In those models, the distribution of studentized residuals is not perfectly normal (p-value of all Shapiro-Wilk tests < 0.001) and the residuals are somewhat heteroscedastic (p-value of all Cook-Weisberg tests < 0.001). In addition, there are good reasons to think that organizational affiliation influenced the evolution policy actors' preferences regarding the European liberalization policy, given that this policy had different consequences according to the type of their organization. Hence, clustered robust standard errors were used (clusters = organizations)[v]. Despite correlations

among independent variables, in Table 3, the variance inflation factors are never higher than 1.15 nor higher than the model-dependent cut-off values, in Table 4 (Craney and Surles 2002). This means that the models do not present any collinearity issue. Consistent with Larzelere et al. (2010), the analyses were repeated using the residual gain scores approach and led to similar results.

Correlation	Importance of personal interests	Personal pol. interests in liberalization	Importance of organizational interests	Organizational pol. interests in liberalization	*Evolution of policy preferences on liberalization*
Importance of personal interests	1				
Personal pol. interests in liberalization	-0.05	1			
Importance of organizational interests	0.27***	-0.00	1		
Organizational pol. interests in liberalization	-0.09^{+}	0.57***	-0.05	1	
Evolution of policy preferences on liberalization	-0.11*	0.23***	-0.00	0.23***	1

***** p < 0.001 ** p < 0.01 * p < 0.05 $^{+}$ p < 0.10.**

Table 3. Correlation matrix of the dependent and independent variables

DEPENDENT VARIABLE (gain scores)	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
Evolution of policy preferences	Only covariates		Pers policy interests		Org policy interests		All policy interests		All pers. interests		All org. interests	
on the Eur. liberalization process	Standard coefficient	Cluster robust S.E.	Standard coefficient	Cluster robust S.E.	Standard coefficient	Cluster robust S.E.	Standard coefficient	Cluster robust S.E.	Standard coefficient	Cluster robust S.E.	Standard coefficient	Cluster robust S.E.
INDEPENDENT VARIABLES												
Personal pol. interests			0.21***	0.04			0.11	0.06	0.21***	0.05		
Importance of personal int.									-0.09*	0.04		
Organizational pol. interests					0.24***	0.03	0.18**	0.05			0.23***	0.03
Importance of organizational int.											0.01	0.05
Imp. of pers. int. * Pers. pol. int.									-0.04	0.04		
Imp. of org. int. * Org. pol. Int.											0.05	0.05
COVARIATES												
Gender	0.13**	0.04	0.12*	0.04	0.13**	0.04	0.12**	0.04	0.12*	0.04	0.12**	0.04
Age	0.06	0.07	0.08	0.05	0.09^{+}	0.05	0.09^{+}	0.05	0.08	0.05	0.09^{+}	0.05
Educational level	0.07	0.07	0.04	0.05	0.03	0.05	0.02	0.05	0.04	0.05	0.02	0.05
Political curiosity	0.02	0.05	0.02	0.05	0.01	0.04	0.01	0.04	0.02	0.05	0.02	0.04
Satisfaction with democracy	-0.09^{+}	0.03	-0.11**	0.04	-0.10*	0.04	-0.11*	0.04	-0.11**	0.03	-0.10*	0.04
Sector	0.18*	0.06	0.17**	0.06	0.20**	0.05	0.19**	0.05	0.16*	0.06	0.20***	0.05
CONSTANT TERM	0.01	0.06	0.00	0.05	0.01	0.04	0.00	0.04	0.00	0.05	0.00	0.04
FIT STATISTICS												
Number of observations	376		376		376		376		376		376	
F statistic	6.08***		9.83***		17.60***		17.04***		14.04***		15.90***	
Adjusted R-squared	0.06		0.10		0.11		0.12		0.10		0.11	
BIC	1080.48		1069.35		1063.17		1065.78		1077.63		1074.10	
Likelihood ratio chi2 (null model)			17.18***		23.36***		26.70***		20.75***		24.27***	

Standard coefficients are computed with the OLS regression method. Standard errors are clustered robust. The 38 clusters are based on the organizational affiliation of respondents. *** p < 0.001 ** p < 0.01 * p < 0.05 $^{+}$ p < 0.1.

Table 4. Regression models

Findings

The effect of covariates on the dependent variable is examined before turning to the results related to the independent variables. Model 0 contains all covariates. This model is significant but has a small adjusted R-squared (0.06). As a result of higher "reception skills" or society's greater "conformity expectations", women are expected to show higher compliance – e.g., to policy decisions – than men (Petty and Wegener 1998). The results confirm that female policy actors' preferences regarding the European liberalization have evolved more favorably than their male counterparts'. In contrast, there is no evidence about the effect of age or educational level on policy learning.

