Socio-Economic Review, 2019, Vol. 0, No. 0, 1–23
doi: 10.1093/ser/mwz043
Article

OXFORD

Article

How economics frames political debates: macroeconomic forecasting in the French planning commissions

Thomas Angeletti *

Centre National de la Recherche Scientifique (IRISSO, Université Paris Dauphine, PSL University), Paris, France

*Correspondence: thomas.angeletti@dauphine.psl.eu

Abstract

This article analyzes how economics can frame political debates using economic policy devices. It examines the FIFI macroeconomic model's introduction into the French planning processes of the mid-1960s and argues that economists perform two operations, selection and qualification, which play a key role in structuring political debates on the French economy's future. Building on archives and in-depth interviews, I show how the FIFI model was a central component of the Sixth Plan (1971–1975): it was designed to produce simulations of state intervention in the French economy and organize planning commissions debates. Studying the struggles and controversies surrounding this model and the economic policies promoted by it, the article ultimately shows how certain political options are made publicly available while others are discarded.

Key words: economic sociology, forecasting, performativity, planning, economic policy

JEL classification: A14 Sociology of Economics, Z18 Public Policy, E47 Forecasting and Simulation: Models and Applications

1. Introduction

Economic forecasting has been a highly politicized issue since the 2007–2008 crisis. Failure to foresee the crisis, and especially to prevent it, triggered strong critiques of macroeconomic forecasting in particular, and a mistrust of economics in general. This shows that forecasting is a deeply political activity. Yet, while forecasting has been denounced over its inability to predict the crisis, it has not been challenged as much regarding the range of political options it offers/does not offer, in other words, for its influence in the framing of political debates.

Although the results of economic forecasting are public and sometimes much debated, their construction is a considerably more private affair (Evans, 2007). Economists make

choices when making their models: they select the type of world to be represented in their instruments. Moreover, macroeconomic models are not used merely to forecast where the economy is heading for the next 3, 6, 9 months or even years. Actually, it is quite clear that the forecasting issue is not really about accuracy (Beckert, 2016; Fligstein *et al.*, 2017). These models present different handles on how to influence the economy, simulate public policy and define how the state could steer the economy in a desirable way. Economists choose the possibilities these instruments have to change or affect the direction of the economy. This is particularly the case when they hold prominent institutional positions, which lend more weight to their work. And then, behind every scientific choice lies a political dimension.

This article examines the emergence of and controversy surrounding an economic policy device (Hirschman and Berman, 2014), which played a key role in the much-debated French planning processes of the mid-1960s. At the time, the growing presence and influence of economists in the French administration, especially with the development of national accounting, contributed to building a state driven by scientific expertise. Macroeconomic forecasting was central to this project at a time when the administration still had a virtual monopoly on forecasting. In this environment, a small laboratory of engineers developed the FIFI macroeconomic model to offer a view of the future of the French economy and propose economic policies that would successfully steer the course of the economy. FIFI was an extremely important model: it was designed to provide planning commissions with policy simulations so that they could decide on the political choices to be made for the next 5 years. But more than that, the FIFI model had a hand in structuring political debate between senior civil servants, employers and union representatives, and government representatives.

Methodology

Evidence for this study includes archival research, interviews and qualitative textual analysis conducted between 2008 and 2013.

First, I conducted extensive archival research based on two sources: (i) the archives from the Programs Division where the FIFI model was developed, available from the Archive Center of the Ministry of the Economy and Finance (CAEF), and (ii) the archives of the Planning Commissariat's (*Commissariat Général au Plan*) main commission, the Commission for the Economy and Financing (*Commission de l'Économie Générale et du Financement*, referred to hereafter as the CEGF), from the collection of the Center of Contemporary Archives (CAC). I focused in particular on the minutes of the meetings of this commission, as well as on the documents distributed to its participants.

Secondly, I conducted forty interviews with members of the CEGF, the main creators of the FIFI model, and staff at the French National Institute of Statistics and Economic Studies (INSEE). The interviews were designed in relation to the archival research as part of an iterative process. Although they included a biographical dimension, they focused mainly on forecasting making and utilization practices, and avoided general discussion of the planning period. For that reason, I often used archival documents to discuss specific points with interviewees and keep them within the relevant timeframe and place.

Thirdly, I conducted a qualitative text analysis of the period's leading newspapers, particularly coverage of the Sixth Plan, and of the numerous biographical testimonies from senior civil servants (for an enlightening example, see Fourquet, 1980). These testimonies offer

excellent insight into the sense of heroism that epitomizes this elite political and administrative generation (Gaïti, 2002) and their claims to responsibility for organizing and guiding the economy.

The article proceeds as follows. I begin by explaining why forecasting is a good lens through which to approach the framing of political debates and introduce two concepts for this purpose: selection and qualification. I then look into the 1960s laboratory of the French economy: I analyze the conception of the FIFI macroeconomic model by examining which entities the modelers selected to feature in the model—selection—and which properties they attributed to these entities—qualification. I lastly demonstrate how the figures produced by the FIFI model circulated around the planning commissions and how they contributed to framing the terms of the political debate on the future of the French economy. The article's conclusion opens up potential avenues of research by viewing the economist's work through these two operations: selection and qualification.

2. Forecasting: selection and qualification in economics

Macroeconomics appears at the crossroads of many lines of research in economic sociology: it examines the professional authority, institutional position and cognitive infrastructure of economists (Hirschman and Berman, 2014). The first two dimensions have been largely documented. In France, macroeconomic forecasting developed within state institutions and, as was generally the case with economics, influenced governments by means of its growing place in the administration and state apparatus (Lebaron, 2000; Fourcade, 2009; Friedman, 2009, 2013). Forecasting was cultivated especially by engineers: their involvement in the development of economics has been highlighted (Porter, 1995; Le Van-Lemesle, 2004; Fourcade, 2009), as has their contribution to the creation of national accounting methods (Fourquet, 1980; Desrosières, 1998; Miller and Rose, 1990; Vanoli, 2005).

But it is the question of cognitive infrastructure that prevails here. In that respect, and even though forecasting has been regarded as a strong device for the spread of economic theories in policy-making (Hall, 1989; Lebaron, 2000; Fourcade, 2009; Evans, 1997), it has rarely been analyzed from a sociological point of view. Evans especially showed the practical making of forecasts from a science and technology perspective taking the example of British macroeconomic modelers (Evans, 1997, 1999). Other studies have underlined how, in certain circumstances, forecasters enable policymakers and business representatives to participate in the making of forecasts (Reichmann, 2013). Recently, Beckert showed that forecasts are mainly used by actors, 'to help them behave *as if* they know the future present' and are seen in that regard as 'cognitive anchors' (Beckert, 2016, pp. 217–218), which play a role in the making of imagined futures.

Taking the case of French planning, this article asks: if macroeconomic forecasting entails a certain 'style of reasoning' (Hacking, 1982, 1992a, 1992b), what are its effects on the way political options are made/not made available publicly? This echoes another broad shift in sociology toward revisiting the uses and effects of economics. These effects have come under growing scrutiny with the rise of performativity studies (for instance, MacKenzie *et al.*, 2007; Callon, 1998). Many of these well-known studies have set out to demonstrate that economic devices do not just describe reality, but are closely involved in making it (Callon, 1998; MacKenzie, 2006). The strongest version of the performativity argument—with reference to the strong program (Bloor, 1976)—or the Barnesian version in

MacKenzie's terms posits that the most important effect of economics is to make agents behave the way the theory expects them to.

