The Politics of Economic Models

An Inquiry Into the Possibilities and Limits Concerning the Rise of Macroeconomic Forecasting Models and What This Means for Policymaking

Fuglsang, Niels

COPENHAGEN BUSINESS SCHOOL
SOLBJERG PLADS 3
DK-2000 FREDERIKSBERG
DANMARK

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Niels Fuglsang

Supervisors:

Caroline de la Porte

Ove Kaj Pedersen

Department of International Economics, Government and Business

Copenhagen Business School

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The CBS PhD School is an active and international research environment at Copenhagen Business School for PhD students working on theoretical and empirical research projects, including interdisciplinary ones, related to economics and the organisation and management of private businesses, as well as public and voluntary institutions, at business, industry and country level.

Foreword

Throughout the writing of this PhD dissertation, I have benefitted enormously from many helpful comments, suggestions and encouragement that I have received from colleagues and friends. I feel safe to say that I could not have done it without them, and I would like to thank some of them here. First, my two supervisors, Ove Kaj Pedersen and Caroline de la Porte. Ove's book, *The Competition State* (Konkurrencestaten), inspired me to think about the questions that this dissertation addresses. Having the chance to discuss my ideas with him has been a privilege, and since the summer of 2015 where we had a coffee and he agreed to supervise my project, he has kept on challenging my preconceptions and pushed my thinking. Caroline de la Porte has been essential to the project. She has inspired my choices of theory and methods, and she has been a critical reader and motivator all the way through. Moreover, Caroline's insight into the EU has been paramount for my analysis.

I also want to express my gratitude to the think tank Cevea, its previous director, Kristian Weise, who supported my idea from the beginning, and its previous chief of staff, Louise Juul Jensen, who backed my efforts. I have written the dissertation as an "Industrial PhD" with support from the Danish Innovation Fund as well as Cevea, the Economic Council of the Labor Union (Arbejderbevægelsens Erhvervsråd), and the labor unions LO, FTF, FOA, and HK. I have benefitted from discussing the theme of the dissertation with these organizations. They have had no influence on my conclusions.

Discussions with Anders Eldrup, Mogens Lykketoft, Jørgen Rosted, Lars Andersen, Alexander Sokol, Jesper Jespersen, Peter Schrøder, and Carsten Linding Jacobsen have meant a lot to me. Thank you, guys. In addition, thanks to Sigge Winther Nielsen and Tobias Liebetrau who read and gave feedback on my PhD application.

I had the chance to discuss my work with many talented researchers at the Copenhagen Business School, particularly at the Department for Business and Politics, where I enrolled when I began writing the dissertation. First, Manuele Citi, who was my PhD coordinator and who was always generous with his time and his useful advice, in particular, towards the finalization of the dissertation. I also want, in particular, to thank Martin Carstensen, Lasse Folke Henriksen, John Campbell, Mart Laatsit, Birthe Larsen, Janine Leschke, Mads Dagnis Jensen, Eleni Tsingou, Lars Bo Kaspersen, Lotte Jensen, Magnus Paulsen Hansen, Jacob Hasselbalch, Antje Vetterlein, Sigrid Alexandra Koob, Suen Wang, and Bo Bøgeskov.

During my studies, I spent a semester as a visiting scholar at Boston University in 2017 at the invitation from Professor Vivien A. Schmidt and Cathie Jo Martin, the director of the Center for the Study of Europe. I owe them great thanks for their hospitality and their comments. The semester meant a lot for this dissertation because I also had the opportunity to discuss my own work and the work of others with researchers at Boston University, Harvard University, MIT, and Dartmouth College.

Last but not least, thanks to dear family for bearing with me during the last years of writing. I could not have done it without your love and support.

All possible errors and/or misconceptions naturally remain mine.

Abstract

This dissertation studies the macroeconomic models that governments use for economic forecasts and asks what the political potential of economic models is, and how this potential plays out through time and in government negotiation processes. The dissertation analyzes Denmark as its case in order to study, on the one hand, the role that economic models have in policymaking, and on the other hand, which actors develop these models and for what purposes.

The dissertation contributes to the literature on the politics of economic models via three papers. The papers use qualitative methods (structured, focused analysis) to study how economic models are developed and used in Denmark. The empirical sources for the papers are archival documents from the Danish Ministry of Finance and Statistics Denmark, and interviews with economists and politicians who use and develop the models.

Paper 1 develops a novel concept of an economic model as a policy tool with an overt objective function and a covert political function. The paper uses Easton's definition of the political system as the interactions through which values are authoritatively allocated for a society. From this outset, the paper argues that while economic models appear objective and neutral, they have the potential to promote an allocation of values to certain policy goals via certain instruments. This function is political. The paper analyzes how the function came into play during the 2011-2015 Thorning-Schmidt government. Here, different actors used the government's economic model to promote cuts in taxes and social benefits as instruments to reach a goal of increased labor supply. Thereby, the model worked as a tool contributing to neoliberal resilience in Denmark.

Paper 2 investigates the driving forces behind the Danish government's economic models from the 1970s until today. The paper finds that economists have developed the models. These range from Keynesian short-term models to being a long-term synthesis between neoclassical and Keynesian economics. However, the paper also finds that certain politicians with ideological motives have influenced the models in a neoclassical direction. Such an influence can occur when politicians use their government position to push for including assumptions in the models. The models thus represent a mixture of science and politics.

Paper 3 advances the concept of the fiscal room for maneuver that scholars have used to describe the government's freedom to have the fiscal policy it wants without constraints from both public debt or EMU (Economic and Monetary Union) deficit - and debt rules. I expand the

concept to include the economic models that governments' use to forecast the public deficit - and debt levels to assess whether these stay within the EMU rules. I analyze how the fiscal room for maneuver has developed in Denmark since the 1970s until today as public debt has decreased, while EMU rules and economic models have become stronger. The alteration puts increasing supply-side pressure on governments' economic policies as the economic models predict that cuts in taxes and unemployment insurance are compatible with the EMU rules, whereas increased welfare expenditure is less so.

Overall, I find that the economic models have the potential to influence *politics* by empowering some political actors and agendas at the expense of others (paper 1), and that the models have the potential to influence the government's *policies* by providing policy goals and instruments. In this way, they help the government to make sense of the economy (paper 1). Furthermore, when the economic models are used to determine whether the government breaches the EMU deficit rules, the models become part of *polity*, that is, the rules of the game that every government must follow (paper 3). Finally, analyzing the economic models' driving forces, I find that both economists and politicians have influenced the models (paper 2). For these reasons, the dissertation concludes that economic models indeed have political elements and a political function, which is inseparable from the models' scientific basis.

Resumé

Denne afhandling studerer makroøkonomiske modeller, som regeringer bruger til at lave økonomiske fremskrivninger, og spørger: hvad er økonomiske modellers politiske potentiale og hvordan kommer dette potentiale til udtryk over tid og i regeringsforhandlingsprocesser? Afhandlingen analyserer Danmark som sin case for at studere, på den ene side, hvilken rolle økonomiske modeller har for politikformulering, og på den anden side, hvilke aktører der udvikler modellerne med hvilke formål.

Afhandlingen bidrager til litteraturen om økonomiske modellers politiske aspekter via tre artikler. Artiklerne anvender kvalitative metoder (struktureret, fokuseret analyse) til at studere hvordan økonomiske modeller anvendes og udvikles i Danmark. Artiklernes empiriske kilder er dokumenter fra det danske Finansministeriums og Danmarks Statistiks arkiver samt interviews med økonomer og politikere, som anvender og udvikler modellerne.

Artikel 1 udvikler et nyt begreb om økonomiske modeller som policy redskaber, der har en åben objektiv funktion og en gemt politisk funktion. Artiklen anvender Eastons definition af det politiske system som de interaktioner gennem hvilke den autoritative allokering af værdier for et samfund finder sted. Artiklen argumenterer for, at økonomiske modeller fremstår objektive og neutrale, men at de samtidig har potentiale til at promovere en allokering af værdier til visse policy mål via visse instrumenter. Denne funktion er politisk. Artiklen analyserer, hvordan funktionen kom i spil under Thorning-Schmidt regeringen fra 2011 til 2015. Her brugte forskellige aktører regeringens økonomiske model til at promovere en sænkninger af skatter og sociale ydelser som instrumenter til at øge arbejdsudbuddet. Dermed bidrog modellen som et redskab til at bevare den neoliberale ideologis indflydelse.

Artikel 2 undersøger drivkræfterne bag udviklingen af den danske regerings økonomiske modeller fra 1970 til i dag. Artiklen finder, at økonomer har udviklet modellerne fra at være kortsigtede Keynesianske modeller til at være en langsigtet syntese mellem Keynesiansk og neoklassisk teori. Artiklen finder samtidig, at visse politikere med ideologiske motiver har ydet indflydelse på modellerne i en neoklassisk retning. Denne indflydelse kan finde sted, når politikere via deres position i regeringen presser på for at inkludere forskellige antagelser i modellen. De økonomiske modeller udgør dermed en blanding af videnskab og politik.

Artikel 3 udvikler begrebet om det finanspolitiske manøvrerum, som forskere har anvendt til at beskrive regeringens frihed til at have en finanspolitik uden begrænsninger fra hverken offentlig

gæld eller ØMU (Den Økonomiske og Monetære Union) underskuds- og gældslofter. Jeg udvider begrebet til også at inkludere de økonomiske modeller der fremskriver gælden. Jeg analyserer, hvordan det finanspolitiske manøvrerum har udviklet sig i Danmark siden 1970 til i dag, hvor den offentlige gæld er faldet mens budgetreglerne er blevet mere omfattende. Udviklingen sætter et øget udbudspolitisk pres på regeringens økonomiske politik, eftersom de økonomiske modeller forudser at nedsættelser af marginalskatter og dagpenge er mere kompatibelt med EU-reglerne end øgede udgifter til velfærd.

Samlet set finder jeg, at de økonomiske modeller har potentiale til at påvirke *politics* ved at styrke nogle politiske aktører og dagsordner på bekostning af andre (artikel 1), og at modellerne potentielt kan påvirke regeringens *policy* ved at levere policy mål og instrumenter for derved at hjælpe regeringen med at give mening til økonomien (artikel 1). Når modellerne derudover anvendes til afgøre, hvorvidt regeringen bryder EU's underskudsregler, bliver modellerne en del af *polity*: de institutionelle spilleregler som enhver siddende regering må efterleve (artikel 3). Endelig finder jeg, at både økonomer og politikere har ydet indflydelse på modellernes udvikling (artikel 2). Afhandlingen konkluderer således, at økonomiske modeller har politiske elementer og en politisk funktion, der ikke kan adskilles fra deres videnskabelige grundlag.