I also suspected that the policy actors with a higher political curiosity could have become more favorable to the liberalization process over time due to the political nature of this process. Battaglio (2009) also suggested that such a curiosity increases citizens' ability to understand complex policies (rather than a tendency to reject those policies in the absence of such an ability). The results do not confirm this expectation.

Battaglio and Legge (2009) tested two contradictory hypotheses regarding satisfaction with democracy: "while it might be guessed that (1) satisfied citizens are not prone to change, (2) those who are supportive of the political system may have more confidence and familiarity to know its shortcomings and take steps that they view as reform, such

as privatization" (p. 702). Their results show a positive relation between satisfaction with democracy and support of privatization. In contrast, my results show a negative effect of satisfaction with democracy on the evolution of policy preferences toward the liberalization policy over time. This finding, which is inconsistent with both of Battaglio and Legge (2009)'s hypotheses, suggests that the policy actors who feel satisfied with democracy have more confidence and familiarity with the political system to revise their opinion toward a policy negatively. Interestingly, this effect becomes even more significant when the independent variables are introduced in models 1-5.

A real but limited influence of policy interests on policy learning

Models 1 and 2 examine the effect of personal policy interests and organizational policy interests on policy learning. The likelihood ratio tests as well as the decrease of the BIC index suggest that the two models significantly improve our understanding of the dependent variable, when compared to model 0. The standard coefficients of the variables demonstrate their substantial effect on the dependent variable. Hence, hypotheses 1.1 and 1.2 are validated: policy actors do align their policy preferences with their (personal and organizational) policy interests over time.

For the first time, this study provides support to the ACF's initial contention (Sabatier 1993) that interests drive policy actors' attitudes toward policies. This evidence is based on self-reported measures of interests, which reinforces the view that interests are ideational constructs (Dudley 2007; Laird 1999). At the same time, it suggests that policy actors' belief system is internally consistent (Sabatier and Jenkins-Smith 1993).

Interestingly, the results also give an accurate idea *to what extent* interests do influence policy actors' cognition. Model 3, which combines personal and organizational interests, accounts for 11% of the variation of the dependent variable. This means that interests definitely influence the course of policy actors' thoughts regarding policies. At the same time, this shows that 89% of the variation is explained by other factors. Those factors could of course be other forms of interests which have not been operationalized in this study, but also other types of non-materialistic beliefs and arguments (e.g., "I have become more favorable to this policy because it has improved the public service"). Hence, those results allow rejecting the null hypothesis that interests do not influence policy processes (Hoberg 1996; Nohrstedt 2005). At the same time, they quantitatively confirm that much variation in policy actors' preferences over time results from various kinds of policy beliefs and not only from purely egocentric, material interests (Sabatier and Jenkins-Smith 1993; Kübler 2001; Lau and Heldman 2009; Martinussen 2008).

Policy actors experience an "interest shift"

In this section, I examine whether the importance that respondents give to their interests in their everyday lives has a moderation effect on the relation between their policy interests and the evolution of their policy preferences. In regression models, such effect is assessed with the examination of the interaction term between the moderating variable and the main variable (Hayes, 2013). Model 4 shows that the interaction term between the importance of personal interests and personal policy interests is insignificant. Similarly, Model 5 suggests that the moderation effect of the importance of organizational interests on the relation between organizational policy interests and the evolution of policy preferences is insignificant. Hence, hypotheses 2.1 and 2.2 cannot be validated. In other words, this study suggests that the importance that a policy actor gives to his interests in his everyday life does not influence the alignment of his policy preferences with his policy interests over time.

As mentioned above, prospect theory (Barberis 2012; Kahneman and Tversky 1979) has already been used in the ACF to explain the "devil shift". According to this shift, opposed policy actors see each other as more "devil" than they actually are. As individuals are naturally loss averse, policy actors exaggerate the risks represented by their political opponents (Leach and Sabatier 2005; Sabatier, Hunter and McLaughlin 1987).

Consistent with prospect theory too, the results of the present study suggest the existence of another shift, namely: an "interest shift". Policy actors determine which policy options serve their interests best and maintain or strengthen their preferences for those options in the long run. However, the intensity of this interests-learning relation is independent from the generalized importance of interests. Rather, policy actors are averse to opt for policies which involve personal loss, even if they do not pay much importance to their interests in their everyday lives. This finding also confirms that policy actors' rationality is bounded rather than perfect (Sabatier and Weible 2007; Simon 1991).