I argue that the indirect effects of the spread of economics and its style of reasoning are equally important, if not more so. In keeping with Beckert (2016), what matters is not whether macroeconomic forecasts 'perform' the future: the future is characterized by its fundamental uncertainty (Beckert, 1996; Beckert and Bronk, 2018). Rather, one of the indirect effects examined in this article is how the spread of economics and its style of reasoning play an important role in structuring the way individuals and social groups think about political options, about what is possible/not possible, and hence is deserving of specific sociological attention. It relates to how certain phenomena acquire a public dimension and to the framing of public debates (Gusfield, 1984). Frame analysis refers primarily to Goffman's conception—for whom frames are 'schemata of interpretation' that enable individuals to 'locate, perceive, identify, and label' relevant events (Goffman, 1974, p. 21)—and it has been especially used in the study of social movements in recent decades (Benford and Snow, 2000). Although experts and science are not its main focus, framing appears particularly relevant to study the effects of economics (Fligstein *et al.*, 2017). Economics plays a key role in how certain phenomena are put forward as public problems and others are discarded. Economics—like statistics—offers a 'common language' (Desrosières, 2008, p. 77) by promulgating a certain style of reasoning. Here, I advance a conceptual framework developed to characterize two different parts of the economist's work, and propose a way to specify—and hopefully renew—the sociological approach to this phenomenon. I identify two main operations performed by economists, directly related to the way political debates are structured: *selection* and *qualification*. By selection, I mean the operation by which economists choose the entities and phenomena represented in their devices, such as inequalities, unemployment, wages and social hierarchy. By qualification (Boltanski and Thévenot, 2006; Boltanski, 2011), I mean the operation by which economists attribute a certain state to these entities and phenomena: for instance, wages can be characterized as an instrument of economic policy or simply as the outcome of an economic policy. By means of these two operations, economics plays a significant role in framing—and sometimes reducing—the terms of political debates. In the following, I define the two terms more precisely and explain why the existing literature has not fully addressed these terms before now.

Selection designates the operation by which economists choose the phenomena that will feature in their work—and more importantly in their devices—from among the countless phenomena occurring in the social world. In this process, economists select the phenomena they consider as the most decisive and important. In so doing, they rule out a proportion of the many actions, practices, experiences and phenomena which form the social world. A particularly enlightening way to look at this selection process—as proposed and demonstrated in the following sections—is to focus on economic policy devices which embrace a macroeconomic view: in our case, the French economy. Given the broad-based objective of such devices, we can see what is represented in the device, and what stays outside of it. Feminist critiques of GDP are an example of just such a case: GDP does not take into account the important domestic tasks carried out by women, activities that should be considered as proper work and counted as a positive contribution to GDP (Waring, 1988). The selection process is not specific to economics: it has even been referred to as the main activity of institutions (Boltanski, 2011). It is precisely because economics plays a key role in political institutions, in other words on account of economists' institutional position, that the

selection they perform can have an effect on the available political options, on how citizens represent what is a legitimate or illegitimate political proposal, and thereby on framing the political debates. Selection is therefore an important feature of an economic style of reasoning. However, economics does not just select the social phenomena to be considered: it also defines how the selected phenomena should be considered. This second operation is hereinafter referred to as qualification.

Qualification refers to the way economists assign to their selected entities and phenomena the qualities which define them. Where an entity can be considered from potentially unlimited angles, qualification specifies how that entity should be considered.[1] The notion of qualification stems from legal thinking: 'from a fact which, in its "natural" state, takes such form as a good changing hands from one individual to another, we first need to decide whether it should be called a "sale", a "donation" or "theft" before applying the relevant regime that the law requires' (Cayla, 1993, p. 18, own translation). In a legal context, qualification is required for rules to be applied (Thévenot, 1992). But more generally, qualification is one of the main activity of institutions. Institutions indeed define 'the *whatness of what is* and, inextricably, what matters, what has value' (Boltanski, 2011, p. 56). In this semantic conception of institutions, qualification refers to 'the operations which indivisibly fix the properties of beings and determine their worth' (*Ibid.*, p. 9). Qualification defines how the social world entities should be conceived and generally also assigns them a specific name (Douglas, 1986; Jasanoff, 2008). I propose to use this conception of qualification in the study of economics. Critiques of economics—a persistent theme in economic sociology—usually focus on and provide a good understanding of the qualification process. Objections against the *homo economicus* model, for instance, are often based on the fact that individual behavior is seen through a highly specific and somewhat reductionist lens: Bourdieu called it an 'anthropological monster' (Bourdieu, 2005, p. 209). Bourdieu specified, while commenting on the work of Gary Becker, that 'any behavior is conceived as instrumental' in this perspective, which necessarily leaves out all practices not based on a means to an end logic (Bourdieu, 2017, p. 238, own translation). Critiques of GDP have also focused on qualification: pollution and environmental damage are characterized as factors in GDP growth (e.g. Stiglitz *et al.*, 2009). As we will see later, the definition of individuals as *households* or *workers* implies a very different conception of their activities, their possibilities and their political power. We must bear in mind that, first, qualification of an entity always disqualifies the other ways the entity could be considered (Cayla, 1993). Second, qualification is an unequal process. When it comes to fixing and embedding a qualification in social reality, legitimacy and power play an important part: economists in institutional positions of power stand a greater chance of their qualification having consequential effect.

From this point of view, the pitfall of strong performativity (MacKenzie, 2006) lies in the idea that the most important effect of economics is to make agents behave in the way the theory expects. This conception of economic effects appears excessively narrow and detracts from the broader contributions of economics. Indeed, economics has another major political responsibility: it strongly influences and structures public debate by showing which political

1 Valuation (Fourcade, 2011; Lamont, 2012) and quantification (Desrosières, 2008; Espeland and Stevens, 2008) can be considered as two processes in which a qualification takes place. Yet, it is beyond the scope of the present article to enter into a detailed discussion of the relationship between these forms.

actions are available and legitimate. Rather than conceptualizing forecasting as a peaceful co-production (Reichmann, 2013), we should give attention to the social groups that can actually take part in the process of producing forecasts and those groups that cannot or will not participate. The two selection and qualification operations are particularly helpful to understanding the role of economics in framing political debates.

3. The laboratory of the French economy

Macroeconomic forecasting's rise to a significant position in political debates, especially in the second half of the 20th century, was driven by the emergence of national economies as entities in their own right (Mitchell, 1998, 1999, 2002, 2005). The work of the Programs Division (*Division des Programmes*) at the French National Institute of Statistics and Economic Studies (INSEE) is to be placed in this context. The division brings together economic engineers and statisticians and is typical of the changes made in the administrative field and economic policymaking. In this laboratory, the economists, most of whom were trained at the *École Polytechnique*, developed a new 'physico-financial' macroeconomic model commonly known as FIFI. They started work in 1966, collecting data, developing equations and programming the model to be in a position to simulate the French 1975 economy with indicators such as growth and unemployment. In the face of the French economy's many challenges, as pointed up by the FIFI model, these economists set out to identify the political choices still available and determine the economic policy options. Work based on this model, designed to accompany the Sixth Plan, gradually gained currency within and even beyond the French administration, attracting interest from journalists and even being discussed on the benches of the National Assembly.

The following section focuses on the model's developers, analyzing what should be part of the FIFI model and what should not (*selection*), and what qualities are attributed to the entities and phenomena represented in the model (*qualification*). First, however, there follows a brief introduction to the model's origins and how it works by revealing the power of the economy and proposing ways of managing it.

3.1 The origins of a macroeconomic model

In 1966, when the idea first arose to create a formalized model for planning, economics was not highly developed in French academia and even less so in the private sector. The French administration was a key venue for many economists (Fourcade, 2009). In early summer, five economists from INSEE and the French Planning Commissariat held a meeting. Among them were Michel Aglietta, one of the model's main creators, Yves Ullmo who would supervise the economic department responsible for the Plan from 1967 to 1973, and Lionel Stoléru, who would write a much-discussed book in 1969 entitled *L'impératif industriel* (Stoléru, 1969). When the meeting raised the issue of improving the forecasting techniques used for the Sixth Plan, the model was immediately described as 'physico-financial'.[2] In September, a study program was launched on foreign macroeconomic models: reading material was agreed upon and distributed to the core team, which had already grown in number.

2 Programs Division: 'Premières réflexions sur le modèle "physico-financier"' (First thoughts on the 'physico-financial' model), 9 September 1966, CAEF, B0057710/1. All translations of documents, interviews and archives are the author's.