TABLE OF CONTENTS

1. Introduction

In the 2015 Danish parliamentary elections, I worked as a campaign manager for the Danish Social Democrats. Together with my colleagues, I developed and implemented campaign strategies for the party and the prime minister to win the upcoming parliamentary elections against the liberal and conservative opposition.

Up to the elections, the political parties presented different economic strategies for Denmark as part of their electoral campaigns. The parties on the left wanted to spend more money on public welfare, while the parties on the right argued that tax cuts would stimulate the Danish economy. All the parties tried to convince the voters that their economic strategy was the best.

A party called the Liberal Alliance presented an economic plan up until 2025 in which they proposed significant tax cuts and reductions of social benefits. The plan aimed to shrink the size of the public sector and to make more room for the free market, which, according to the Liberal Alliance, would increase the competitiveness of the Danish economy. The Liberal Alliance sent their plan to the Social Democratic finance minister and asked him to use the Ministry's economic models to forecast the effects of the plan on the Danish economy. The finance minister accepted the task and put the economists in the Ministry to work.

The Ministry of Finance has a set-up of sophisticated economic models that economists consider the finest in the country, and the Ministry's calculations are thus highly respected. When the Ministry published the result of their calculations of the Liberal Alliance plan, it sparked quite a debate. The Ministry concluded that the plan would boost the Danish economy, raising the GDP by over 100 billion Danish crowns while creating more than 100,000 jobs in 2025 (Finansministeriet, 2015). Thus, according to the economic models, the Liberal Alliance's plan would create significantly more jobs and growth than the government's economic policy.

The Ministry stressed that the calculations were uncertain, as the economic models were not necessarily fit for assessing such big changes to the economic policy as the Liberal Alliance plan entailed. However, newspaper headlines and news shows centered around the impressive results that the models associated with the plan (Kildegaard and Olsen, 2015; Quist, 2015; Engell, 2015).

In the following months, the Liberal Alliance experienced a boost in its support, and party leader Anders Samuelsen had no doubt that there was a connection: "There is definitely a connection.

We have experienced positive attention, and we found that it was a sort of a seal of approval for our policy that many had been waiting for" (Samuelsen, cited in Alsen, 2015). The Liberal Alliance used the forecast results in their election campaign. On Election Day, the party increased its result by 50 percent compared to the previous election (from 5 percent of the votes in 2011 to 7.5 percent in 2015).

The process around these calculations and the debate that followed touched upon some central questions and dilemmas in modern economic policymaking. In Denmark, different political parties use the Ministry of Finance's economic models to forecast the economy. The models are an essential part of policymaking in Denmark. It is widely accepted that politicians should not manipulate the calculations but leave these to economists and technocrats who are considered more neutral and scientific.

Does that mean the Social Democrats and all other political parties, for that matter, should acknowledge that the Liberal Alliance has the best economic policy, at least if one wants to create wealth and jobs? The economic models seemed to suggest so. The Liberal Alliance is a relatively small party. However, other political parties—both left and right wing—also use the models to evaluate their policies and develop their economic plans.

Media journalists, politicians, and indeed the Ministry of Finance often portray the economic models as having an objective function. According to this portrait, the models forecast the economy using objective and scientific methods to present a neutral and fact-based analysis. However, one might ask whether the models have a covert political function besides the overt objective function? Are economic models by definition political in the sense that they do not describe the economy neutrally but rather give a perspective on the economy that might empower some political agendas at the expense of others, depending on the theory and the variables that inform the models? If so, how does this potential play out through time and in government negotiation processes?

If economic models have a political function, we might, furthermore, ask who drives the development of the models. Do economists who work in bureaucracy develop the models? Alternatively, do elected politicians have an interest in the equations and variables inside the model, and can politicians influence the models?

As a Social Democrat, it is not self-evident what to think of the Danish economic models' debate. Mogens Lykketoft, former Social Democratic finance minister and party leader, has attacked the economic models, stating that they are political and "permeated with neoliberal ideas" (Lykketoft, 2018). He meant that in a negative sense. Bjarne Corydon, the Social Democratic finance minister in 2015, disagreed with the criticism. He stated, "We use conventional calculation principles. That is the only responsible thing to do" (Corydon cited in Arnfred and Thobo-Carlsen, 2012).

My ambition in writing this dissertation is to stand outside the political arena in which I have worked and do my best to analyze the possibilities and limits that macroeconomic modeling means for modern policymaking. My ambition is not to say whether the economic models are "good" or "bad." Rather, I wish to explore their background and consequences. The research question I pursue is: What is the political potential of macroeconomic models that governments use for economic forecasts, and how does this potential play out through time and in government negotiation processes? The dissertation proceeds as follows. Section 2 reviews the literature on the political role of a) economic ideas, and b) economic models, and identifies gaps in the literature that the dissertation addresses. Section 3 presents the research questions of the dissertation's three papers and presents their contributions to answering the research question. Section 4 unfolds the understanding of the dissertation concerning the main concepts that it uses in the papers and in the title: "economic models" and "the political." Section 5 presents the methods and data sources, while Section 6 presents the Danish economic model set-up that the dissertation draws upon. Section 7 discusses the dissertation's contributions to related debates in the literature on institutional change and continuity, and the relationships between democracy and capitalism. Section 8 concludes and considers the implications for further research.

2. Literature review: Ideas and economic models

This dissertation engages with two main branches of literature in the political economy field. The first is the extant literature on the political influence of economic ideas. The second is the emerging literature on the political influence of economic models. In the following, I introduce these two literatures and explain how the dissertation complements these.

2.1 The literature on the political influence of economic ideas

There is a vast selection of literature on the political influence of economic ideas. The literature is a correction of the view that politics is primarily about power games between agents with fixed interests. Heclo (2010 [1974], p. 305) has argued that politics is not only a matter of power but also of "puzzling". Policymakers puzzle over how to make sense of the world and how to solve the problems facing the society. In this perspective, there might be different ideas (e.g., Keynesianism or neoclassical economics) about how the economy works and what the government should do to solve an economic crisis. From this outset, scholars have argued that "ideas matter" for the way governments interpret the economy and define their interests (Blyth, 1997; 2002, Béland and Cox, 2010). This dissertation builds on this literature and the assumption that "ideas matter", and it seeks to contribute to the literature by showing how economic models relate to ideas. It does so by analyzing the models (with their built-in ideas) in practice, over time, and in a government negotiation process. Thus, it moves beyond this recognition of the importance of ideas to concretely analyzing their inclusion in institutions and in political processes.

In a seminal contribution to the "ideas matter" literature, Hall (1993, p. 279) has argued that policymakers operate within a certain paradigm of dominant ideas, which provides policymakers with the possible goals of economic policy, the instruments to reach these goals, but also, the very nature of the problems facing the economy. According to Hall (1993), when the existing paradigm fails to provide policymakers with a credible interpretation and prescription for action in the face of a crisis, a new paradigm might replace the old one. According to Hall (1993), such a shift took place in Great Britain during the 1980s when monetarism replaced Keynesianism, as Keynesianism could not provide satisfactory answers to the stagflation crisis in the economy.

I follow Hall in his understanding of ideas as providing the possible goals, the instruments to reach these, and the interpretation of the problems facing the economy. In this sense, ideas are both cognitive (they describe cause-effect relationships in the economy, i.e., if the government does X, Y will happen), and normative (they define what the government ought to do, i.e., which goals the government should aim for) (Schmidt, 2008). In this dissertation, I mainly refer to three frameworks of ideas. Two of these are economic theories, Keynesianism and neoclassical economics. I elaborate on these in section 4. The third is neoliberalism, which I elaborate on in paper 1. While Keynesianism and neoclassical economics are economic theories that describe how the economy works and how policymakers can govern the economy accordingly, neoliberalism has a stronger normative aspect, as it highlights the advantages of the free market. One could say that neoliberalism is more of a political theory compared to Keynesianism and neoclassical economics that are economic theories. However, as I argue throughout this dissertation, the borders between economics and politics often blur.

Scholars have used Hall's perspective to analyze the development of Danish economic policymaking. Asmussen (2007) has analyzed the ideas driving the Danish state's economic policymaking from 1974 to 1994. Asmussen argues that different social democratic and conservative-liberal governments responded to the economic crisis of the 1970s (rising unemployment, inflation and foreign debt) from a Keynesian perspective of managing business cycles by manipulating the aggregate demand via fiscal policy, monetary policy, and wage policy. According to Asmussen, a paradigm shift took place in the late 1980s when the prime minister could not find support for the tax cuts he wanted among the Keynesian economists. Therefore, the prime minister allowed neoclassical economists and politicians to plan policymaking with the ambition of increasing labor supply, which, according to neoclassical theory, should lead to higher levels of employment. In the neoclassical paradigm, the prime minister can more easily argue for tax cuts, as these increase labor supply. Asmussen argues that in the 1990s, the social democrats returned to a more Keynesian-oriented policy of demand stimulus, while still keeping some of the supply-oriented ideas in their economic policy.

Larsen and Andersen (2009) begin their study where Asmussen finishes by analyzing the economic policymaking in Denmark in the 1990s. The authors argue that here, under the social democratic government of the 1990s, there was a shift from a "business cycle paradigm" to a "structural employment paradigm". This is what Asmussen finds in the late 1980s, but—as Asmussen writes—in the beginning, it did not lead to policy changes, as in the 1980s, the conservative-liberal government could not gather a parliamentary majority for their proposals. However, as Larsen and Andersen show, in the 1990s, the Social democratic government initiated structural reforms by raising the effective pension age, cutting income taxes for top income groups, and limiting the length of social insurance coverage. The government launched these reforms to expand labor supply and reduce structural unemployment. Thus, the policy change happened in the 1990s. Larsen and Andersen argue that their study shows the power of neoclassical ideas, as these influenced policy under Social democratic reign rather than (as in

Halls study) under a conservative British government that had a more direct ideological interest in such a policy.

While these two studies show how with time, neoclassical ideas about labor supply (in the late 1980s and in the 1990s) have become more dominant compared to Keynesian ideas, neither of the studies treat economic models as a factor that could influence this process. Asmussen refers to the economic models several times in his study. For example, when the finance minister of the conservative-liberal government, Henning Christophersen, insists on including a relationship between debt and the interest rate (Asmussen, 2007, p. 99), or when the tax minister, Anders Fogh, insists on including relationships between marginal taxation and labor supply (Asmussen, 2007, p. 134). However, Asmussen treats the models as a dependent variable (with the ideas as the independent variable) rather than an institutionalized factor that could influence ideas proposed and adopted by political actors. Larsen and Andersen do not mention the economic models.