Organizational policy interests are more decisive than personal policy interests

The comparison of Models 1, 2 and 3 suggests that organizational policy interests are a more decisive factor of policy learning than personal policy interests. The effect of personal policy interests (Model 1) becomes insignificant when organizational policy interests are introduced in the model (Model 3). The reverse is not true: the effect of organizational policy interests (Model 2) remains significant when personal policy interests are introduced (Model 3). Similar conclusions may be drawn from the analysis of the BIC index: the introduction of organizational policy interests (Model 2) reduces

the BIC more than the introduction of personal policy interests (Model 1). Furthermore, the introduction of personal policy interests next to organizational interests (Model 3) slightly increases the BIC index, compared to a model in which only organizational interests are present (Model 2). Hence, respondents' personal policy interests are statistically less useful to account for the evolution of their policy preferences.

This result could be interpreted in terms of mediation – policy actors perceiving the effect of the liberalization policy on their personal interests "through" the effect of this policy on their organization. A variable B has a mediation effect on the relation between an independent variable A and a dependent variable C only if the following effects are all significant: A on C, A on B, and B on C. If this condition is met, the effect of A on C in a full regression model (with B) is subtracted to the same effect in a partial model (without B) to know the net mediating effect of B (Hayes 2013). This means that the net mediating effect of organizational policy interests (B) on the relation between personal policy interests (A) and the evolution of respondents' policy preferences (C) equals 0.21 – 0.11 = 0.10. In other words, half of the effect of personal policy interests is mediated by the effect of organizational policy interests. This confirms the key role of organizational interests (rather than purely personal interests) in shaping policy actors' preferences over time.

Conclusion

The Advocacy Coalition Framework (ACF: Sabatier & Jenkins-Smith 1993) is a theory which considers the role of policy learning in policy change processes. Policy learning is a cognitive and social dynamic in which new information and knowledge resulting from various experiences and interactions can elicit enduring alterations of policy actors' preferences regarding policies. Those alterations have been the dependent variable of this study.

This study has demonstrated that policy actors tend to align their policy preferences with their interests over time. This tendency, however, is limited. In addition, it is independent from the importance that policy actors give to their interests in their everyday lives, which suggests that policy actors are subject to a sort of "interest shift", when they assess policy options. Finally, when policy actors revise their policy preferences, the perceived impact of policies on their own material well-being (personal policy interests) is less decisive than the perceived impact of policies on the material prosperity of the organization which they are affiliated to (organizational policy interests).

As suggested by previous studies (Hoberg 1996; Norhstedt 2005), these results shed new light on the exact influence of policy actors' interests on policy learning and policy change. The hypotheses of the research were based on implications of the ACF model of the individual, drawn from organizational research (Simon 1991) and behavioral economics (prospect theory: Kahneman and Tversky 1979). This model recognizes the bounded rationality of policy actors, the ideational character of interests, as well as a double logic of normative reasoning – a logic of consequences and one of appropriateness. As the results fit those assumptions, they provide new support to the validity of this model. This is not only relevant for the community of ACF researchers but also for scientists using the various policy approaches based on a similar model of the individual (Dunlop and Radaelli 2013; Zito and Schout 2009), as well as the researchers looking at the role of interests in social and political attitudes (see Sears and Funk 1991; as well as subsequent studies).

This study opens several avenues for future research. First, future studies could look at the social practices and institutional settings that increase or decrease the influence of interests on policy learning and policy change (i.e., the contexts in which the "interest shift" is stronger or weaker). Second, the internal consistency among answers to a cross-sectional survey can be artificially higher than in a panel study. If possible, longitudinal data should be privileged in future studies on policy learning. Third, I used self-reported

measures for the importance policy actors pay to their interests in their everyday lives. This can draw socially desirable answers. This potential problem could be overcome by using vignette questions, in which respondents have to report how they would behave in given contexts. Fourth, this study used a classical ACF approach, in which the focus is on one output of policy learning: the evolution of policy actors' preferences (Sabatier and Jenkins-Smith 1993). However, individual learning is also a process of knowledge acquisition and translation (Heikkila and Gerlak 2013). As knowledge acquisition and translation also contribute to the emergence of shared understandings of policy problems and solutions (Leach et al. 2014), future research could also look at the effects of psychological factors, such as interests, on this process.

To conclude, this study suggests that policy actors assess and revise their policy preferences over time using filtering lenses such as the perceived consequences of policy programs on their material interests. However, the influence of this filter is rather limited and policy actors seem open to many other forms of arguments. To policy practitioners, this finding suggests that policy actors could be effectively convinced of the strengths and weaknesses of a policy program with arguments based on various values or societal norms and not only on their interests, which confirms one of the fundamental intuitions of the ACF.