By 1967, the Programs Division's dozen staff were already spending a considerable amount of their time on the model.[3] The model's initial purpose was to develop the system of mathematical equations (some 1600) that would underpin the workings of the French economy (wage formation, calculation of business investments, etc.). Very quickly, the issue of programming was raised and the summer of 1967 was spent working on it. The modelers were assisted in their work by INSEE's development of computers at a time when computer science was drawing attention, if not fascination, in the administration (Breton, 1990) and in economics (Backhouse and Cherrier, 2017). As one of FIFI's creators explained in an interview, interest emerged following the purchase of two IBM computers:

> In an INSEE annex, there were, let's say, two big machines and, at the time, there were no ready-to-use programs. So you had to program everything. We worked with punch cards to create the numerical data and transform the mathematical equations into a program. [...] Nobody had done that before, so we were constantly testing, which meant we had to work nights. That made for a special, happy atmosphere from 9 pm until midnight or 1 am. The work was fun because you had to sort through listings, and the listings were this big [arms stretched wide], find the errors, program the punch cards, try again, and so on. How long did it take? Three months or so. And the first time the model converged, naturally we broke open the champagne!

The model called for a set of exogenous parameters (almost 3500 in the final version of FIFI), which determined the endogenous results via a system of equations. A large part of the work therefore involved feeding the model with statistical data. In requesting data from the other INSEE departments, the Programs Division and their model attracted more and more attention. A keen indication of their growing profile was the 1969 publication of an article written by two of the creators to explain the FIFI model in the first ever issue of INSEE's new journal *Économie et Statistique* (Aglietta and Courbis, 1969). Other institutions started to show an interest in the FIFI model. In 1968, groups known as *Finances-Plan*, in reference to their Finance Ministry and Planning Commissariat members, were set up to convey their style of reasoning to financial administration staff, familiarize them with the model, and discuss the model's initial forecasts (Cossé, 1971). The *Finances-Plan* groups had almost 140 individuals working together on preparing the Sixth Plan. As one senior civil servant put it in an interview, some people were worried that this would result in 'having a Plan before the Plan'. These developments show how the Programs Division's institutional position ensured that their work—and the FIFI model's style of reasoning—would quickly and easily spread throughout the administration.

In keeping with the rationale behind the administration's national accounting practices, FIFI was a static model and its results related solely to 1975, the last year of the Sixth Plan. It was incapable of predicting annual trends for the economic aggregates studied. The use of computers had various implications: although the calculations were criticized as slow in the development of the Fifth Plan (Fourquet, 1980), independence between economic phenomena had improved. The concern for the modelers was to make the transition from the Fifth Plan's 'accounting coherency' to 'coherency between economic policy decisions' (Courbis and Pagé, 1973, p. 955, own translation).

3 'Programme de travail de la division des programmes' (Programs Division Work Schedule), 4 January 1967, CAC, 19920270, Article 1.

3.2 Revealing the power of the French economy before intervening

The FIFI model was designed for two different reasons. First, it was intended to measure and predict the French economy's 'spontaneous' growth. Second, the model had a clear political vocation: to produce simulations of state intervention in the French economy. Economists hence demonstrated the power of the economy before defining ways of intervening in it.

For the Programs Division economists, the model's primary function was to identify constraints that limited growth. FIFI was therefore described as a 'development problem detection method'.[4] The solution adopted was to draw up a 'starting-point account': an original simulation of the state of the economy in 1975 should no new intervention be conducted. This simulation was used to identify the main 'concerns' (*inquiétudes*) for the future. The term 'concerns', used regularly by the modelers, points up an embedded conception of the future, one which needs to be enlightened as well as reassuring. It emerged early on in the model's development, and is not restricted to a verbal formulation: it also takes a quantitative form. 'We will call [...] concerns any value of an endogenous variable of the model judged abnormal, either because the variable clashes with some unexplained model rules or because it is not inscribed in the plausibility interval determined by direct studies external to the model'.[5] The term 'concerns', preferred over 'tensions', therefore designates a 'gap in relation to norms'. Unlike the previous procedures, 'it means that norms cannot be in the model because of the risk of concealing the problems'.

The starting-point account was produced by extrapolating trends, especially in administrative and business behavior, and assuming the same legal framework at the projected point in time. The starting-point account comprised quantified evaluations of the economy in 1975 based on indicators such as growth (5.4% per year), unemployment (395 000), inflation (3.5% per year) and real wage growth (3.1% per year). But these numbers, taken from the last version of the starting-point account, were constantly revised between 1968 and September 1969, date of the first meeting of the Commission for the Economy and Financing for which they were prepared. In other words, for the modelers, the creation of this starting-point account implied the inclusion of the most recent parameters. The validity of the future was based, in some ways, on the viability of the present. An initial version was finalized in February 1968, but it was to be revised following the events of May 1968. The Sixth Plan was even postponed a year. The modelers closely followed the decisions made further to May 1968: after the *Grenelle* agreements raised the minimum wage by 35%, a 24 June 1968 memo proposed to amend the exogenous parameters, including the working week. A third version was finally prepared after the French currency was devalued in the summer of 1969.

However, the validity of the starting-point account was not just a modeling exercise: the objective was to break with the Fifth Plan's technical procedures, which were regularly called 'normative'. These procedures were criticized for setting objectives, mainly full employment and external balance/equilibrium, before they could be debated by the Plan commissions. With the FIFI model, this logic was back to front, as the modelers explain:

4 Programs Division: 'Premières perspectives économiques pour 1975' (First economic perspectives for 1975), 15 February 1968, CAEF, B0057707.

5 Michel Aglietta, 'Propositions pour un modèle physico-financier à moyen terme' (Proposal for a mid-term physico-financial model), 18 January 1967, CAC, 19890575, Article 65.

> The sharpness of the distinction between hypothesis and results, resulting from the use of the model, means we can now see more clearly between spontaneous economic development and normative economic development than when we prepared the report on the Fifth Plan options. This shows the need to make economic policy explicit for desirable objectives and to attach proper measures for all normative economic development.[6]

The FIFI model was hence developed to propose a potential future should no intervention be conducted, and consequently to determine which economic policy to choose. State interventions were therefore solutions put forward to 'reduce concerns'.[7]

However, once the power of the economy is revealed by the starting-point account, how can it be acted on? In substance, the use of the model promoted by the modelers is to correct or manage the future with 'variants'. This term refers to economic policy simulations designed to improve the starting-point account results. Therefore, and despite its makers' regular assertions about its 'conventional' nature, the starting-point account occupied a key position in the Sixth Plan: other economic policy simulations were always evaluated in relation to the starting-point account. Every variant is a simulation which improves or worsens the starting-point account's initial results. The figure for each variant was presented in terms of disparity from the starting-point account, for example, +0.1% of GDP between 1970 and 1975 for a variant that introduces more competition in the 'sheltered' sectors, or −0.44% of GDP for a variant that shortens working hours. The reality that the starting-point account represented, despite being hypothetical, gradually became more robust and objective (Desrosières, 2000). The modelers and subsequently the individuals on the planning commissions considered the starting-point account situation to be 'unacceptable', and therefore had to formulate the appropriate economic policy to correct it. In this way, the FIFI model was a device designed to simultaneously define the economy's problems—through the starting-point account—and the solutions to correct them—through the variants.

3.3 Selection: choosing the entities which matter

As argued above, the two operations by which economics contributes in framing political debates are selection and qualification. This section and the next examine each of these operations. During the FIFI model's conception, one important operation was indeed to select the entities and phenomena that the economists deemed should be contained in the model. In so doing, they institutionally validated the selected entities. But the consequence of such selection was to discard other entities and phenomena that would not appear in the model's representation of the French economy. This selection, made in the early months of the modelers' work, caused a certain amount of disagreement. This type of selection can be made easier or harder depending on the social dimensions that need to be included or excluded.

One main dimension first considered in the making of the FIFI model was to use the socio-economic classification—or more properly for the French case, the socio-professional classification (Amossé, 2013)—to represent the social hierarchy in France. These groups

6 Programs Division: 'Premières perspectives économiques pour 1975' (First economic perspectives for 1975), 15 February 1968, CAEF, B0057707.

7 Claude Seibel and Michel Aglietta, 'Modèle FIFI 1. Premières réflexions sur la définition et l'utilisation des variantes' (FIFI 1 Model. First thoughts on the definition and use of variants), 23 May 1967, CAEF, B0057705, Article 1.

have a long history in French administration (Desrosières and Thévenot, 2002) and were defined by the same institution as the FIFI model: INSEE. Households, like businesses, have been classified by INSEE using a relatively stable classification of socio-professional categories since 1954 (Desrosières, 1977; Amossé, 2013). The inclusion of this classification in the FIFI model was considered by the modelers during the making of the model without being explicitly explored. It had all the semblance of a superfluous, non-vital concern compared, for example, to the inclusion of a financial sphere. The classification was dropped during the development of FIFI. As one modeler explained in an interview:

> The argument for doing it was there, but on reflection, we concluded that the cost-benefit ratio wasn't worth it. It would have multiplied the number of possible variants, and we would have had more things to look at.