This dissertation complements the studies of the ideas that have influenced Danish economic policymaking by analyzing how economic models have gained an increasingly prominent role in the policymaking process since the 1970s until today, and what this means for which kind of ideas that can wield an influence. For example, once the model encapsulates an idea, does it make that idea more powerful? Does the model make the idea appear more objective and less ideological? Is that why in some cases, the social democrats adopt ideational baggage from the conservative and liberal governments, as the ideas stay within the model that is used by all governments? Moreover, what does the rise of the economic models mean for the balance of power between the politicians and the professional economists in the Ministry of Finance? These questions are unanswered by the previous analyses of ideas in Danish policymaking, and it is my ambition to address the questions throughout the dissertation.

2.1.1 Do expert ideas shape policy instruments and/or goals?

According to Hall's definition, a policy paradigm consists of both ideas about policy goals and the policy instrument. However, Lindvall (2009) has argued that economic expert ideas are more likely to influence the instruments that politicians use to attain their policy goals (e.g., fiscal policy or budget balance as an instrument to increase economic growth). In contrast, other values and norms might influence the policy goals themselves (e.g., employment or current account balance as policy goals). Lindvall analyzes various cases of policy change since the 1970s in Denmark, Sweden, and Austria to argue his case. For example, Lindvall (2009) analyzes how Danish governments have changed policy goals from bringing down unemployment (the goal in the mid-1970s and again in the 1990s) to budget balance and low inflation (from the mid-1970s to the early 1990s) independent of experts' ideas, while the instruments used to reach these goals (e.g., fiscal policy) have been influenced by experts.

Yet, Lindvall has not analyzed the role of economic models (which embody ideas) in the policy-making process, which is central in this dissertation. Thus, paper 1 complements Lindvall (2009) by arguing that the economic ideas in the 2011–2015 Thorning-Schmidt government's economic model influence both the government's policy goal (labor supply) and the instruments to reach this goal (increasing the retirement age, reductions in taxes, and reductions in social benefits). I argue that economic ideas become more powerful when incorporated into the government's economic model as the government uses the models to make sense of the economy, while the model at the same time appears objective and neutral. The model's political function, combined with its objective function, gives the ideas inside the model a somewhat unnoticed power to build a consensus around certain policy instruments and goals while presenting these as self-evident.

2.1.2 Incremental ideational change

In the academic debate on ideas, scholars have criticized Hall for overemphasizing the situation in which one policy paradigm completely replaces another. As we have seen in the previous section, it is not always clear when exactly a paradigm shift takes place, as elements (goals and instruments) of several paradigms might coexist. According to the critique, we should pay more attention to the gradual change that happens within and between paradigms. Thus, scholars argue that rather than operating within coherent paradigms, policymakers choose from a toolbox of different and sometimes contradictory ideas (a process sometimes referred to as "bricolage") when they design policies (Campbell, 2004; Carstensen 2011a, 2011b, Wilder, 2015, Carstensen & Matthijs, 2018).

For example, Baker (2013) has analyzed financial regulation after the 2008 financial crisis and shown how the goals of the regulation can change—indicating a paradigm shift—while the instruments to reach the goals for a time remain those of the old paradigm. The result is that the regulation contains elements of both paradigms (Baker, 2013, p. 423). Other scholars have emphasized that due to different national traditions, the neoliberal policy paradigm—which has gained international prominence since the 1980s—transforms into different national hybrids and mixes with other paradigms (Pedersen and Campbell, 2014; Ban, 2016).

My analysis of economic models supports the bricoleur perspective. By analyzing a government's use of economic models, one quickly realizes that the government uses more than one model, and that these models vary in how they regard the economy. In the Danish case, the government and the commissions that advise the government sometimes use a general equilibrium model—DREAM (the Danish Rational Economic Agent Model)—and the more Keynesian-inspired ADAM (Annual Danish Aggregate Model). Moreover, ADAM is a "synthesis between Keynesian and neoclassical theory", which assumes that demand drives economic activity in the short run, while supply drives it in the long run (Danmarks Statistik, 2013, p. 7). The governments' models thus mix different paradigms and illustrate how governments sometimes select ideas from different paradigms. In paper 2, I show how the ideas in the models develop over five decades and how the models represent a combination of ideas rather than a coherent paradigm.

2.1.3 Power and ideas

In relation to the critique of the overemphasizing of full-scale paradigm shifts, scholars have reintroduced the notion of power in relation to ideas. Carstensen and Schmidt (2016) point towards the power in ideas (the dominant ideas in society that constrain what is possible to say or do), the power through ideas (the capacity of actors to persuade other actors to adopt certain ideas), and the power over ideas (the capacity to include or exclude certain ideas in the policymaking arena). This focus tells us that the idea perspective is still ultimately about power, and that power in relation to ideas is not equally distributed. In the following, I will give some examples of studies that explore power in relation to ideas, and I will then explain how this dissertation investigates how economic models (and the ideas embodied in the models) can influence these power dynamics.

One can find examples of how power works in relation to ideas in various studies, even though they do not explicitly refer to "power in, through, and over ideas" (some of the following studies are prior to Carstensen and Schmidt, 2016). Mandelkern and Shalev (2010) tell us that some actors have more power through ideas than others. The authors explain the respective successes and failures of economic reform ideas in Israel in the 1980s by the political, social, and academic capital of the idea carriers. Mandelkern and Shalev (2010) compare two proposals for economic reforms that shared many elements. They both aimed at decreasing inflation and correcting the balance of payment deficits by means of fiscal restraint and a monetary policy without devaluating the currency. The authors show how the main difference between the reforms was the capital of their academic sponsors. This difference in academic capital explains why the one reform succeeded while the other failed.

Analyzing the EU's response to the sovereign debt crisis, Blyth and Matthijs (2018) tell us that some actors have more power over ideas than others. They argue that what is learned from a crisis depends on "who is institutionally authorized to learn" (Blyth and Matthijs, 2018, p. 112). Different actors might have different interests in what to learn. According to Blyth and Matthijs (2018), due to their institutional position, the eurocrats in the European Commission had a big influence on what should be learned from the financial and sovereign debt crisis, and, in turn, which ideas should and should not be used to solve the crisis (in this case, fiscal constraint rather than Keynesian policies).

Finally, Mandelkern (2016) tells us about the power in ideas. Mandelkern (2016) seeks to explain the "striking similarity in macroeconomic responses to the Great recession" in advanced economies, which consist of limited fiscal expansion and comprehensive monetary expansion. As an explanation, Mandelkern (2016) points to institutions such as independent central banks and rules that limit the politicians' policymaking discretion, but he also points to certain ideas about how politicians tend to overspend. According to Mandelkern, these ideas have become widely spread and now work as discourses that limit what one can and cannot argue in terms of policy responses to the great recession.

This dissertation offers a contribution to these perspectives on power and ideas, but it is focused on the models, over time, and in political processes. The argument throughout the dissertation is that ideas become more powerful when they are institutionalized in models. In other words, when ideas inform the variables and the relationships between these variables inside the economic model used by the government to forecast the economy, they become powerful. I argue that such an economic model strengthens the ideas it encapsulates by putting them at the center of economic governance and by portraying them as somewhat objective and scientific.

Consequently, the actors whose arguments are in line with the model, have more power through ideas than the actors who argue against the model. I elaborate on this in paper 1. The idea in the model may, furthermore, take the form of an institution that policymakers must respect in the negotiations of economic reforms when the idea via the model makes predictions of the effects on the public budget of different reforms. Thus, the model strengthens the power in the ideas it encapsulates. I elaborate on this in papers 1 and 3. Finally, in paper 2, I show how economists and politicians can be gatekeepers of the ideas that enter and do not enter the model, and how these actors compete on power over ideas in the model.

2.1.4 Recent scholarship on the resilience and politics of economic ideas

Recent scholarship has focused both on the ideas produced by the economics profession as such but also on the interplay between the economics profession and the political sphere. I briefly refer to this scholarship here, as I consider that the dissertation in particular relates to this work.

Stahl (2020) studies the economics profession to "deconstruct the division between economic and political spheres". He studies some of the academic literature's central formulations of neoclassical theory to show how this is not only an economic theory but also a political theory, which, according to Stahl, criticizes the possibility of democratic governance of the economy. Yet, while Stahl uncovers the political elements of neoclassical theory, he does not show us the implications that these elements have for democracy when they work in practice via economic modeling and EU budget rules. The dissertation shares the view of Stahl (2020) that economic ideas often have political elements but appear apolitical. The dissertation contributes to the work of Stahl by investigating how economic modeling adds to this apparent decoupling between economic and political issues (paper 1), and by showing how the neoclassical ideas influence the relationship between democracy and the economy once they are institutionalized via an economic model (paper 3).

Helgadóttir & Ban (2021) have investigated the degree to which the neoclassical assumption that economic agents have "rational expectations" is present in high prestige journals after the 2008 financial crisis. The authors study economic papers in highly prestigious journals and find that the "rational expectation" assumption is resilient in the academic literature in spite of the financial crisis, showing us that the assumption does not hold at least for the financial sector. Helgadóttir & Ban (2021) focus on the academic literature but do not investigate how the assumption influences policies. I, however, show how the assumption stays present in macroeconomic models that Danish governments use to forecast the economy. In paper 2, I show how these models assume that actors with rational expectations adjust their demand and supply relatively fast, resulting in predictions that the economy will reach a general equilibrium earlier than it would have done if the assumption had not been present. This has, as I show, implications for how fast labor supply turns into employment, and, thus, for the policies governments plan.

Other recent scholarship focuses on not just the economics profession, but rather on the interplay between politics and economics. Farrell and Quiggin (2017) study the policy responses to the 2008 financial crisis in the USA and Europe and argue that when studying the influence of economic ideas, one should look at the "two-way process" between economists and politicians. When there is consensus among economists around a certain idea, that consensus strengthens politicians who argue in line with the idea. However, powerful politicians who disagree with the consensus can actively promote economists who argue against the consensus by referring to them in speeches or hiring them to perform analyses. Governments can create dissensus in this way. Farrell and Quiggin (2017) argue that the German government made use of this strategy to create dissensus around the Keynesian response to the aftermath of the 2008 financial crisis.

This dissertation complements Farell and Quiggin (2017) by recognizing the two-way process between politicians and economists who both influence the power of ideas and extending this kind of analysis to the question of economic models. In paper 2, I analyze the interplay and, indeed, the power struggle between economists and politicians by analyzing how the two groups each push new ideas into the governments' economic models.

2.2 The literature on the political influence of economic models

I now turn to the emerging literature on the political influence of economic models, to which I wish to contribute. Hirschman and Berman (2014) argue that while political concerns may trump advice from economists to governments, economists nonetheless wield influence by defining policy problems, setting policy goals, and judging the validity of economic arguments. One main way in which economists do this—according to Hirschman and Berman (2014)—is by developing economic models that governments use to plan their policy. Following this argument, Tilsted *et al.* (2020) adds that when powerful actors, such as the leading university economists and the top bureaucrats in a country, agree on the use of a certain economic model, the model's forecasts obtains a high authority, which makes it costly for political parties to ignore the model. Such models constitute "rules" or "institutions" that policymakers have to respect to be considered credible.