References

Allison P. (1990) Change scores as dependent variables in regression analysis. *Sociological Methodology* 20: 93-114.

Allison P. (2002) *Missing data. Quantitative Applications in the Social Sciences*. Thousand Oaks, CA: Sage.

Atkinson R. and Flint J. (2001) Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social Research Update nr. 33.*, University of Surrey, Guildford, UK.

Barberis N. (2012) Thirty years of prospect theory in economics: A review and assessment. *Working Paper Series nr. 18621*, Cambridge, MA: National Bureau of Economic Research.

Battaglio R. (2009) Privatization and citizen preferences: A cross-national analysis of demand for private versus public provision of services in three industries. *Administration & Society* 41: 38-66.

Battaglio R. and Legge J. (2009) Self-interest, ideological/symbolic politics, and citizen characteristics: A cross-national analysis of support for privatization. *Public Administration Review* 69: 697-709.

Béland D. (2009) Ideas, institutions, and policy change. *Journal of European Public Policy* 16: 701-718.

Birkland T. (2006) *Lessons of Disaster: Policy Change after Catastrophic Events*. Washington, DC: Geogetown University Press.

Brummel R., Nelson K., Souter S., Jakes P. and Williams D. (2010) Social learning in a policy-mandated collaboration: Community wildfire protection planning in the eastern United States. *Journal of Environmental Planning and Management* 53:681-99.

Clore G. and Schnall S. (2005) The influence of affect on attitude. In: Albarracín D., Johnson B. and Zanna M (eds) *The handbook of Attitudes*. Mahwah, NJ: Lawrence Erlbaum Associates.

Costello A. and Osborne J. (2005) Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation* 10. Accessed October 15, 2015. http://pareonline.net/getvn.asp?v=10&n=7.

Craney T. and Surles J. (2002) Model-dependent variance inflation factor cutoff values. *Quality Engineering* 14:391-403.

Darke P. and Chaiken S. (2005) The pursuit of self-interest: Self-interest bias in attitude judgment and persuasion. *Journal of Personality and Social Psychology* 89:864-83.

Declercq C. (2000) L'ouverture du marché de l'électricité II. La nouvelle organisation du secteur (The opening of the electricity market II. The new organization of the sector). *Courrier Hebdomadaire du CRISP* nr. 1689-1690.

Declercq C. and Vincent A. (2000a) L'ouverture du marché de l'électricité III. Organisation et stratégie des acteurs (The opening of the electricity market III. Organization and strategy of actors). *Courrier Hebdomadaire du CRISP* nr. 1695.

Declercq C. and Vincent A. (2000b) L'Ouverture du marché de l'électricité I. Cadre Institutionnel (The opening the electricity market I. Institutional framework). *Courrier Hebdomadaire du CRISP* nr. 1684.

Dehnhardt A. (2014) The influence of interests and beliefs on the use of environmental cost-benefit analysis in water policy: The case of German policy-makers. *Environmental Policy and Governance* 24:391-404.

Dehousse F. and Gadisseur F. (2002) La libéralisation du secteur ferroviaire et ses conséquences en Belgique. *Courrier Hebdomadaire du CRISP* nr. 1771-1772.

Diduck A., Sinclair A., Hostetler G. and Fitzpatrick P. (2012) Transformative learning theory, public involvement, and natural resource and environmental management. *Journal of Environmental Planning and Management* 55:1311-30.

DiStefano C., Zhu M. and Mîndrilă D. (2009) Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation* 14:1-11.

Dudley G. (2007) Individuals and the dynamics of policy learning: The case of the Third Battle of Newbury. *Public Administration* 85:405-28.

Dunlop C. and Radaelli C. (2013) Systematising policy learning: From monolith to dimensions. *Political Studies* 61:599-619.

Dunlop C. and Radaelli C. (submitted) Learning in the bath-tub: The micro and macro dimensions of the causal relationship between learning and policy change.

Elliott C. and Schlaepfer R. (2001) The advocacy coalition framework: Application to the policy process for the development of forest certification in Sweden. *Journal of European Public Policy* 8:642-61.

European Commission (1999) Liberalisation of network industries. economic implications and main policy issues. *Reports and Studies nr. 4*. Brussels, Belgium: European Commission / Directorate-General for Economics and Financial Affairs.

Fishbein M. and Ajzen I. (2010) *Predicting and Changing Behavior. The Reasoned Action Approach*. New York, NY: Taylor & Francis.

Fox J. (2008) *Applied Regression Analysis and Generalized Linear Models*. Thousand Oaks, CA: Sage.