Abandoning a representation of the social hierarchy was no minor step in the FIFI model's development process: this small laboratory's team of economists identified which entities they felt were important and, in so doing, the type of economic policy that could be simulated and the role assigned to the state. As we will see later on, there was no simulation of different economic policies designed to redistribute wages despite requests from workers' unions—in other words *selection* orients political debates.

3.4 Qualification: wages as an endogenous result

The second operation by which economics has a hand in steering political debates is qualification. By qualification, I refer to the way a given entity should be considered, what qualities are attributed to it, and how it should act.

One of the main shifts introduced by the FIFI model was to consider wage changes as a simple outcome of economic policy. The Programs Division economists spent a lot of their time working on wages building on the important Phillips curve research being conducted at the time. The FIFI model refers explicitly to it: the equation, based on multiple regressions, which determined the level of wages in 1975 introduced a link between the labor market situation and the general price level. The higher inflation, the higher the wages (and vice versa). Conversely, the relation between unemployment and higher pay was negative: any rise in unemployment came with decreased pay. This equation's introduction into the planning methodology differed from previous plans: full employment was set as an objective in the forecasts. And yet the FIFI model was considered, as shown above, as a method for the identification of development problems. In accordance with this logic, main results given by the model are the unemployment rate and wage rate, along with the growth rate: 'No norms are imposed a priori on any of the economic variables (growth rate, unemployment, wage rate, inflation rate, etc.). It is by successive trial and error that we determine the economic policy capable of achieving the objectives we have set' (Aglietta and Courbis, 1969, p. 46, own translation).

In this regard, the *qualification* of the wage rate as an outcome of economic policy, and not as an instrument of economic policy, was crucial. Rather than resulting in a simulation using a change in the wage rate to target higher growth, this qualification of the wage rate discarded it as a legitimate economic policy instrument. As we will see in the following sections, the workers' unions were to contest this qualification.

This qualification of the wage rate needs to be understood in relation to the growing role conferred on international competition. The FIFI model introduced a central division

between 'sheltered' sectors and sectors 'exposed' to external constraints (Courbis, 1969, 1973). This market division has many repercussions. Companies in the sheltered sectors can choose their commodity prices to safeguard a certain level of cash flow: demand here is always satisfied. This choice is impossible in the exposed sectors comprising industrial companies: they are subject to the prices determined by external supply. In this free-trade conception, the exposed sector is conceived as the true leader of the economy, in contrast to the sheltered sectors, described as a 'handicap to growth' (Courbis and Pagé, 1973, p. 958). The external constraint is a price constraint based on the hypothesis of perfect substitution between imports and national production: internal supply shortcomings are offset by imports. In this conception, any rise in exposed sector business costs, and especially any rise in wages, can reduce cash flow and investment, and ultimately result in a loss of market share to businesses abroad. By giving international competition the role of limiting exposed sector prices, the FIFI model promoted—explicitly for its makers—supply-side policies designed to stimulate competitiveness.

In this section, I have studied the FIFI model as an economic policy device which advances a view of the economy as a self-moving entity, and promotes ways to counter the spontaneous character of the economy with state intervention. Years of work by a small laboratory created a model and, through it, a conception of the French economy that was gradually stabilized. Yet, the model did not represent every element that makes up 'the economy': the modelers first selected the entities to be included and then qualified these entities by attributing specific qualities to them. To show how these selection and qualification operations shift the political debates, we now need to study the reactions to this conception of the economy and political intervention in another context. It is time to leave the laboratory and follow the trail of numbers that the model produced.

4. Macroeconomic forecasting and the shift in French political debates

Having now described the conception of the FIFI model, its aims and objectives, what it contained, and what it discarded, this section follows the trail of numbers produced by the model and the discussions those numbers engendered on the main Sixth Plan commission and beyond.[8] These discussions raise the question as to whether the model's representation of the economy was real. Was this reality independent from observation? Did it include all the phenomena that should be considered as part of the economy or just a selection? Did it provide options for the future, and if so, how many and imaginative were those options? The discussions were therefore 'reality tests' (Boltanski and Chiapello, 2005) in which participants endeavored to evaluate, confirm or contest the reality that was presented to them by means of publicly defendable arguments.

8 The planning process for the Sixth Plan was made up of two rounds. The first round from October 1969 to March 1970, on which I focus here, was designed to propose the 'options', which in planning terms means the objectives set for 1975. These options were discussed by government and the assemblies and set down by law in July 1970. Following the voting and associated amendments, the Plan and its commissions held a second round of debates from October 1970 to April 1971. The purpose of the second round was to take the defined mid-term objectives and find ways to implement them.

The Commission for the Economy and Financing was responsible for 'preparing the choice of the fundamental orientations of the Plan and ensuring the coherency of its options' (Plan, 1971). What defines this commission is the multi-positionality of its 64 members. In particular, they held or had held positions in some of the *neutral institutions* studied by P. Bourdieu and L. Boltanski, characterized by their rejection of partisan opposition, their peaceful conception of political debate, and faith in the positive progress of society by means of prospective and technological instruments (Bourdieu and Boltanski, 2008). The CEGF comprised union representatives, industrialists, senior civil servants, directors of the different Ministry of the Economy and Finance departments, and presidents of the most important planning commissions. Depicted by Chief Commissioner, René Montjoie, as an 'organ overseeing the apparatus of consultation' (*concertation*), the CEGF was to meet nearly 40 times between October 1969 and April 1970.

To understand how incorporating the FIFI model into the CEGF's debates changed the terms of the political debates, we first need to consider the broader thinking on planning and its objectives in the late 1960s. The political class felt the Plan had become gradually less suited to resolving economic issues than it was at the end of the war. Two reasons were put forward: the opening up of borders and the new place accorded to the market. The FIFI model gave the political class new means to address these issues. However, response to the model was mixed. For example, union representatives disagreed with the representation of the French economy put forward by the model. Finally, the variants were used to advance a specific conception of economic policy which disarmed the unions' traditional political actions.

4.1 Planning in doubt

Prior to the first Sixth Plan meetings, different positions prevailed regarding the role and objectives of planning. The paper written as a precursor to the CEGF's work and sent to its members described the context from 1968–1970 and clearly identified the limitations of the Plan's mid-term policy:

> It would be pointless to develop the reasons why forecasting and planning economic and social development has encountered growing difficulties: the acceleration of technological progress and the diversification of economic activities now rule out the setting of unalterable production objectives for every major industrial sector; the opening up of our borders makes the French economy increasingly dependent on the international economic situation, which is itself uncertain considering the instability of the monetary system; French companies must contend with competition from companies in Common Market countries which do not have the same concept of mid-term policies.[9]

The Chief Commissioner of the Plan, René Montjoie, opened the CEGF's first session in the same spirit, pointing out that, 'Conditions constantly renew economic life, especially the gradual development of a market economy and embrace of external constraints which, with regard to the Sixth Plan, obviously prompt a marked deviation, and even profound transformation, in the content and nature of our system of planning'.[10] Senior civil servants who saw the market as a particularly desirable modus operandi felt that the Plan needed to be redesigned. Among the

9 Plan, 'Propositions en vue de l'organisation des travaux de la Commission de l'économie générale et du financement' (Proposals for the organization of the work of the Commission for the Economy and Financing), 25 September 1969, CAC, 19890575, Article 59.

10 Report on the first meeting of the CEGF, 9 October 1969, CAC, 19890575, Article 59.

objectives René Montjoie chose for the institution were to 'help clarify the change requirements' and 'highlight the problems that our society could face in the future'.