The literature offers three perspectives from which one can think further on the political influence of economic models.

A first perspective sees the models as political tools used by policymakers to promote certain interests (Dutton & Kraemer, 1985; Kraemer & King, 1986; Madsen, 1991; Pedersen, 1985). According to Dutton and Kraemer (1985), an economic model is a partisan political tool when it promotes special political or technocratic interests. Madsen (1991) shows how interest groups in Denmark have used economic models as partisan tools to demonstrate their preferred policies' advantages. In a more recent analysis of the European Commissions' "potential output" model, Heimberger *et al.* (2020) argue that economic models serve as "transmission devices", which can transform an abstract economic paradigm into concrete policy programs. According to Heimberger *et al.* (2020), the models allow actors drawing on the model to exercise power by coining political decisions as innocent technicalities.

However, policymakers can also use economic models as consensual tools when providing a framework for reaching political compromises or making visible rational solutions to policy problems (Madsen, 1991; Dutton and Kraemer, 1985). Pedersen (1985) shows how policymakers in Denmark have used economic models as consensual political tools to find a common understanding of the challenges facing the Danish economy, while various interest groups have used the models to influence the common understanding of these challenges. According to Pedersen, the power of models to influence the common understanding relies on appearing objective rather than political.

A second perspective considers the models as political "engines" and explores how the models "perform" the economy. The philosopher J. L. Austin coined the notion of "performative utterances" to describe utterances that change the state of affairs rather than merely describing the existing state of affairs. For example, by saying, "I name this ship the Queen Elizabeth," one performs an action and changes the state of affairs by giving the ship a name (Austin, 1975). Callon (2006) applies the concept of "performativity" to study how actors, economic theory, economic models, and institutions "perform" the economy, changing it from one way of functioning to another.

Using this approach, Mackenzie (2008) analyzes how financial economic models work not as a "camera" but rather as an "engine," performing the logic of the financial sector by influencing how banks and investors act. Braun (2014) analyzes how applying one macroeconomic model instead of another may change the understanding of how policy instruments can be used to influence the economy. Furthermore, Braun argues that macroeconomic models are correct when they convince people that they are correct and make actors in the economy follow the logic of the model. An example of this is studied in Henriksen (2013), who shows how the introduction of general equilibrium modeling in Denmark changed policymakers' perceptions of the economy and paved the way for the Danish tax reductions of 2010. Thus, economic theories and models are to some degree self-fulfilling, as they do not merely describe the economy but also "perform" it by changing how actors think and interact. From this perspective, a model is successful when it alters the economy to conform to its assumptions and conclusions.

A third perspective focuses on the economic indicators forming the variables of the models. According to this literature, such indicators are far from a mere technical matter. The definition of concepts such as "GDP," "employment," "national debt," and "inflation" involves political choices regarding what is to be included and excluded, as shown by Mügge (2016). GDP, for example, does not include the amount of work produced in the home and does not take into account environmental degradation caused by economic activity (Philipsen, 2015). Economic indicators thus empower certain perspectives while disempowering others. During the last decade, scholars, governments, and international organizations have engaged in developing new indicators as alternatives to GDP, acknowledging that these indicators have a strong political influence (Stiglitz *et al.*, 2009; OECD, 2011).

Another example of the indicator-perspective is Angeletti (2021), who argues that economists perform two powerful operations when they create their models. First, they "select" the phenomena to include and exclude: For example, does the phenomenon "economic inequality" exist in the model? Second: they "qualify" these phenomena by assigning to them the qualities that define them. For example, does the model see "wages" as an independent variable that the model user can insert, or are wages dependent on the unemployment level in the model? Angeletti (2021) shows how the selection and qualification of phenomena in the French "FIFI" model in the 1970s played a key role in structuring the political debate that followed the model calculations.

The three perspectives that I have presented analyze economic models as political, either as tools for wielding power by certain actors, engines for driving the economy in a certain direction, or holders of indicators that empower certain arguments while disempowering others. However, the literature leaves key questions on the political nature of the economic models unanswered. I will address these gaps in the three papers that constitute this dissertation.

First, what makes the variables and equations in the model political but appear apolitical? Perspective 1 tells us that economic models are powerful tools as they can coin political decisions as technical (apparently objective) questions. However, what then is the difference between the political and the technical, and by which mechanism can the model transform the political into the technical? Paper 1 addresses these questions.

Second, models do not emerge from nowhere. Who drives their development? Perspective 3 tells us that modeling involves selecting and qualifying the phenomena to include in the model. However, who performs this selection and qualification? Civil servants, economists, university experts, politicians, or other actors? Moreover, which motives drive these actors? Paper 2 addresses these questions.

Third, what formal power can models hold over governments' economic policy? All three perspectives point to the models' ability to frame political debates, and perspective 2 points to the models' ability to make agents in the economy think and act according to the model. However, does this power lie only in framing political debates, or can the model in some cases obtain formal power so that the governments' have to follow the models' conclusions to stay within the law (be that national law or EU-rules)? Paper 3 addresses these questions.

3. Research questions and the structure of the dissertation

The research questions that I pursue in this dissertation are the following: What is the political potential of macroeconomic models that governments use for economic forecasts, and how does this potential play out through time and in government negotiation processes? I investigate these questions in three papers with the ambition of covering the gaps in the reviewed literature in the preceding section. Table 1 presents the papers' research questions.

Table 1. The papers' research questions	
Paper 1	How can policymakers use economic models as tools with an overt objective function but with a covert political function to influence policies before, during, and after government formation processes?
Paper 2	What and who drives the development of economic models?
Paper 3	How do economic models and EU-rules shape the fiscal room for maneuver of governments?

In answering the research questions, the papers use Denmark as their case. I explain the choice of case and the methods for studying it in sections 5 and 6. In the following, I present the perspective and main findings of each paper to give an overview over their contributions to the literature on the politics of economic models.

Paper 1: The 'strange non-death' of economic models: how modeling contributed to neoliberal resilience in Denmark

Paper 1 argues that economic models have a political potential when they work not merely as analytic tools but as policy tools with an overt objective function and a covert political function. Economic models appear objective, as they are too complex for most policymakers to understand. The models rely on statistical theory and methods that most politicians and journalists do not understand, and these actors, therefore, see the model as a black box and take its predictions for granted as objective facts. However, I argue that economic models also have a political function as they simplify the world by including some variables and relationships between these while excluding other variables and relationships. This inclusion/exclusion is political as it promotes the allocation of values to certain policy goals via certain policy instruments.

To illustrate how the political potential of economic models can be mobilized, I analyze how politicians exercised power through the ideas in the Danish Finance Ministry's economic models before, during, and after the formation of the Danish Thorning-Schmidt government (2011-2015). The politicians used the models to influence policy reforms in a neoliberal direction. The economic model provided the government with the policy goal of increasing the labor supply and the policy instruments of increasing the pension age, reducing social benefits, and decreasing marginal taxes as policy instruments. At the same time, the Finance Ministry used the black box quality of the economic model to portray the model as fact-based and scientific as opposed to the critics who were seen as ideological and populist. Although the model does not dictate policy directly, it informs policymakers who then make the choices. As shown in my paper, the correlation with policy suggested in models and the policy outcome is very high. Thus, this indicates the real and tangible influence of the model during the crisis period.

Paper 2: The economic model runs the economy, but who runs the economic model? Economists and politicians as driving forces behind Danish economic models

Paper 2 argues that economic models have a political potential, as not only economists working scientifically but also politicians working ideologically can exercise power over the ideas in the models. I analyze the development of the Danish government's economic models from the 1970s until today, and I show how they have developed over five decades until today. The models went from being short-term Keynesian models to a synthesis between Keynesian and neoclassical economics in which demand drives the economic activity in the short term while supply drives it in the long term. Economists who analyze Denmark's economic challenges and incorporate more sophisticated data and theory into the models have been the main driver of the development. However, certain politicians who have had an interest in including effects of, for example, tax cuts on the labor supply have also influenced the models. Such politicians have in certain cases managed to influence the models either directly via power struggles with the economists in the state or indirectly by sending signals in the media that the economists considered when they developed the models. Thus, the Danish Finance Ministry's models are today an inseparable mix of science and politics.

Paper 3: Conceptualizing the fiscal room for maneuver: The case of Denmark

Paper 3 argues that economic models combined with the EMU rules for deficits have political potential by shaping the “fiscal room for maneuver” for the Danish government. Other scholars have referred to the concept of fiscal room for maneuver to describe either how excessive public debt can constrain governments’ possible policies, or to describe how these are constrained by fiscal rules laying out debt and deficit limits. The paper advances the concept of “fiscal room for maneuver” by including economic models that forecast debt levels in the concept. Thus, the paper defines fiscal room for maneuver as the ability of governments to have the fiscal policy they want without constraints from debt, EMU rules, and economic forecasting models.

I show how the Danish fiscal room for maneuver has changed as public debt has decreased while budget rules in the form of economic forecasting models and deficit ceilings set by the Economic and Monetary Union (EMU) have become increasingly strong institutions since the 1970s. In 1970, there were neither economic models specifying the rules for how to forecast the effect of the government’s fiscal policy on the public budget nor EU deficit rules specifying allowed limits for deficits and debt. In 2020, the situation is dramatically different. The Ministry of Finance makes detailed forecasts of the government’s policy effects to assess whether the policy might breach the EU’s legally binding limit for public deficits of 0.5 percent of GDP. Thus, policymakers have voluntarily tied themselves to tighter deficit rules, which prevent them from accumulating excessive debt. However, as a side effect, the ideas—that are not neutral—in the economic models and the EMU rules become powerful in dictating which policies governments can and cannot initiate. I analyze how the fiscal room for maneuver puts increasing supply-side pressure on governments’ economic policy in the direction of reducing social benefits and tax rates.

Figure 1 illustrates the division of labor between the three papers. Paper 1 analyzes the economic models as the independent variable that influences the government policy, which is the dependent variable. Paper 2 analyzes how economists and politicians—as the independent variables—influence the economic models, which are the dependent variable. Paper 3 analyzes the combined influence of the economic models and the EU rules, the independent variable, on the government policies, the dependent variable.