Genieys W. and Smyrl M. (2008) *Elites, Ideas, and the Evolution of Public Policy*. Basingstoke, United Kingdom, Palgrave.

Genoud C. (2004) Libéralisation et régulation des industries de réseau: diversité dans la concurrence? (Liberalization and regulation of network industries : diversity in competition ?). *Revue Internationale de Politique Comparée* 11:187-204.

Geradin D. (2006) *The Liberalization of Network Industries in the European Union: Where Do We Come from and Where Do We Go?*. Helsinki, Finland: Economic Council of Finland.

Gilardi F. (2010) Who learns what in policy diffusion processes?. *American Journal of Political Science* 54:650-66.

Glachant J.-M. and Perez Y. (2011) The liberalization of electricity markets. In: Finger M. and Künneke R. (eds) *International Handbook of Network Industries. The Liberalization of Infrastructure*. Northampton, MA: Edward Elgar.

Greve H. (2011) Microfoundations of management: behavioral strategies and levels of rationality in organizational action. *The Academy of Management Perspectives* 27: 103-119.

Heikkila T. and Gerlak A. (2013) Building a conceptual approach to collective learning: lessons for public policy scholars. *Policy Studies Journal* 41:484-512.

Hershberger S. (2005) Factor scores. In: Everitt B. and Howell D. (eds) *Encyclopedia of Statistics in Behavioral Science*. New York, NY: John Wiley.

Hoberg G. (1996) Putting ideas in their place: A response to "Learning and change in the British Columbia forest policy sector". *Canadian Journal of Political Science* 26:135-44.

Holland R., Verplanken B. and van Knippenberg A. (2003) From repetition to conviction: Attitude accessibility as a determinant of attitude certainty. *Journal of Experimental Social Psychology* 39: 594-601.

Hsu S. (2005) Advocacy coalitions and policy change on nuclear power utilization in Taiwan. *The Social Science Journal* 42:215-29.

Hu L. and Bentler P. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 6: 1-55.

Jacobs K. and Barnett P. (2000) Policy transfer and policy learning: A study of the 1991 New Zealand health services taskforce. *Governance* 13: 185-213.

Johnson D. (2005) Two-wave panel analysis: Comparing statistical methods for studying the effects of transitions. *Journal of Marriage and Family* 67: 1061-75.

Kahneman D. (2011) *Thinking Fast and Slow*. New York, NY: Farrar, Straus and Giroux.

Kahneman D. and Tversky A. (1979) Prospect theory: An analysis of decision under risk. *Econometrica* 47:263-91.

Kaplowitz M., Haddock G. and Levine R. (2004) A comparison of web and mail survey response rates. *Public Opinion Quarterly* 68:94-101.

Kline R. (2005) *Principles and Practice of Structural Equation Modeling*. New York, NY: The Guilford Press.

Kolenikov S. (2009) Confirmatory factor analysis using confa. *The Stata Journal* 9: 329-73.

Kübler D. (2001) Understanding policy change with the advocacy coalition framework: An application to Swiss drug policy. *Journal of European Public Policy* 8:623-41.

Kvavilashvili L., Mirani J., Schlagman S. and Kornbrot D. (2003) Comparing flashbulb memories of September 11 and the death of Princess Diana: Effects of time delays and nationality. *Applied Cognitive Psychology* 17: 1017-1031.

Laird F. (1999) Rethinking learning. *Policy Currents* 9:3-7.

Larzelere R., Ferrer E., Kuhn B. and Danelia K. (2010) Differences in causal estimates from longitudinal analyses of residualized versus simple gain scores: Contrasting controls

for selection and regression artifacts. *International Journal of Behavioral Development* 34: 180-89.

Lau R. and Heldman C. (2009) Self-interest, symbolic attitudes, and support for public policy: A multilevel analysis. *Political Psychology* 30:513-37.

Leach W. and Sabatier P. (2005) To trust an adversary: Integrating rational and psychological models of collaborative policymaking. *American Political Science Review* 99: 491-503.

Leach W., Weible C., Vince S., Siddiki S and Calanni J. (2014) Fostering learning through collaboration: Knowledge acquisition and belief change in marine aquaculture partnerships. *Journal of Public Administration Research and Theory* 24:591-622.

March J. and Olsen J. (2008) The logic of appropriateness. In: Moran M., Rein M. and Goodin R. (eds) *The Oxford Handbook of Public Policy*. New York, NY: Oxford University Press.

Margalit Y. (2013) Explaining social policy preferences: Evidence from the great recession. *American Political Science Review* 107:80-103

Martinussen P. (2008) Self-interest or ideology? The attitude of Norwegian medical specialists towards private welfare services. *Scandinavian Political Studies* 31:149-72.