The Plan was considered and approached differently by the unions, which participated unequally in this 'concertation' during the previous plans (Shonfield, 1965). Workers unions were growing after May 1968: the CGT and the CFDT (which increased their membership between 1967 and 1969 by 18% and 21.7%), gathered in 1970, respectively more than 2.3 million and 882 000 members (Howell, 1992, p. 99). The CFDT (*Confédération française démocratique du travail*) for instance felt that the 'fundamental objective of planning should be to define the means to create the economic conditions to advance a policy of full employment'.[11] The choice of options in the first round of planning for the Plan was therefore crucial, and the CFDT requested that the procedures for this choice be improved. The union hoped that 'several economic and social development approaches' would be developed and considered. More specifically, the CFDT claims that it was the 'qualitative aspects of economic growth that should be scrutinized by the different bodies in charge of preparing the Plan'. For the CFDT, which reinvested actively the question of 'democratic planning' at the turn of the 1970s (Defaud, 2009, pp. 23–63), the 'real debate is about the options, and not the debate about the Plan itself'.

The Sixth Plan extended the use of the 'modernization commissions' and gathered around 3000 participants, a thousand more than during the Fifth Plan (Margairaz and Rousso, 1987). Yet, the conceptions of the Plan, both as it was and as it should be, were far from unanimous when the first meeting of the CEGF was held in October 1969. The political elites welcomed and encouraged a market economy and embrace of external constraints, even though they were perceived as restricting state intervention and forcing a rethink of planning objectives. The progressive opening of the common market, sanctioned by the signature in 1957 of the Treaty of Rome, had for objective a reduction of formal trade barriers between member countries. In France, political supports for an industrial policy at the national and at the European scale were growing during the second half of the 1960s (Warlouzet, 2011, pp. 430–492). At the same time, French employers were seeing a power shift from the 'smaller, more traditional firms, to the larger, more modern ones' (Howell, 1992, p. 71), leading their representatives to aim for stronger economic modernization and control over the unions (Boltanski and Chiapello, 2005). The Sixth Plan also came after May 1968, when sharing in growth was one of the main debates, after a pronounced rise of income inequalities between 1945 and 1967 (Piketty, 2014, pp. 287–288). The new Prime Minister Jacques Chaban-Delmas gave an important speech about the 'New Society' in September 1969, promoting especially the development of negotiating practices with unions within companies, in order to relocate bargaining at a lower level (Howell, 1992, pp. 82–110). May 1968 also cast doubt on the capacity of the technocrats to organize the future, and questioned the rationality of one of their main devices: forecasting. In this context, the introduction of the FIFI model contributed in framing the CEGF's debates, and simultaneously disadvantaged the trade unions' usual position.

4.2 Confirming and contesting FIFI's representation

The CEGF's debates became more straightforward with the introduction of the FIFI model. The model shifted in status, as it was no longer purely a topic for debate by experts—the

11 CFDT, 'Note de réflexion sur les procédures d'amélioration du VI^{e} Plan' (Discussion paper on procedures to improve the Sixth Plan), January 1968, CAC, 19890575, Article 24.

economists who created it—but was now part of an administrative and political procedure designed to define suitable political interventions. At the fourth session of the CEGF, Jacques Mayer, the director of the INSEE unit set up to develop the model, described it as 'really abstract, but nevertheless an attempt to represent the world as it is'. Therefore, the debates moved along a continuum between two positions. On the one hand, the model was completely ignored, and discussion centered on the numbers it generated and their consequences. On the other hand, the model itself was the focus of attention, generally accompanied by a critical position regarding the forecast it produced. With the introduction of the starting-point account at commission sessions, the members started to discover what FIFI was all about.

> The first impression that emerges from a quick reading is that if nothing changes with productivity growth, with the behavior of economic agents and state policy, we will face an unacceptable situation in 1975. *The French economy is spontaneously heading for trouble*, obviously insofar as the FIFI model's results provide a reliable representation. If this is the case, it is extremely important that we stress this in order to justify active measures which will not necessarily be pleasant for everybody.
>
> Pierre Massé, former Chief Commissioner of the Plan[12]

The reasons for promoting 'active measures which will not necessarily be pleasant for everybody' lay in a long chain of interdependent individuals, objects and institutions. The model's representation, even if not taken as indisputable fact, helped build a quantifiable and essentially stable conception of the future. The position promoted based on the FIFI model was, however, not passive in the face of economic development problems: it encouraged intervention and change. Yet, such a position implied acceptance of the selection of the entities and their qualification by the modelers. This selection and qualification can be criticized, as shown by the reaction of the General Secretary of the CGT (i.e. *Confédération du Travail*, the first workers' union), Henri Krasucki:

> I wondered how I could make a useful contribution to this sort of meeting. I thought it would not be uninteresting to express our point of view, even if it might sometimes be shocking and stands no chance of being taken up. [. . .] On this point, I will merely state my view of the 'model' and its application. I think it's an interesting piece of technical research, which can be used as an instrument for knowledge and forecasting, and may even already provide some useful indications. But frankly, it is far from an operational instrument. Furthermore, when all is said and done, cybernetics can only answer the questions we raise, and those questions are not neutral. In the best-case scenario, the 'model' cannot do anything more than reproduce the mechanisms of the present economy. It cannot change the economy, and the questions to which it responds necessarily relate to this economy and the concept of economic policy that derives from it.
>
> Henri Krasucki, General Secretary of the CGT[13]

In this long speech, the General Secretary of the CGT expressed his reservations as a representative of one of the organizations involved in the Plan, even characterizing his point of view as 'shocking'. However, he did not completely reject the FIFI model. His hesitation concerned the ambivalent relationship between the Communist Party—and the CGT—and science at the time. The simulations had a certain appeal, and even though he rejected the

12 Note by P. Massé, fourth meeting of the CEGF, 6 November 1969, CAC, 19890575, Article 59.
13 Report of the sixth meeting of the CEGF, 27 November 1969, CAC, 19890575, Article 60.

supposed neutrality of cybernetics, Henri Krasucki shared the other members' analysis in his discussion of the starting-point account. However, he advanced different entities and phenomena to the ones represented in the model.

> The projection for 1975, despite its imperfections and serious shortcomings, tells us that if things continue as they are, the situation in five years' time will be intolerable. [...] But we can't be held responsible for that situation; the workers have nothing to do with it. In fact, they fought the policy which brought us here. [...] The makers of the Sixth Plan and the economic policy it represents must take this into consideration, because these are important realities in social and political life. [...] We can make no mistake about the workers' state of mind. Only those who haven't been able to make sense of it—those who have long seen us as visionaries—were taken unawares by the spring of 1968. [...] In other words, those and others refuse to bear the cost of change and competition, and demand that technical progress serves social progress. I don't know how we can enter those data in the physico-financial model. *But this must be taken into account by the makers of the Plan, because it remains a reality*.
>
> Henri Krasucki, General Secretary of the CGT

The different members of the CEGF endeavored to map out courses of action for the coming years. There were clashing realities on both sides, and those realities were based on different types of evidence. With respect to the entities that emerged from the use of the FIFI model, such as households and economic agents, the CGT representative introduced new ones, such as workers. Both the *selection* and *qualification* of the model's entities were disputed. The General Secretary of the CGT's speech did not depict workers as passive observers of economic policies dictated by the political class, but as political actors in their own right, with an explicit reference to May 1968. If the FIFI model was criticized and condemned, it was not because of its complexity or its lack of intelligibility. The reason lay in the impossibility of fully incorporating other phenomena into the model, especially those that had value in the civic world (Boltanski and Thévenot, 2006). FIFI, presented by the Chief Commissioner as a model that 'describes what will probably happen if we do not do something', worried the unions in terms of the possibility that their point of view would not be taken into consideration and the technocratization that the device could bring. FIFI was indeed perceived as a way for the Plan administration and the government to entrust—if not delegate—their decisions to a supposedly objective device considered capable of presenting an unbiased representation of the French economy (Porter, 1995). In this respect, the decision to assign the job of discussing the model itself to a 'technical group' associated with the CEGF is revealing: the 'technical' debates were separate from the discussions of the 'economy' and 'financing'.

The debate however was not restricted to the CEGF: the FIFI model—and through it the debate on growth—was discussed beyond the planning commissions. In 1970, the journal *L'Expansion* presented the FIFI model, stating that, "The traditional schema analyzed by Keynes is no longer valid: business output no longer depends on demand, but on the competitiveness of supply."[14] Another paper followed with a graphic representation of the model, entitled 'Presenting FIFI: The mathematic model that will govern the French economy for five years'.[15]

14 'Le jeu de FIFI' (The FIFI game), *L'Expansion*, April 1970.