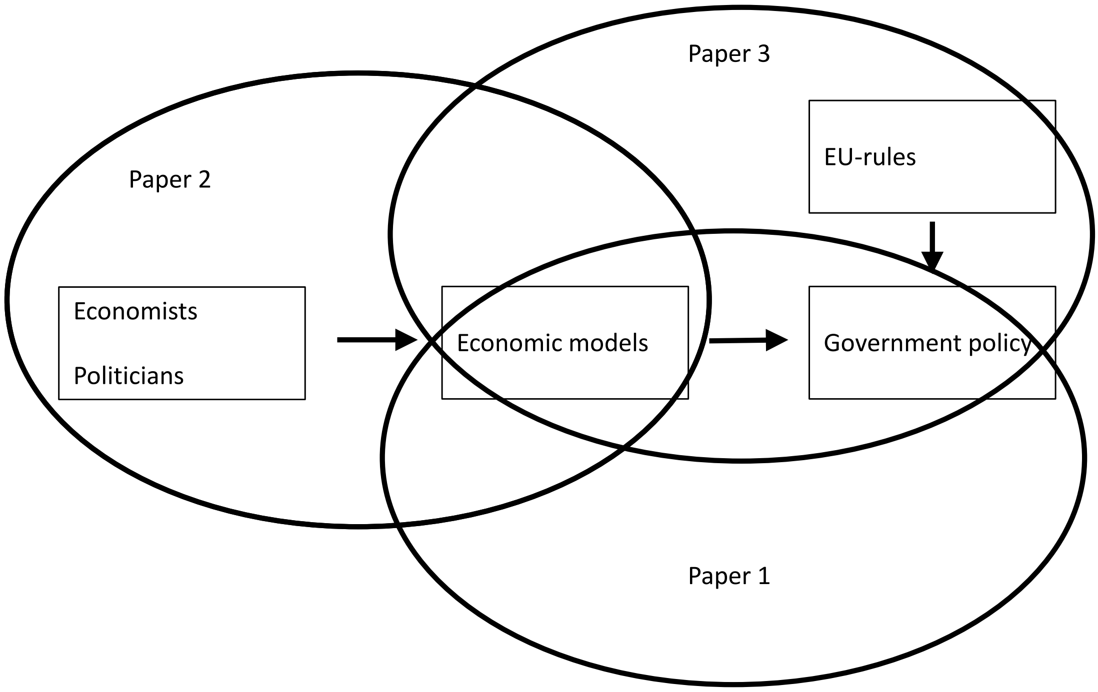

Figure 1. Structure of the dissertation and the division of labor between the three papers. Author's illustration.

4. Conceptual framework

"Economic models" and "the political" play the central role in the dissertation. In this section, I define the two concepts.

4.1 What is an economic model?

Economic models are tools for scenario analysis and forecasting of the economy. They consist of equations describing relationships between variables. Some of these variables are exogenous (independent), while others are endogenous (dependent) (Ouliaris, 2020). The model user inserts the value of the exogenous variables (e.g., public spending) and the model then calculates the effect on the endogenous variable (e.g., GDP). In this way, the model user can use the model to forecast the effect of different policy choices on different endogenous variables. Moreover, depending on the model's scope and time horizon, the model user can estimate the effect of different shocks to the economy (e.g., the rise of energy prices), or different future developments (e.g., changing demography).

4.1.1 What is Keynesian and neoclassical theory that informs an economic model?

When constructing a model, economists face choices of priority and theory. Should the model focus on the short or long term? Should the model assume that the economy is inherently stable or unstable? Should the model consider economic agents as rational and forward-looking or as adaptive and backward-looking? These are fundamental questions for the field of economics, covered by extant literature (Vroey, 2016; Schlefer, 2012). Two theoretical perspectives that have, in particular, informed the construction of economic models are Keynesianism and neoclassical economics (Mankiw, 2006)[1]. The two perspectives—or frameworks of ideas (see section 2.1)—have different answers to the basic questions about the economy, and because I refer to these theories throughout the dissertation, I elaborate my understanding of these here.

The Keynesian perspective was developed by the British economist John Maynard Keynes in his book *The General Theory of Employment, Interest, and Money* from 1936, and later presented in a mathematized version by Paul Samuelson in *The Foundations of Economic Analysis* from 1947. The Keynesian perspective understands the economy as inherently unstable and foresees crisis in the situations in which the general demand falls short of the production capacity in the economy. This can happen when people or corporations feel uncertain about the future. If workers are uncertain about whether they will have a job tomorrow, they might stop spending their wages, and if corporations are uncertain whether there is a market for their products tomorrow, they might stop investing their profit. This uncertainty may result in a crisis of demand where companies who cannot sell their products fire their workers, and unemployment consequently rises. According to Keynesian theory, the economy does not necessarily return to a general equilibrium after such a crisis, as the demand continues to stay low if both consumers and companies are pessimistic about the uncertain future. Unemployment might, therefore, stay

[1] The dissertation refers to "Keynesian models", as John Maynard Keynes' theories inspired the model. However, Keynes himself might not have wanted to be associated with econometric models. Keynes was famously skeptical about econometric models (Skidelsky, 2010, pp. 85—86), and did not present his own work in the form of a formalized model.

high. In that situation, it is the state's job to stimulate demand in the economy through fiscal policy (spend more money) or monetary policy (cut the interest rate to encourage more investments).

In contrast to the Keynesian perspective stands the neoclassical perspective associated with Chicago-based economists such as Milton Friedman (1968) and Robert E. Lucas (1976). According to neoclassical economics, economic agents do not face an uncertain future. Rather, the neoclassical perspective assumes that agents are rational, utility-maximizing, and have full information about the future. Neoclassical economics foresees no demand crises and instead considers the economy as stable. The free market finds a general equilibrium as the rational agents adjust their behavior to future expectations. Thus, wages and prices change fast. If there is unemployment, it is voluntary as some people rationally choose social benefits over employment. Unemployment can also exist if the government or labor unions establish wages that are above the market wage. Neoclassical economists argue that it is supply and not demand that drives the economic activity. The supply of labor is dependent on the incentives to work and produce. Thus, the government should not manage business cycles by stimulating demand, but instead, by making structural reforms to stimulate the economy's supply side. The government can do this by cutting taxes and social benefits, making it more attractive to work. Table 2 lists, in a stylized ideal-typical way, some of the main differences between the Keynesian and the neoclassical perspectives.

Table 2. Central assumptions in Keynesian and neoclassical economics	
Keynesian theory • Agents are not always rational. • The world is uncertain. • The economy is not stable (business cycles). • The economy is driven by demand. • The state should interact with the economy.	Neoclassical theory • Agents are rational. • The world is certain. • The economy is stable (general equilibrium). • The economy is driven by supply. • The state should not interact with the economy.

Source: Inspired by Schlefer (2012).

I consider both theoretical perspectives to be simplifications of complexity (Ouliaris, 2020; Morgan, 2012). They both express certain parts of the world, but not the whole of the complex world. In this way, models that build on these theories are also simplifications or idealizations, cutting out certain aspects of the world for us to focus on while leaving out other parts of the world (Morgan, 2012, p. 21). Some model set-ups—including the Danish Ministry of Finance's model set-up—use the Keynesian perspective in the short term and the neoclassical perspective in the long term. Different economic models use different methods and data and draw on different parts of Keynesian, neoclassical, and other theories to create this ideal world.[2]

4.2 What is "the political?"

In the political science literature, there are two classic definitions of "the political." Lasswell provided the first in 1936 in the title of his book *Politics: Who Gets What, When, How*

[2] Besides the choice of theory, economic models differ when it comes to the data they use (for example, the model can use macro data from national accounts or microdata from households) and the methods they apply (for example, the equations in the model can be estimated using statistical methods or calibrated using theoretical literature). Thus, there are many different economic models combining different theory, methods, and data (e.g., econometric macro models, general equilibrium models (GEM), dynamic stochastic general equilibrium (DSGE) models, vector auto regression (VAR) models). These models all represent different perspectives on the economy.

(Lasswell, 1936). Easton provided the second in 1965 when he defined the "the political system" as "the interactions through which values are authoritatively allocated for a society" (Easton, 1965, p. 21). While the definitions resemble each other, I use Easton's definition as it stresses not only the output of politics but also the process. This is what this dissertation is about: the process of the allocation of values and how economic models influence that process.

I narrow down Easton's definition of politics as follows. By "authority," I understand the state, and by "values," I understand economic resources. I understand a phenomenon as political to the extent that it influences or seeks to influence how the state allocates the economic resources for society. Thus, my understanding of the political is materialistic. My understanding leaves out politics based on non-material values, such as identity politics. Furthermore, I do not consider what happens in the private sphere as political. Other analyses can have good reasons to include such questions and actors as part of the political.

Throughout the dissertation, I argue that macroeconomic forecasting models have a political function, as they under some circumstances, especially crisis situations, can influence the authoritative allocation of values for society. In paper 1, I elaborate on the theoretical argument, which is that economic models are simplifications of reality as they include some variables (e.g., GDP, employment, public balance) and relationships (e.g., when employment increases, the tax revenue increases, and the public balance improves) while excluding other variables and relationships. The variables and relationships in the model have the potential to provide policy goals and policy instruments for the policymakers who use the models. Thus, the theories providing the variables and relationships in the model are not only cognitive ideas, explaining how the economy works, but also normative ideas that guide policymakers towards certain policy goals and instruments. Policymakers seldom invent economic theories themselves but may rely on an economic model that tells them which instruments can be used to reach which goals. For example, policymakers who use a model showing a relationship between the tax rate and the labor supply can accordingly use the tax rate as an instrument to reach a goal of increasing the labor supply and refer to the model calculations showing the predicted effect of their policies. If the economic model influences the policy instruments and goals of policymakers, the model, and the ideas embedded in the model, will influence the allocation of values for the society.

However, for this potential to be triggered, the model has to be brought into the political decision-making process and used to influence policies. If the model remains in the textbook, it cannot wield influence. Throughout this dissertation, I show how the Danish Ministry of Finance's economic models move from the textbook into the political processes and influence what Pedersen labels "the socioeconomic understanding" (2011), which is the commonly-shared ideas on how the economy works and what its goals should be. Pedersen (2006) has shown how Denmark is a "negotiated economy" in which public and private actors (e.g., the state, labor unions, and employers' organizations) negotiate on how to identify and solve what they collectively identify as socioeconomic problems. According to Pedersen (2006), the Danish political economy is characterized by a consensus around the socioeconomic understanding, while different actors continuously seek to influence this by pushing their own interpretation onto the common understanding. An important strategy that societal actors have for influencing the socioeconomic understanding is to use economic model calculation that shows how their own preferred policy is in the interests of society as a whole (Pedersen, 1985; 2006).