McGraw A., Larsen J., Kahneman D. and Schkade D. (2010) Comparing gains and losses. *Psychological Science* 21:1438-45.

Meseguer C. (2004) What role for learning? The diffusion of privatisation in OECD and Latin American countries. *Journal of Public Policy* 24: 299-325.

Montpetit E. (2007) Governance and policy leanring in the European Union: A comparison with North America. *Journal of European Public Policy* 16: 1185-1203.

Moynihan D. (2008) Learning under uncertainty: Networks in crisis management. *Public Administration Review* 68:350-65.

Moyson S. and Aubin D. (2011) La régulation du rail en Belgique: Analyse des régimes insitutionnels depuis 1832 [The regulation of railways in Belgium : Analysis of the institutional regimes since 1832]. *Courrier Hebdomadaire du CRISP* 2114-2115 : 1-88.

Neisser U., Winograd E., Bergman E., Schreiber C., Palmer S. and Weldon M. (1996) Remembering the earthquake: Direct experience vs. hearing the news. *Memory* 4: 337-357.

Nohrstedt D. (2005) External shocks and policy change: Three Mile Island and Swedish nuclear energy policy. *Journal of European Public Policy* 12:1041-59.

Pemberton H. (2003) Learning, governance and economic policy. *British Journal of Politics and International Relations* 5: 500-524.

Petty R. and Wegener D. (1998) Attitude change: Multiple roles for persuasion variables. In: Gilbert D., Fiske S. and Lindzey G. (eds) *The Handbook of Social Psychology*. New York, NY: McGraw-Hill.

Hayes A. (2013) *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Real-Dato J. (2009) Mechanisms of policy change: A proposal for a synthetic explanatory framework. *Journal of Comparative Policy Analysis: Research and Practice* 11: 117-143.

Robbins S., Judge T., Millett B. and Boyle M. (2013) *Organizational Behaviour*. Frenchs Forest, Australia, Pearson Australia.

Roediger H. (2012) The curious complexity between confidence and accuracy in reports from memory. In: Nadel L. and Sinnott-Armstrong W (eds) *Memory and Law*. New York, NY, Oxford University Press.

Sabatier P. (1987) Knowledge, policy-oriented learning, and policy change. *Knowledge: Creation, Diffusion, Utilization* 8:649-92.

Sabatier P. (1993) Policy change over a decade or more. In: Sabatier P. and Jenkins-Smith H. (eds) *Policy Change and Learning*. Boulder, CO: Westview Press.

Sabatier P. and Weible C. (2007) The advocacy coalition framework: Innovations and clarifications. In: Sabatier P. (ed) *Theories of the Policy Process*. Boulder, CO: Westview Press.

Sabatier P. and Jenkins-Smith H. (1993) *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, CO: Westview Press.

Sabatier P. and Jenkins-Smith H. (1999) The advocacy coalition framework: An assessment. In: Sabatier P. (ed) *Theories of the Policy Process*. Boulder, CO: Westview Press.

Sabatier P., Hunter S. and McLaughlin S. (1987) The devil shift: Perceptions, and misperceptions of opponents. *Western Political Quarterly* 40:449-76.

Sears D. and Funk C. (1991) The role of self-interest in social and political attitudes. In: Mark P. (ed.) *Advances in Experimental Social Psychology*. New York, NY: Academic Press.

Shafir E. (2013) *Introduction*. In: Shafir E. (ed) *The behavioral foundations of public policy*. Princeton, NJ: Princeton University Press.

Simon H. (1991) Bounded rationality and organizational learning. *Organization Science* 2:125-34.

Svenson O. and Maule J. (1993) *Time Pressure and Stress in Human Judgement and Decision Making*. New York, NY: Springer Science.

Vandenbos G. (2007) *APA Dictionary of Psychology*. Washington, DC: American Psychological Association.

Weible C., Sabatier P. and McQueen K. (2009) Themes and variations: Taking stock of the advocacy coalition framework. *Policy Studies Journal* 37:121-40.

Whitley B. and Kite M. (2013) *Principles of research in behavioral science*. New York, NY: Routledge.

Witting A. and Moyson S. (2015). Learning in post-recession framing contexts: Framing UK road policy. In: Schiffino N., Tasking L., Donis C. and Raone J. (eds) *Organizing after crisis : The challenge of learning*. Brussels: Peter Lang.

Zito A. and Schout A. (2009) Learning theory reconsidered: EU integration theories andlearning. *Journal of European Public Policy* 16:1103-23.