15 'Voici 'FIFI': Le modèle mathématique qui va gouverner la vie économique de la France pendant cinq ans' (Presenting FIFI: The mathematical model that will govern the French economy for five years), *L'Aurore*, 26–27 June 1971.

4.3 Economic policy: a 'variant' of the future

The variants, economic policy simulations, again reveal the different conceptions of economic policy held by the CEGF's members. They were asked to submit economic policy proposals for simulation by the FIFI model. Nearly 40 variants were created, even though most of them came from the modelers. In fact, very few variants were directly requested by the Commission members; some union representatives even complained that they never saw the variants they had requested. The CEGF's members did not have the model 'to hand' to decide for themselves the variants they would have liked to test. This was a matter solely for the modelers themselves. A considerable restriction such as this goes hand in hand with the need for both union and employer representatives to understand what the FIFI model could simulate and what it could not.

One example of this problem is the request from employer representatives for 'high growth' variants, in reference to Japanese development. Such requests caused misunderstandings over the role of the model, as the CEO of Saint-Gobain and President of the Industrial Commission of the Plan, Roger Martin, describes:

> For this study, we had a physico-financial model produced by the experts of the Plan and the Forecasting Direction, but FIFI, its nickname, worked in one way only. It could only calculate the growth rate in relation to the date we gave it. Really high rates could only be explored on a trial-and-error basis. The whole thing caused quite a stir. The magic word 'Japanese growth' was mentioned—we had already spoken often about Japan—and when we moreover had a model called after an operetta, it was enough to grab the newspapers' attention. The Plan technocrats wanted France and the French to go Japanese.[16]

The employers wanted to fix the growth rate a priori and consider the consequences for the other economic aggregates, and shortly the press started to report on these requests.[17] But the model's logic was different: it was designed to propose economic policy based on a change in the exogenous parameters aimed at achieving a certain level of GDP, which was an endogenous outcome derived from the model's inherent system of equations. Yet, the modelers tried their hardest to propose a variant that would achieve the high level of growth expected by the employers. The Director of INSEE subsequently gave an interview to explain the role of the model and defend its objectiveness:

> FIFI does not either support the argument of moderate growth with optimal mitigation of the risk of imbalances or the one of partisans of rapid growth. [...] What is FIFI? The model is a tool that allows to make projections [...]. It is a representative model of economic mechanisms that allows to study the ways and means of different political choices.[18]

Although the employers' intention was to promote high growth, they recognized and praised the style of reasoning advanced by the model, as Roger Martin expressed in a radio show: 'I have long believed it would be beneficial for the French to understand what the economy

16 Martin (1984, pp. 313–314), own translation.

17 'Les conditions d'une forte croissance industrielle sont étudiées par le Plan' (The conditions for strong industrial growth are studied by the Plan), *Les Échos*, 24 December 1969.

18 'FIFI étudie les possibilités de la forte croissance désirée par le CNPF. Une interview de M. Ripert, directeur général de l'INSEE' (FIFI studies the possibilities of the high growth targeted by the CNPF. An interview with M. Ripert, Director of INSEE), *Les Échos*, 7 January 1970.

means in everyday life. In this respect alone, the inventors and operators of the physico-financial model are worthy of their country'.[19]

A second example, which unsettled the unions, can be seen from the request made by one of the CGT representatives for a wage increase variant to simulate a policy of high increases for low wage earners and lower increases for higher wage earners. At the time, the unions, and especially the CGT, had resumed their interest in the issue of wage increases, and tried to append it to the other demands of May 1968 in line with the tradition of social critique (Boltanski and Chiapello, 2005, pp. 169–215). However, wages did not feature in the model as an *instrument of economic policy*, but as *an outcome of economic policy*. The CGT representatives noticed this and explained that wage levels were the result of power struggles between companies, workers and government, and that it could not be fully captured by a quantitative analysis. The request for this variant, which would not be pursued, illustrates the differences in the conceptions of economic policy between modelers and unions. The FIFI model did not associate any behavior with the workers, who featured merely as 'households' without any class-based classification. It was therefore impossible to consider the issue of wage differentiation and wage share and the unions denounced it (CEGF, 1971, pp. 93–94). The CGT representatives added that, 'It is significant that the econometric estimation of the coefficients excluded the periods of intensifying wage demands: 1954 and 1968' (*Ibid*., p. 71).

Use of the FIFI model therefore called, at least in part, for agreement on the conception of economic policy it promoted. This conception implies first identification of the economic development problems—by means of the 'starting-point account'—and second proposal of measures to resolve these issues—by means of the 'variants'. FIFI addressed both areas. Not only was it designed to find economic policy solutions, but it also to define the problems that needed solving. This situation persuaded the CFDT and CGT to stop requesting any more variants. The CGT justified its position on the model with critique of both the selection and qualification offered by the modelers:

> It has gradually become clear that the model can only offer a certain type of economic policy and that it restricts the debate to dilemmas which do not represent reality. As we see it, the CGT's condemnation of the Sixth Plan's options is also a rejection of the economic analysis which underpins the model.
>
> (CEGF, 1971, p. 85).

This critique of the options by the CGT will be followed by the departure of the CFDT in September 1970, informing the Chief Commissioner of their decision to withdraw from the Sixth Plan's second round debates. Despite these many critiques, the CEGF's work continued and the FIFI model generated three different sets of results. These three accounts presented a GDP rate of 5.5%, 6% and 6.5% for the 1970–1975 period. The government and the different assemblies then took the 'three proposed choices' to launch their political debate on the future of the French economy.

19 Interview with Roger Martin on Europe 1, 15 January 1970, CAEF, H0002111.

5. Conclusion

> This policy has been tested, and merely judging from the quantitative results of the econometric research, appears possible and therefore desirable.[20]

I began this article with an introduction to two main operations by means of which economics plays a part in framing political debate: selection and qualification. The episode of history I have studied to develop this argument is the creation of the FIFI macroeconomic model designed for use in the 1960s French planning processes. FIFI's public demonstration of a future state of the French economy without planned intervention, a situation many considered intolerable, painted a virtually inevitable picture of this future economy. It was no easy task to deny that picture or challenge the validity of the model's results. The individuals and organizations that tried to do so, such as the workers' unions, risked standing accused of being irresponsible or backward-looking. The model's results, which derived from both selection and qualification, appeared robust and were very hard to disprove. This makes this episode a good example of the controversies that arise in an expertise-run political system, where the existence of the subject of the debate is central (Boltanski, 2011, pp. 136–143)—in our case, the existence of the economy itself. Did the FIFI model adequately prove and corroborate the existence of the French economy? Was it a good device to identify its trends and movements? Or should we have turned to the workers, who might have been in more of a position to say what needed to be done in the future?

Consequently, along with statistics (Desrosières, 1998), modeling and forecasting contributes to framing the terms of public political debates. The more advanced the political debate, the harder it is to go back to the choices made earlier, that is the choices made by the modelers. At the end of the day, FIFI was no longer mentioned and its numbers were deemed objective. One important repercussion in our case is that this type of framing changes—if not disqualifies—the traditional stance taken by workers' unions. Rather than criticizing individuals as part of a large group, such as employers, the workers' unions found themselves faced with an economic policy device presented as neutral and the basis for all debate. The simultaneous decline of reference to socio-professional categories is related to this transformation (Pierru and Spire, 2008; Amossé, 2013). With this device, and other similar ones, traditional forms of critique were gradually being dismantled. In a famous 1970s text called 'We are all groupuscules', philosopher Felix Guattari explained this threat in harsh terms: 'The response to many actions has been predicted, organized and calculated by the machines of state power. I am convinced that all of the possible variants of another May 1968 have already been programmed on an IBM' (Guattari, 2015, p. 365). The reality presented by the model meant that some of the unions' courses of action could be invalidated. Aside from the fact that they had no calculation center which could develop a counter analysis and present an alternative reality, workers' unions usually opted to express their views in two ways—even though their repertoire was not strictly limited. First, they could walk out of the

20 Rapport sur les principales options qui commandent la préparation du VI[e] Plan (Report on the main options governing the preparation of the Sixth Plan), appendix to Act 70-588, 9 July 1970. This report on the main options indicates that 'international competition became [for France] its stimulant and its ordeal' (p. 9) and that 'specific attention should be paid to all factors likely to increase the French's taste for industrial labor' (p. 17).

institutions—as the CFDT did in 1970—and call for collective action. Second, they could resort to the law to resolve disputes. But what kind of legal action could be taken when not against members of the dominant class, who could be accused of intention, but against an impersonal and called FIFI? Similarly, what form of protest could be used against an economic model?