To sum up, the Ministry of Finance's economic models have a political potential in providing policy instruments and goals that can guide the allocation of values for society. This potential is triggered when political actors mobilize the models to provide goals and instruments for responding to the common understanding of socioeconomic problems. In this case, the models do not merely guide one organization's or actor's interpretation of the economy. Rather, they guide the consensual interpretation of the economy and of how policymakers should allocate the values to respond to Danish socioeconomic problems. In paper 1, I show how policymakers mobilize the model to both push their own policy goals and instruments onto the socioeconomic understanding and attack other policymakers' policies. In paper 2, I show how professional economists and elected politicians seek to influence the Ministry's economic model according to their professional and ideological interest in order to wield an influence on the common socioeconomic understanding. In paper 3, I show how with time, the model has become an institution that defines the socioeconomic understanding.

5. Methodology and data

5.1 Case study approach

This dissertation uses a case study approach (George and Bennett, 2006) to analyze the Danish government's economic models. In the dissertation's three papers, I study the evolution and use of a single unit (the Danish government's models) over time. Thus, the variation in my study is temporal rather than spatial (Gerring, 2004, p. 343). My analysis is what George and Bennett calls "structured, focused" (George and Bennett, 2005, p. 67-72). It is "structured" as I ask the same questions for each temporal stage that I analyze in the three papers. In paper 1: Which actors refer to the model and how do they exercise power by activating its political and objective function in each stage of the policy process? In paper 2: Which actors drive the development of the model in each stage of its development? In paper 3: How do the public debt level and budget rules develop over the decades? The analysis is "focused" as in each paper's questions, I focus on a certain theme with the aim of contributing to a certain literature (e.g., the literature on neoliberal ideas and resilience in paper 1, the literature on the role of professional economists and politicians in paper 2, and the literature on budget rules in paper 3). I elaborate on the relevant, specific methodology in each paper.

Moreover, the dissertation's method is inspired by Pedersen's work (e.g., 1985, 2011, 2014), as my ambition is to analyze a historical process to point to central tendencies for how the conditions for policymaking change. In paper 1 and 3, the models are the independent variable as I study how they influence the government's policy and the government's room for maneuver. In paper 2, the models are the dependent variable as I study how different driving forces influence them.

I have chosen the case study approach as it gives me an opportunity to study not only *if* but *how* the models influence politics and how politics influences the models. Thus, the case study approach is well suited to developing new knowledge about how actors use and influence the models throughout time and at different stages of a policy process (George and Bennett, 2006, p. 20-21). I zoom in on how politicians interpret the world through the models while, at the same time, using the objective appearance of the models to push certain ideological agendas. It would have been difficult to uncover how politicians use the models in a broader, comparative study where I would not have the chance to go into as much depth. The advantage of the case study method is to uncover the interaction of various factors, while the large N quantitative analysis would simply examine the relative influence of certain variables (correlation, not causation) on many cases. In other words, an in-depth case study can potentially produce a conclusion with a high "internal validity", i.e., my ability to conclude exactly what part the model plays in the government processes that I study, as I go into more depth than a quantitative study that compares many cases. The tradeoff is that the "external validity", i.e., my ability to generalize my findings to other cases, is weaker than if I had analyzed more cases (George and Bennett, 2006, p. 44).

I have chosen the Danish economic models as my case for several reasons. Among these are that I believe the Danish case is well suited to reflect upon lessons for other cases in spite of the low external validity of the case study approach. First, I use Denmark as a "least likely case" (Flyvbjerg, 2006, p. 231) of neoliberal resilience after the 2008 financial crisis. Denmark is a social democratic welfare state (Esping-Andersen, 1990), aiming to provide high-quality social services and benefits for all citizens throughout their course of life. However, as I show in papers 1 and 3, Denmark has liberalized its economy by cutting income taxes, cutting social benefits, and raising the pension age both before and after the 2008 financial crisis. As I show in papers 1 and 3, traditional explanations of neoliberal resilience (e.g., pressure from multinational companies, pressure form the financial sector, or the popular appeal of the neoliberal idea) do not apply to Denmark. Thus, we need a better explanation of neoliberal resilience in Denmark. I use the Danish case to show which role economic models have played in neoliberal resilience. If economic models can influence Danish social democratic welfare in a neoliberal direction, the models might also wield an influence in other countries.

Second, in paper 2, I use Denmark as a "least likely case" (Flyvbjerg, 2006, p. 231) of political influence on the Ministry of Finance's economic models. Contrary to a number of EU member states, Denmark's government bureaucracy has a merit-based system for advancements where government employee promotions are based on their professional qualifications rather than political connections (European Commission, 2017, p. 28). Furthermore, the relationship between the minister and the top civil servants is depoliticized in the sense that the two groups do not share the same career paths (you are either a politician or a civil servant; you do not switch), and in general, ministers do not recruit civil servants.[3] According to the European Commission (2017, p. 33), this type of de-politicization is only present in a minority of EU-countries. Thus, if Danish politicians influence the Ministry of Finance's economic models in spite of the depoliticized Danish bureaucracy, we can expect that such a political influence could happen in other countries too where ministers mainly appoint civil servants who agree with their political line.

Finally, the Danish case is interesting in its own right. The discussion, which I cited in the introduction of the dissertation, presents us with some important questions concerning the background for policy decisions in Denmark. What role do the models and the ideas they encapsulate play for Danish politics and for the Danish governments' economic policies? How can actors use the models to exercise power through the ideas in the models? Can we trust that the models are impartial? What is their scientific and perhaps political background? The prominence of economic models in Danish politics makes these questions relevant to everybody who studies Danish politics.

Notwithstanding the advantages of studying the Danish case, we should be aware of one unique feature of the Danish case, which can strengthen the influence of the governments' economic models in Denmark compared to other countries. That unique feature is the Danish consensus-oriented knowledge regime (Campbell and Pedersen, 2014). In Denmark, there is much consensus around the "socio economic understanding", referred to in section 4.2, contrary to, for example, the US, where many different actors have different interpretations of the fundamental problems in the economy (Campbell and Pedersen, 2014). This consensus around the socioeconomic understanding, and, thus, the ideas (the Keynesian-neoclassical synthesis) expressed by the Ministry of Finance's economic models, increases the power of the ideas in the models. I further discuss the Danish knowledge regime in relation to the governments' models in section 8.2. For now, we should be aware that the Danish knowledge regime is unique and we should, therefore, be careful not to assume that government models will have the same influence

[3] Although Danish ministers have options of influencing the hiring and firing of top civil servants, and top civil servants indeed change positions more often in later years compared with the 1970s, a study from 2014 has found no evidence of increased politicization (a movement from merit-based criteria to political criteria for appointment) in central government (Christensen et al., 2014).

in countries with less ideational consensus and several economic models that compete with each other.

5.2 Data sources

To analyze the historical and political processes in which economic models influence Danish policymaking, I use three primary sources: 1) Official documents from Statistics Denmark and the Ministry of Finance, 2) Interviews with civil servants and politicians, and 3) Press papers. I account for these sources here.

5.2.1 Official documents

I have analyzed official documents from the archives of the Danish Ministry of Finance and Statistics Denmark. These two organizations develop and run the economic models that the Danish government uses, and they have published books and documents since the 1970s that describe the economic models and how these are used. Appendix 3 lists the books and documents from these two organizations on which I base my analysis.

Statistics Denmark develops ADAM, which has been the most important economic model that the Ministry of Finance has used since the 1970s. Ellen Andersen, a professor of economics at Copenhagen University, developed the first version of ADAM in her PhD dissertation in 1975. Since then, Statistics Denmark has continuously published documents describing the model. I use the documents from 1975, 1979, 1984, 1993, 1996, and 2012 (which I list in Appendix 3) to track how the main assumptions and equations in ADAM develop over time.

The Ministry of Finance uses ADAM for economic forecasting, but the Ministry adjusts ADAM for its purposes and combines ADAM with several other models and calculation rules. Thus, to attain knowledge of the Ministry of Finance's economic models, it does not suffice to analyze ADAM. I have, therefore, studied documents from the Ministry of Finance. The main Ministry documents I use are the Financial Accounts (*Finansredegørelser*) that the Ministry published from 1978 to 2004 except for 1983 and 2001. Since 2004, the Ministry published only one financial account, that of 2014. Many of these financial accounts have a section that describes the main assumptions that the Ministry uses in its economic forecasts. Therefore, the Financial Accounts are useful to track the development of the Ministry's calculation rules and model use.

After 2000, the Ministry has published several documents describing its use of models and the calculation rules the Ministry uses on its website www.fm.dk.[4]

5.2.2 Interviews

I have conducted 16 semi-structured interviews (Leech, 2002) with economists who work or have worked as top-level civil servants in Statistics Denmark and the Finance Ministry and politicians who are former finance ministers or economic policy spokespersons from different political parties. Appendix 4 lists the interviews. The interviews typically lasted one hour. Some of them have been shorter and some longer. I have recorded and transcribed the interviews. I have sent the transcripts and the text in the dissertation that cites the interviews to the interviewees so they had the opportunity to correct possible errors or misunderstandings. Some of them have done this, and I have considered their comments carefully for this final draft of the papers.

Concerning the interviews with the economists in Statistics Denmark and the Ministry of Finance, I have interviewed all heads of the model departments in the two organizations since they began working with economic models in the 1970s. In Statistics Denmark, there are two people and the original ADAM developer, Ellen Andersen, who was an economics professor at Copenhagen University and worked with the economists in Statistics Denmark in developing the ADAM model. In the Ministry of Finance, I interviewed four people[5]. Moreover, I have interviewed Anders Eldrup, who was permanent secretary in the Ministry in the 1990s but began his career in the Ministry in the 1970s and was able to give me a historical perspective on the role of the models. Appendix 5 contains the interview guide that I have used for the interviews with the economists. As the questions in Appendix 5 illustrate, I use these interviews to gain knowledge on the background for the model development that I identify in the official documents, and to improve my understanding of how the models work.

[4] The documents can be found here: https://fm.dk/arbejdsomraader/regnemetoder-og-regnemodeller/regnemetoder-og-regnemodeller/

[5] Since 2015, the model development in the Ministry of Finance has been the shared work of two deputy permanent secretaries. I have interviewed one of them: Mads Kieler. See appendix 4.

Concerning the interviews with the politicians, I have interviewed three former finance ministers and four members of Parliament. The ministers are Henning Dyremose (finance minister from 1989 to 1993 representing the Conservative People's Party), and Mogens Lykketoft (finance minister from1993 to 2000 representing the Social Democrats). I also interviewed Bjarne Corydon (finance minister for 2011 to 2015 representing the Social Democrats), but he later changed his mind and did not want the interview to be used as a source in the dissertation. I have respected his wish. Knud Heinesen (finance minister from 1975 to 1979 and again from 1981 to 1982 representing the Social Democrats), Thor Pedersen (finance minister from 2001 to 2007 representing Venstre—The Liberal Party of Denmark), and Anders Fogh Rasmussen (minister of taxation from 1987 to 1992 and prime minister from 2001 to 2009 representing Venstre—The Liberal Party of Denmark) declined my interview requests.