Appendix – Items of the variables

Change scores: change, between 1997 and 2012, in respondents' favourableness to…	Mean	Std Dev	Correlation with Total	Alpha without this variable
The introduction of competition in the railway transport of freight	0.04	0.95	0.48	0.50
The introduction of competition in the international railway transport of passengers	0.12	0.94	0.57	0.46
The unbundling of operations on, and management of, the railway infrastructure	0.06	0.80	0.20	0.61
The application of regulation by independent regulatory bodies in the railways	0.03	0.75	0.31	0.57
Total Cronbach coefficient alpha: 0.62				

Table 5. Items of the dependent variable in the rail sector.

Change scores Change, between 1999 and 2012, in respondents' favourableness to…	Mean	Std Dev	Correlation with Total	Alpha without this variable
The introduction of competition in the generation and supply of high-voltage electricity (professional customers)	-0.11	1.02	0.59	0.62
The introduction of competition in the generation and supply of low-voltage electricity (households)	-0.39	1.13	0.61	0.61
The unbundling of generation/supply and transport/distribution of electricity	-0.18	1.03	0.50	0.67
The application of regulation by independent regulatory bodies in the electricity sector	-0.42	0.98	0.37	0.75
Total Cronbach Coefficient Alpha: 0.72				

Table 6. Items of the dependent variable in the electricity sector.

'The European liberalization policy process has had a positive influence on my…'	Mean	Std Dev	Correlation with Total	Alpha without this variable
Material working conditions	2.71	0.98	0.60	0.68
Professional opportunities	2.94	1.19	0.59	0.68
Salary	2.44	1.06	0.59	0.68
Total Cronbach Coefficient Alpha: 0.76				

Table 7. Items of Personal policy interests.

'I give some importance to my…'	Mean	Std Dev	Correlation with Total	Alpha without this variable
Material working conditions	3.91	0.81	0.46	0.66
Professional opportunities	3.57	0.85	0.45	0.67
Salary	3.91	0.69	0.62	0.44
Total Cronbach Coefficient Alpha: 0.70				

Table 8. Items of the Generalized importance given to personal interests.

'The European liberalization policy process has had a positive influence on…'	Mean	Std Dev	Correlation with Total	Alpha without this variable
The success of my organization	2.90	1.17	0.63	
The finances of my organization	2.55	1.07	0.63	
Total Cronbach Coefficient Alpha: 0.77				

Table 9. Items of Organizational policy interests.

'I give some importance to…'	Mean	Std Dev	Correlation with Total	Alpha without this variable
The success of my organization	4.46	0.62	0.58	
The finances of my organization	4.39	0.63	0.58	
Total Cronbach Coefficient Alpha: 0.73				

Table 10. Items of the Generalized importance given to organizational interests.

i For example, in the round 2012 of the European Social Survey, the mean of the variable "imprich" (importance given to "being rich, having money, and expensive things") in Belgium was 4.12 while it was 3.99 with a standard deviation of 1.47 in the other countries.

[ii] The relevant policy actors were first identified thanks to a documentary analysis. Then, a snowballing (or "chain referral") sampling method was applied thanks to a campaign of 33 preliminary semi-structured interviews. Finally, within each participating organization, I included in the survey all members from the highest to the lowest organizational level where, according to the interviewees, at least several actors could be identified as relevant respondents to my survey. I applied this "hierarchical correction" (i.e. including all people at the lowest relevant hierarchical level) to compensate for the tendency of the snowball sampling procedure to over-represent "well-connected" actors and to under-represent "unconnected" actors (Atkinson and Flint 2001).

There are at least three reasons to think that the survey allows to look at long-term policy learning in a valid way. First, most respondents had much professional seniority. Indeed, an additional question of the survey demonstrates that 67.93% of the respondents had worked for more than 10 years in their sector; 13.32% between 5 and 10 years; 14.40% between 2 and 4 years; and only 4.35% one year or less.

Second, the implementation of the European liberalization policy is a long-term process that began much before that the first Belgian-level policy decision was made (e.g., European-level consultations of Belgian actors, preparation of the implementation within each national industry, etc.). Since then, this process has progressively unfolded. Still nowadays, there are very important decisions that are and need to be made, in each sector, to implement the liberalization policy in Belgium (e.g., the introduction of competition in the national railway transport of passengers). This means that, not only the most experienced policy actors, but also the less experienced ones are able to compare periods before and periods after that important policy changes related to the liberalization policy occurred.

Third, the analyses were repeated on the 32.07% of respondents with less ten years of seniority. Those respondents, compared to their more experienced counterparts, reported alterations of their policy preferences that are not significantly different. In addition, the regression analyses on this specific set of respondents lead to similar results.