In contrast to strong performativity (MacKenzie, 2006), for which the most important effect of economics is to make agents act as the theory says they should, the effects of the introduction of this economic device were more subtle and indirect, but no less important. In fact, following the French administration's FIFI experiment, quantification of policy proposals by macroeconomic modeling became standard practice. Even leftwing political parties and unions, originally the most reluctant to engage with such devices, have since adopted this quantified approach to policy proposals and their underlying style of reasoning. Indeed, planning commissions have sometimes been openly considered as a means to acquaint unions with a macroeconomic style of reasoning (Dulong, 1997). In this respect, FIFI's impact has to be considered from a historical point of view.

This article studies a highly technocratic case study, raising the question of how valid our conclusions would be in other contexts. Since 1930s inception of the very idea of models in economics (Morgan, 2012), economic models have been largely associated with policymaking and hence with economists' institutional positions in and around state, albeit with radical national differences (Christensen, 2017; Fourcade, 2009). Once in place, however, these positions and models are incredibly hard to dispute: some models can be so institutionalized that they endure despite strong critiques of their inability to predict crisis—as in the recent case of the European Central Bank model (Mudge and Vauchez, 2018). One way to open up public debate would be for such central institutions to at least use different models and publish different forecasts—to satisfy nearly 20 years of calls for more pluralism in economics (Chavance and Labrousse, 2018). But there are other contexts where economics contributed to frame political debates: from the huge impact of the paper on the growth of the top 1% by Thomas Piketty and Emmanuel Saez (2003)—two academic rather than technocratic economists—on the debates on inequalities in the decade that followed (Hirschman, 2016), to the growing tendency for independent institutes to quantify political party agendas in the run-up to general elections (Lemoine, 2008). Economists, even outside the policymaking apparatus, can therefore make good use of certain historical situations which open up possibilities for promoting new public debate framing.

Lastly, the identification of the two operations, selection and qualification, points to a research agenda on both the effects of economics and critiques of economics. In terms of the effects of economics, it would be particularly interesting and relevant to study the spread of the quantification of economic policy proposals from the 1960s to the present day in order to understand how modeling has prompted a more entrenched way of thinking about what is politically 'possible' and what is not. A historical study of macroeconomic models separating out exogenous from endogenous variables would also be illuminating from the point of view of the development of political leverage deemed accessible/inaccessible. Turning to the critiques of economics, these concern mainly the operations of selection—what economics talks about lacks the essentials of reality—and qualification—the entities that economics focuses on turn out not to present the quality expected. Such a framework would hopefully help us understand these critiques more clearly. From this standpoint, it would be particularly relevant to study how workers' union and leftwing political party critiques change in

relation to the growing place of economics in these organizations (Mudge, 2018). This focus on the relationship between economics and its critics should help open up public debate, and transcend what economics considers as legitimate political proposals.

Acknowledgments

This article builds on research previously available in French (Angeletti, 2011, 2013). It has benefited from great comments at the *Historicizing The "Economy"* workshop, organized by Daniel Hirschman, Adam Leeds and Onur Özgöde at Harvard University in September 2016. I also thank Marie Le Clainche-Piel, Marcin Serafin and Lisa Suckert for helpful comments on earlier drafts of this paper.

References

Aglietta, M. and Courbis, R. (1969) 'Un Outil du Plan: Le Modèle FIFI', *Economie et Statistique*, **1**, 45–65.

Amossé, T. (2013) 'Revisiting the History of Socio-Professional Classification in France', *Annales*, **68**, 697–732.

Angeletti, T. (2011) 'Faire la réalité ou s'y faire? La modélisation et les déplacements de la politique économique au tournant des années 1970', *Politix*, **95**, 47–72.

Angeletti, T. (2013) 'Le laboratoire de la nécessité. Économistes, institutions et qualifications de l'économie', PhD dissertation, École des Hautes Études en Sciences Sociales.

Backhouse, R. E. and Cherrier, B. (2017) '"It's Computers, Stupid!" the Spread of Computers and the Changing Roles of Theoretical and Applied Economics', *History of Political Economy*, **49**, 103–126.

Beckert, J. (1996) 'What Is Sociological about Economic Sociology? Uncertainty and the Embeddedness of Economic Action', *Theory and Society*, **25**, 803–840.

Beckert, J. (2016) *Imagined Futures: Fictional Expectations and Capitalist Dynamics*, Cambridge, Harvard University Press.

Beckert, J. and Bronk, R. (eds) (2018) *Uncertain Futures: Imaginaries, Narratives, and Calculation in the Economy*, Oxford, Oxford University Press.

Benford, D. B. and Snow, D. A. (2000) 'Framing Processes and Social Movements: An Overview and Assessment', *Annual Review of Sociology*, **26**, 611–639.

Bloor, D. (1976) *Knowledge and Social Imagery*, London, Routledge and Kegan Paul.

Boltanski, L. (2011) *On Critique. A Sociology of Emancipation*, Cambridge, Polity Press.

Boltanski, L. and Chiapello, È. (2005) *The New Spirit of Capitalism*, London, Verso.

Boltanski, L. and Thévenot, L. (2006) *On Justification: Economies of Worth*, Princeton, Princeton University Press.

Bourdieu, P. (2005) *The Social Structures of the Economy*, Cambridge, Polity Press.

Bourdieu, P. (2017) *Anthropologie Économique. Cours au Collège de France 1992-1993*, Paris, Raisons d'Agir/Seuil.

Bourdieu, P. and Boltanski, L. (2008) *La Production de L'idéologie Dominante*, Paris, Demopolis-Raisons d'agir.

Breton, P. (1990) *Une Histoire de L'informatique*, Paris, Seuil.

Callon, M. (1998) 'The Embeddedness of Economic Markets in Economics', in Callon, M. (ed.) *The Laws of the Markets*, Oxford, Blackwell, pp. 1–57.

Cayla, O. (1993) 'La Qualification ou la Vérité du Droit', *Droits*', *Revue Française de Théorie, de Philosophie et de Culture Juridiques*, **18**, 3–18.

CEGF. (1971) *Rapport du Groupe Technique de la Commission de L'économie Générale et du Financement*, Paris, La Documentation Française.

Chavance, B. and Labrousse, A. (2018) 'Institutions and "Science": The Contest about Pluralism in Economics in France', *Review of Political Economy*, **30**, 190–209.

Christensen, J. (2017) *The Power of Economists within the State*, Stanford, Stanford University Press.

Cossé, P.-Y. (1971) 'La Participation du Ministère de L'Économie et Des Finances', *Bulletin de Liaison et D'information de L'Administration Centrale de L'économie et Des Finances*, **55**, 19–26.

Courbis, R. (1969) 'Développement Économique et Concurrence Étrangère', *Revue Économique*, **20**, 37–83.

Courbis, R. (1973) 'La Théorie Des "Économies Concurrencées", Fondement du Modèle FIFI', *Revue Économique*, **24**, 905–922.

Courbis, R. and Pagé, J.-P. (1973) 'Techniques de Projection Macro-Économique et Choix du Plan Français', *Revue Économique*, **24**, 951–987.

Defaud, N. (2009) *La CFDT (1968-1995)*, Paris, Presses de Science Po.

Desrosières, A. (1977) 'Éléments Pour L'histoire Des Nomenclatures Professionnelles', in Affichard, J. (ed.) *Pour Une Histoire de la Statistique*, Vol. **1**, Paris, Insee-Economica, pp. 155–231.

Desrosières, A. (1998) *The Politics of Large Numbers. A History of Statistical Reasoning*, Cambridge, Harvard University Press.

Desrosières, A. (2000) 'How Real Are Statistics? Four Possible Attitudes', *Social Research*, **68**, 339–355.

Desrosières, A. (2008) *Pour Une Sociologie Historique de la Quantification: L'argument Statistique I*, Paris, Presses des Mines.