Moreover, I have interviewed four members of Parliament who were spokespersons from different political parties (The Red Green Alliance ("Enhedslisten"), The Socialist People's Party ("SF"), The Alternative and the Liberal Alliance) during the Thorning-Schmidt government period, which I study in paper 1. Political spokespersons from Venstre—The Liberal Party of Denmark and the Danish People's Party declined my interview requests. Appendix 6 contains the interview guide I have used for the interviews with the politicians.

I used the interviews with the politicians to learn how the economic models influence political decision-making and how politicians use the economic models in their daily work. I requested interviews with politicians from the right, center, and left sides of the Danish political spectrum, as the politicians on the left are usually more critical towards the neoclassical elements in the models than the politicians on the right. As some of the right-wing parties declined my interview requests, I have interviewed more politicians from the left-wing parties than from the right-wing parties. Thus, several of the politicians—although not all of them—I have interviewed are critical of the models and consider that they are biased towards the right wing. However, several of the economists that I have interviewed have the opposite view, that the models are scientific and neutral. In this way, my interview sources comprise both critics and defenders of the models.

5.2.3 Press articles

Finally, I use press articles to document how the politicians use the model calculations to promote their policy proposals in the media. I have used the search engine "Infomedia," which gives access to all Danish national newspapers. The press articles are a supplement to the dissertation's two main sources: official documents and interviews. I primarily use the press articles as a source in paper 1 for studying how politicians use the models in the public debate during and before the 2011-2015 Thorning-Schmidt government. I have searched on "Infomedia" for articles that mention the specific Thorning-Schmidt reforms and articles covering the words "Ministry of Finance" (Finansministeriet) and "economic models" (regnemodeller) to follow the public discussion around the reforms and the economic models.

5.3 The steps of the analysis

I have written this dissertation over a number of years, and I would like to give an overview over the steps I have taken in the analysis contributing to the findings of the dissertation to be as transparent as possible. The process has been a combination of inductive analysis, i.e. data driven, and deductive analysis, i.e., concept driven, where I have shifted between the collection of evidence and studying the theory (e.g., the cited literature on economic ideas, the political influence of economic models, institutional theory, economic theory, European politics, and neoliberalism). I draw on both the empirical evidence and the theory to develop my conceptions of the models (e.g., economic models as policy tools with an overt objective function and a covert political function, and economic models as part of the fiscal room for maneuver), and my propositions (e.g., economists and politicians as drivers behind the economic models). Once I had developed these concepts and propositions, I went back to the empirical evidence, reread the transcripts of the interviews, as well as the publications for Statistics Denmark and the Ministry of Finance, and press articles to investigate whether the concepts and propositions made sense. They sometimes did, but often, I had to adjust my concepts and propositions, and thus my conclusions to improve the analysis.

Overall, the process is "back and forth". I go back and forth between empirical evidence, theory, developing concepts and propositions, investigating the evidence again with these concepts and propositions, rereading the theory and reading new theory (because this process took years new research was published while I wrote the dissertation), adjusting conceptions and propositions, and eventually, drawing my conclusions. The following is a description of the main overall steps I have taken in my analysis to develop my concepts and propositions. In the papers, I describe the concrete steps I have taken for each paper, so the following is a broader explanation for how I came up with the ideas for the three papers, and the concepts that I use. The description is stylized as the steps often overlap, but hopefully, it gives an idea of the process.

1. Unstructured participant observation. As described in the introduction, I worked for the Social Democratic party from 2011 to 2016 during the Thorning-Schmidt government. It was a turbulent period for the Social Democrats, with many reform policies that met strong opposition among voters and internally in the Party. Being in the party environment, I spoke with many politicians, party members, and journalists about the reforms and the reason the government initiated these. In my capacity as party civil servant, I assisted at party board crisis meetings, where the reforms and the opposition to these were on the agenda, and where media journalists stood in line outside the door, hoping to get critical comments from board members—often with success. The idea of writing a PhD dissertation about the economic models emerged in my mind, and many of the ideas for how the dissertation understands economic models also emerged in this period. I began looking into the possibility of writing the dissertation in 2015.

2. Study theory and empirical documents. For the first half year after getting the PhD grant in 2016, I read empirical documents from Ministry of Finance and Statistics Denmark about the models. I also read political and economic theory. Moreover, I looked up press articles from the Danish media about the models from the last decades. From these readings, I began developing ideas for how the papers of the PhD dissertation should be structured, and I began developing conceptions and propositions on the models.

3. Interviews. I did most interviews in 2017 and 2018. I built the interview guides (see appendix) with inspiration from the empirics and the theory I had studied. At this point, I had an idea of what I wanted to know more about, both form the politicians (the way they used the models) and the economists (the development of the models and to understand what they saw as fundamental in the models)

4. Write draft papers and discuss these. From 2017-2019, I wrote a draft version of the papers, and I participated in a number of seminars (at the Copenhagen Business School, in Boston where I was guest researcher at Boston University, and at various conferences), as well as discussions with scholars who were so kind as to read my text. I received many comments, which inspired me to rethink, change my concepts, and revisit the empirics. I also attended seminars to discuss the work of colleagues, which also inspired me to read new theory that I incorporated in the dissertation.

5. Back and forth. The last years involved a back and forth process where I rewrote, and reread the empirics, reread the theory, and rewrote everything once again. I received useful comments from scholars in response to my drafts. This process took much time, but I believe this last part of the process has been vital in sharpening my concepts and nuancing my conclusions.

5.4 Reliability

Tracing the development of the Danish government's models is straightforward. Official document sources describe the model changes, and these sources have high reliability as they are from the time when the models were changed. These sources date back to the 1970s. Tracing the reasons for the model change is trickier. For this purpose, official documents do not suffice. Therefore, I have asked both the economists and the politicians how they see the background and specific conditions for the model changes. This requires them to remember what happened decades ago, and they do not always agree with each other concerning what happened and why it happened. Furthermore, they might have an interest in telling a version of the story that portrays events in a specific light.

These data problems are reliability problems: There is a risk that I could make random errors because one or more of my sources are incorrect. To improve data reliability, I triangulate different sources. By triangulation, I mean that I use both written and oral sources to confirm that a certain event took place. It is not enough that one of my interviewees says that a model change took place. I need to verify this via the official documents that I study before I include it in the analysis. As far as possible, I have at least one written source in the form of an official document as documentation for an event. Preferably, I have a written source and an oral source. If I have only oral sources, I aim to have at least two oral sources.

Finally, as I am not an economist by training myself, there is a risk that I could make errors because I misunderstand the economic theory or methods described in and by the sources. While I have spent a good amount of time studying the economic models and economic theory behind these to make sure my understanding is as good as possible, there is still a risk that I have simply misunderstood a source. To mitigate this risk, I have sent my analysis of the models (in particular, the analysis of the model development in paper 2) to both different independent university economists and to the economists I have interviewed for them to check if I have made any factual mistakes. In the event that they had factual comments, I have corrected these. All errors, of course, remain mine.

5.5 My own position as a Social Democratic insider

Prior to writing this dissertation, I worked for the Social Democratic Party, where I planned and organized electoral campaigns for the national Parliamentary elections and the European Parliament elections. I quit that position in 2016 to work full time on the dissertation. However, in 2019, I was elected for the European Parliament for the Social Democrats, and I wrote the last part of my thesis while holding political office. Thus, I am a Social Democrat, and I am publicly associated with the party. This has brought some advantages to the project, as well as some challenges.

My position has brought some advantages, mainly in terms of knowledge concerning the Danish political processes, which had surrounded my working life for years. I had followed the debate on economic policy and the use of economic models in Denmark prior to commencing the research for the dissertation.

I am well connected in the Danish political environment around “Folketinget”, the Danish Parliament. However, I doubt that these connections have helped me in getting interview appointments. Denmark has a rather open environment around the political and bureaucratic elite, and both students and scholars have interviewed ministers and top bureaucrats before me —including several of my respondents—. See e.g., Asmussen (2007) who has conducted a number of similar interviews. If anything, my position could have made it harder for me to gain access to respondents who might perceive my political background with skepticism. For example, I have not been able to secure interviews with the relevant respondents from neither Venstre - the Liberal Party of Denmark nor the Danish People’s Party.

Another challenge that is perhaps more profound is the extent to which my own preconceptions are colored by my position as a Social Democrat. In other words, am I politically biased when I analyze the politics of economic models in Denmark? I am aware of these possible biases, and in my research and writing process, I have tried to verify the sources and conclusions as much as possible. Moreover, I have tried to be as transparent as possible concerning the methodological steps of my analysis and the basis of my conclusions, so the reader can judge for him/herself. Many academic commentators (including, of course, my two supervisors) have made useful suggestions at discussions and seminars and pushed me to take into account additional perspectives and sources to make the analysis more nuanced. For example, I received useful comments to explore different explanations (not only the model use, but also the crisis context, and the parliamentary situation) for the Thorning-Schmidt reforms in paper 1. These suggestions resulted in a section on counterfactual thinking that considers the situations in which the economic models did not exist, and if the reform outcome had been similar or different in that case. Thus, such suggestions and many others, have made my writing more nuanced and helped me tease out the various factors that, in combination with the models, influence the reform outcome.

I would like to highlight two additional considerations concerning the possible biases, which perhaps reduce their significance. First, as mentioned in the introduction, it is not self-evident what to think of the economic models from a social democratic perspective. As paper 1 elaborates, the party leadership used and defended the models during the 2011-2015 Thorning-Schmidt government. My impression is that in the years after the Thorning-Schmidt government, the social democratic leadership has turned to be more critical towards the models.

Second, yes, I have personal opinions regarding the role of the models, but my opinion on this matter is not black and white. I do not think the models are "good" or "bad", and I do not consider it my role in the dissertation to argue for or against the models. Rather, my mission is to explore the background and the consequences of the models for politics. One's political point of view can be used to form an opinion on those consequences, which are indeed multi layered and nuanced. For example, in paper 1, I argue that the models have contributed to neoliberal resilience in Denmark. In paper 3, I argue that the models have constrained politicians from running large public deficits. I hope my findings can provoke reflections on the different consequences of the use of economic models.

5.6 Methodological choices and limitations

Before finishing the methods section, I here account for two methodological choices, which the dissertation's analysis builds on, limiting the findings. First, as is evident from the dissertation's empirical sources, I have chosen a state-centered approach to studying both the driving forces behind the economic models and evaluating the models' influence. This is because state actors take the decisions about the model development and use. I could have studied more closely how research organizations and universities influence the economic models by both providing the ideas in the models and criticizing the models. Yet, their influence is more peripheral compared to state bureaucracy and politicians. That is why I have focused on how state bureaucrats and politicians influence the models.