[iii] The following types of organizations were invited to participate in the survey within each sector: all competent public administrations, all competent regulatory agencies, the infrastructure manager, the

incumbent, all new entrants, as well as the interest groups representing the workers (e.g., trade unions or associations of train drivers) and the different types of companies (e.g., associations of public-sector train companies or associations of green producers). Beyond this set of organizations, there is a broader set of actors involved in mobility or energy issues (e.g., environmental organizations). However, the preliminary qualitative interviews of the research suggested that their role in the implementation of the liberalization process was not significant. Hence, they were not invited to participate in the survey.

The survey was relayed among policy actors within 16 organizations in the railways and 35 organizations in the electricity sector. This is consistent with the structure of the two sectors: in Belgium, the railways are a federal competence and the incumbent still holds a prominent role in the exploitation of the network (it still holds a monopoly on national services of passenger transport). In contrast, the competences on the electricity sector are shared among the federal State and the Regions. In addition, a myriad of new private companies (or "new entrants") compete with the incumbent for the provision of electricity to citizens and companies. Hence, it is normal to find more organizations in the electricity sector than in the rail sector.

In the railways, 12 (75 %) out of the 16 organizations participated in the survey, while in the electricity sector, there were 26 (74 %) participating organizations out of the 35 that were contacted. A higher (absolute) number of organizations declined the invitation in the electricity sector, probably because of the higher number of smaller organizations in this sector: those organizations are not able or willing to devote resources to the participation in surveys. Within the participating organizations, in the railways, 199 out of 560 (35.53%) solicited policy actors participated in the survey, while in the electricity sector, 214 out of 696 (30.75%) policy actors filled in the questionnaire, which is fairly similar.

iv In the exploratory factor analysis (EFA: Costello and Osborne 2005), principal axis factoring was used. This is appropriate when items are not normally distributed (shapiro-wilk tests were conducted on each change score and rejected the normality hypothesis). Factors with eigenvalues higher than 1.0 were retained (factors 1 and 2 had eigenvalues of 1.25 and -0.02 in the rail sector; they had eigenvalues of 1.53 and -0.04 in the electricity sector). After rotation, all items had loadings equal or higher to 0.32. Most researchers consider that 0.30 is a reasonable cut-off value to decide whether an item should or should not be retained in a factor (e.g., Costello and Osborne 2005; DiStefano, Zhu and Mîndrilă 2009; Whitley and Kite 2013, 345). Hence, the four items were retained in each of the two sectors.

Confirmatory factor analysis (CFA: Hu and Bentler 1999; Kline 2005) was performed with maximum likelihood procedure. Starting values of the parameters were set to one, except for the covariance parameters, which were set to 0.5. This is appropriate when working on standardized variables with positive covariances (Kolenikov 2009). Factors scores were computed with the Bartlett method because this method provides unbiased scores (Hershberger 2005). In general, good model fit is indicated by values of the root mean square error of approximation (RMSEA) lower than 0.60, values of the comparative fit index (CFI) higher than 0.90, values of the standardized root mean square residual (SRMR) lower than 0.08, as well as a p-values of the chi square test higher than 0.05 (i.e., failure to reject the null hypothesis of good fit). Note, however, that RMSEA = 0.00 and CFI = 1.00 can indicate that $\chi^2 < df$, rather than a perfect fit. AIC and BIC indices can also be used to compare factor structures, lower AIC and BIC indicating better structures.

In this study, the four-item structure of the dependent variable has a RMSEA of 0.00 and a CFI of 1.00. Deleting change score 3 ("The unbundling of operations on, and management of, railway infrastructure") and change score 4 ("The application of regulation by independent regulatory bodies in the railways") would slightly improve the AIC/BIC indices of the CFA as well as the Cronbach alpha (α_c), which is acceptable in electricity sector ($\alpha_c = 0.72$) but, admittedly, a little bit questionable in the rail sector ($\alpha_c = 0.62$). There are, however, three reasons to keep the four-item structure. First, α_c are not weighted whereas factor scores depend on the loading of each item which compose the factor structure. Hence, a factor is a more appropriate measure of the dependent variable than a simple addition of the change scores. Second, and this is probably a consequence of the first reason, the other fit statistics of the CFA (chi square test and SRMR) indicate a very good fit. Third, the four-item structure is grounded in the literature on the European liberalization process of network industries, which suggests that this structure is more representative of this policy than shorter structures (Genoud 2004; Geradin 2006).

[v] Individual predictions raised fewer questions: the proportion of studentized residuals falling outside [-2;+2] as well as the Cook's distance had acceptable levels in all simple regression models. This is still the case in the clustered robust models.