Desrosières, A. and Thévenot, L. (2002) *Les Catégories Socioprofessionnelles*, Paris, La Découverte.

Douglas, M. (1986) *How Institutions Think*?, Syracuse, Syracuse University Press.

Dulong, D. (1997) *Moderniser la Politique. Aux Origines de la Ve République*, Paris, L'Harmattan.

Espeland, W. N. and Stevens, M. L. (2008) 'A Sociology of Quantification', *European Journal of Sociology*, **49**, 401–436.

Evans, R. (1997) 'Soothsaying or Science? Falsification, Uncertainty and Social Change in Macroeconomic Modelling', *Social Studies of Science*, **27**, 395–438.

Evans, R. (1999) *Macroeconomic Forecasting: A Sociological Appraisal*, London, Routledge.

Evans, R. (2007) 'Social Networks and Private Spaces in Economic Forecasting', *Studies in History and Philosophy of Science Part A*, **38**, 686–697.

Fligstein, N., Brundage, J. S. and Schultz, M. (2017) 'Seeing like the Fed: Culture, Cognition, and Framing in the Failure to Anticipate the Financial Crisis of 2008', *American Sociological Review*, **82**, 879–909.

Fourcade, M. (2009) *Economists and Societies: Discipline and Profession in the United States, Britain, and France, 1890s to 1990s*, Princeton, Princeton University Press.

Fourcade, M. (2011) 'Cents and Sensibility: Economic Valuation and the Nature of "Nature"', *American Journal of Sociology*, **116**, 1721–1777.

Fourquet, F. (1980) *Les Comptes de la Puissance*, Paris, Encres.

Friedman, W. A. (2009) 'The Harvard Economic Service and the Problems of Forecasting', *History of Political Economy*, **41**, 57–88.

Friedman, W. A. (2013) *Fortune Tellers: The Story of America's First Economic Forecasters*, Princeton, Princeton University Press.

Gaïti, B. (2002) 'Les Modernisateurs Dans L'administration D'après-Guerre. L'écriture D'une Histoire Héroïque', *Revue Française D'administration Publique*, **102**, 295–306.
Goffman, E. (1974) *Frame Analysis: An Essay on the Organization of Experience*, Cambridge, Harvard University Press.
Guattari, F. (2015) *Psychoanalysis and Transversality*, Semiotext(e)/Foreign Agents.
Gusfield, J. R. (1984) *The Culture of Public Problems: Drinking–Driving and the Symbolic Order*, Chicago, University of Chicago Press.
Hacking, I. (1982) 'Language, Truth and Reason', in Hollis, M. and Lukes, S. (eds) *Rationality and Relativism*, Oxford, Blackwell, pp. 48–66.
Hacking, I. (1992) '"Style" for Historians and Philosophers', *Studies in History and Philosophy of Science Part A*, **23**, 1–20.
Hacking, I. (1992b) 'Statistical Language, Statistical Truth and Statistical Reason: The Self-Authentification of a Style of Scientific Reasoning', in McMullin, E. (eds) *The Social Dimensions of Science*, Notre Dame, University of Notre Dame Press, pp. 130–157.
Hall, P. A. (ed.) (1989) *The Political Power of Economic Ideas: Keynesianism across Nations*, Princeton, Princeton University Press.
Hirschman, D. and Berman, E. P. (2014) 'Do Economists Make Policies? On the Political Effect of Economics', *Socio-Economic Review*, **12**, 779–811.
Hirschman, D. (2016) 'Stylized Facts in the Social Sciences', *Sociological Science*, **3**, 604–626.
Howell, C. (1992) *Regulating Labor: The State and Industrial Relations Reform in Postwar France*, Princeton, Princeton University Press.
Jasanoff, S. (2008) 'Making Order: Law and Science in Action', in Hackett, E., Amsterdamska, O., Lynch, M. and Wajcman, J. (eds) *Handbook of Science and Technology Studies*, 3rd edn, Cambridge, MIT Press, pp. 761–786.
Lamont, M. (2012) 'Toward a Comparative Sociology of Valuation and Evaluation', *Annual Review of Sociology*, **38**, 201–221.
Lebaron, F. (2000) *La Croyance Économique. Les Économistes Entre Science et Politique*, Paris, Seuil.
Lemoine, B. (2008) 'Chiffrer Les Programmes Politiques Lors de la Campagne Présidentielle 2007', *Revue Française de Science Politique*, **58**, 403–431.
Le Van-Lemesle, L. (2004) *Le Juste ou le Riche. L'enseignement de L'économie Politique 1815-1950*, Paris, Comité pour l'histoire économique et financière de la France.
MacKenzie, D. (2006) *An Engine, Not a Camera: How Financial Models Shape Markets*, Cambridge, MIT Press.
MacKenzie, D., Muniesa, F. and Siu, L. (eds) (2007) *Do Economists Make Markets? On the Performativity of Economics*, Princeton, Princeton University Press.
Margairaz, M. and Rousso, H. (1987) 'Le Plan, Une Affaire D'État? Les Responsables Des Commissions du I^{er} au IX^{e} Plan', in Rousso, H. (ed) *La Planification en Crises*, Paris, Éditions du CNRS, pp. 19–71.
Martin, R. (1984) *Patron de Droit Divin*, Paris, Gallimard.
Miller, P. and Rose, N. (1990) 'Governing Economic Life', *Economy and Society*, **19**, 1–31.
Mitchell, T. (1998) 'Fixing the Economy', *Cultural Studies*, **12**, 82–101.
Mitchell, T. (1999) 'Society, Economy, and the State Effect', in Steinmetz, G. (ed.) *State/Culture: State Formation after the Cultural Turn*, Ithaca, Cornell University Press, pp. 76–97.
Mitchell, T. (2002) *Rule of Experts: Egypt, Techno-Politics, Modernity*, Berkeley, University of California Press.
Mitchell, T. (2005) 'Economists and the Economy in the Twentieth Century', In Steinmetz, G.(ed)*The Politics of Method in the Human Sciences: Positivism and its Epistemological Others, Duke*, Durham-London, Duke University Press, pp. 126–141.

Morgan, M. (2012) *The World in the Model: How Economists Work and Think*, Cambridge, Cambridge University Press.
Mudge, S. L. (2018) *Leftism Reinvented: Western Parties from Socialism to Neoliberalism*, Cambridge, Harvard University Press.
Mudge, S. L. and Vauchez, A. (2018) 'Too Embedded to Fail: The ECB and the Necessity of Calculating Europe', *Historical Social Research/Historische Sozialforschung*, **43**, 248–273.
Pierru, E. and Spire, A. (2008) 'Le Crépuscule Des Catégories Socioprofessionnelles', *Revue Française de Science Politique*, **58**, 457–481.
Piketty, T. (2014) *Capital in the Twenty-First Century*, Cambridge, Belknap Press.
Piketty, T. and Saez, E. (2003) 'Income Inequality in the United States, 1913-1998', *The Quarterly Journal of Economics*, **118**, 1–39.
Plan. (1971) *Programme de Travail Des Commissions de Modernisation du 6e Plan. Préparation du Rapport Sur Les Options*, Paris, La Documentation française.
Porter, T. M. (1995) *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, Princeton, Princeton University Press.
Reichmann, W. (2013) 'Epistemic Participation: How to Produce Knowledge about the Economic Future', *Social Studies of Science*, **43**, 852–877.
Shonfield, A. (1965) *Modern Capitalism*, New York, Oxford University Press.
Stiglitz, J. E., Sen, A. K. and Fitoussi, J.-P. (2009) *Report by the Commission on the Measurement of Economic Performance and Social Progress*, Paris, Commission on the Measurement of Economic Performance and Social Progress.
Stoléru, L. (1969) *L'impératif Industriel*, Paris, Seuil.
Thévenot, L. (1992) 'Jugements Ordinaires et Jugement de Droit', *Annales. Histoire, Sciences Sociales*, **47**, 1279–1299.
Vanoli, A. (2005) *A History of National Accounting*, Amsterdam, IOS Press.
Waring, M. (1988) *If Women Counted: A New Feminist Economics*, New York, Harper Collins.
Warlouzet, L. (2011) *Le Choix de la CEE Par la France. L'Europe Économique en Débat de Mendès France à de Gaulle (1955-1969)*, Paris, IGPDE.