Second, I have chosen to study the Danish economic models in depth rather than compare Denmark with other countries. I have made this choice to carry out an in-depth case study where I can tease out how different factors interact in the shaping, use and influence of the model. The Danish government's economic models are complicated and have not yet been studied in depth from a political science perspective. Also, my findings for the Danish case allow me to draw lessons, and thus, to make theoretical propositions that are relevant for governments' use of economic models in other countries.

6. The Danish Ministry of Finance's economic model set-up

This section presents an overview of the Danish government's economic models used—particularly the Ministry of Finance—when I collected my data from 2016 to 2019. The section serves as background information about the Danish government's model set-up, which is central to the three papers in the dissertation. First, the section outlines the logic of the government's economic models. Second, the section accounts for how and when the government uses the models. The section's empirical sources are the Ministry of Finance and Statistics Denmark documents and the interviews I conducted with model developers. These sources appear in Appendixes 1–4.

Before describing the models, I will note that a change in government in Denmark does not necessarily lead to a change in the economic models. Instead, this is the exception in the history of economic models in Denmark. Generally, the civil servants in the ministries and Statistics

Denmark develop and run the models independently of the government's color. Historically, the Ministry of Finance has been responsible for operating the models. There are exceptions to this as the other ministries (e.g., the Ministry of Taxation and the Ministry of Economy) have had responsibility for part of the model set-up at different times.

6.1 The logic of the Ministry of Finance's economic model set-up

The Ministry of Finance uses several models in its model set-up. Some of the models are large, with hundreds or thousands of variables and relationships between these. Other parts of the model set-up are what I call "calculation principles," which are assumptions of how different variables influence each other. When I refer to the Danish government's economic models or economic model set-up, I refer to the different models that the government uses and the calculations the government uses outside the models to supplement the models. In the following description of the Ministry's economic model set-up, I focus on three elements: (a) ADAM, (b) the microdata, and (c) the calculation principles. Table 3 gives an overview of these three elements.

Table 3. Macroeconomic model set-up of the Danish Ministry of Finance

ADAM	**Microdata**	**Calculation principles**
Econometric synthesis of Keynesian and neoclassical economics. Economy driven by demand in the short term and by supply in the long term.	<u>The law model:</u> Spreadsheet with a sample of the Danish population, which can be used to calculate economic consequences of policy reforms for different income groups.	Assumptions on dynamic effects of: • Tax policy • Replacement ratio • Education level • Assumptions on the time frame for reaching general equilibrium.

ADAM: The main model used by the Ministry of Finance has the name of ADAM: Annual Danish Aggregate Model (Danmarks Statistik, 2013). ADAM is an econometric model estimated according to time-series national accounts data. The variables for the most part thus correspond with categories in the national accounts such as “import,” “export,” “private consumption,” “private wealth,” and “GDP.” The arrow diagram in Figure 1 is a simplified “picture” of the variables and their connection. ADAM has altogether 3,500 variables, of which about 2,500 are endogenous (variables whose values are determined by the values of other variables in the model), and about 1,000 are exogenous (variables whose values the model user inserts). To make sure that economists develop ADAM and not politicians, the state-owned—but independent—agency Statistics Denmark develops ADAM.

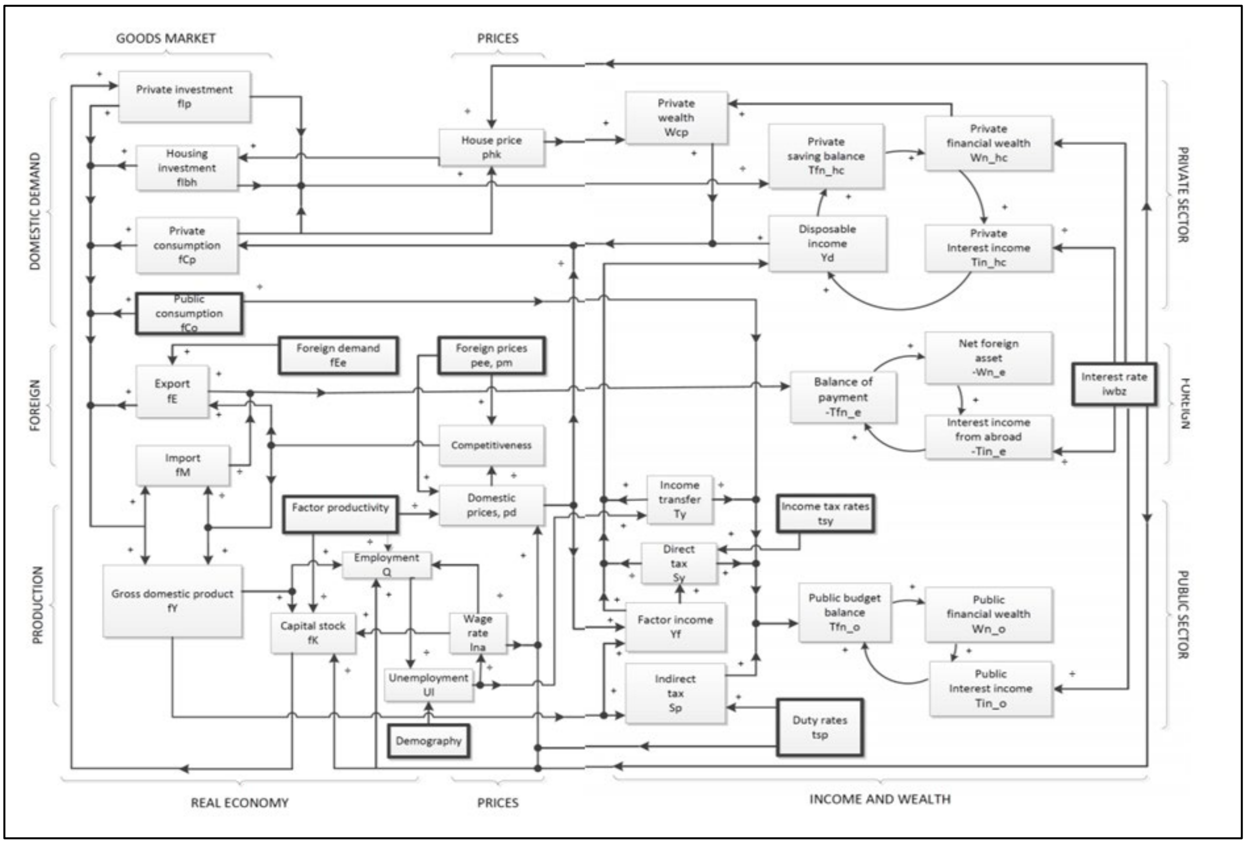

Figure 2. Illustration of the ADAM model. Source: Statistics Denmark (2013).

When ADAM first appeared in the 1970s, the model was a short-term Keynesian model, which assumed that the general demand in the model drove economic activity. Over the decades, ADAM has evolved, and today, it represents a synthesis between Keynesian and neoclassical economics. Appendix 1 lists some of the most important ADAM changes concerning the consumption function, the wage function, the export function, the financial model, and the number of equations. Of particular importance is the introduction of an endogenous wage function (lower unemployment leads to higher wage increases) in 1991, and the introduction of an estimated export elasticity in 1995 (higher prices lower the net export). These two changes entail that ADAM goes from being a short-term Keynesian model to a synthesis between Keynesian and neoclassical economics.

The synthesis between Keynesian and neoclassical economics means that ADAM can forecast the economy both in the short term and in the long term. In the short term, the demand side in the economy drives the economic activity in ADAM. In the long term, the supply side drives ADAM's economic activity as prices are flexible and adjust to supply and demand laws. This Keynesian-neoclassical synthesis represents the core logic of the Ministry of Finance's economic model set-up.

However, today, the Ministry of Finance mainly uses ADAM to forecast the economy in the short term. In the medium term and long term, the Ministry mainly uses ADAM as an "accounting framework", turning off many of the equations in the model describing the relationships between the variables. In the medium term and long term, the Ministry of Finance instead uses microdata to forecast, for example, the development of the demography, the labor supply, and the growth of productivity in the economy. These forecasts can then be inserted into ADAM.

Microdata: The Ministry of Finance uses microdata to make forecasts for the midterm and long term. Contrary to ADAM, which uses aggregate data such as aggregate import, aggregate export, and GDP, microdata is data on individuals and/or households.

The Ministry uses the microdata to forecast how the labor supply will develop (e.g., how many people will retire, how many will receive social benefits, and how many will work). The Ministry also uses microdata to forecast productivity growth (e.g., how many will receive an education to increase their productivity).

Furthermore, the Ministry of Finance uses several microdata-based economic models. Among these is the "reform model" that the Ministry uses to calculate effects of economic reforms on different economic indicators. The reform model assumes that economic agents are utility-maximizing when, for example, calculating effects of increasing or decreasing tax levels (see also the following description of dynamic effects of taxes and social benefits). Moreover, the Ministry uses the "the law models", which are big spreadsheets with a sample of the Danish population containing data on income, wealth, pension, age, education, and occupation for each individual (Finansministeriet, 2003). The Ministry uses the law models and several calculation principles to calculate the effects of reforms and law proposals on, for example, economic distribution, labor supply, and public finances.

The calculation principles: The Ministry of Finance has several calculation principles that it uses in relation to ADAM and the microdata analysis. These calculation principles are, for example, assumptions on how tax cuts influence the labor supply or how an increased level of education influences productivity. The Ministry mentions four calculation principles (Finansministeriet, 2012, 2014; see also Appendix 2), which I summarize in the following.

First, cuts in marginal taxes provide better incentives for the population to work as one keeps more of the salary one earns and pays less in income taxes. Therefore, tax cuts expand labor supply, which again in the midterm and long term turns into employment. This effect also strengthens the public budgets as more employment means more taxpayers, and thus, more income for the state. On the other hand, if the government raises marginal taxes, this will worsen the incentives to work and contract the labor supply.

Second, cuts in the "replacement ratio," which is the size of the social benefits/social insurance that the unemployed get compared to the wage they could get by taking a job, will give better incentives to work and expand the labor supply. Thus, cuts in social benefits will increase the labor supply, increase employment, and improve public budgets. This happens as the state saves money by paying less to unemployed people, while there will also be fewer unemployed people who will make more of an effort in finding a job because of the incentives.

Third, when more people achieve a higher education, it increases their employment rate and productivity. However, the net effect on the labor supply of more people taking an education is neutral because, even though the people who take an education have a higher employment rate after the education, they also spend some years outside the labor market while they complete their education. More education will, nonetheless, have a positive effect on the GDP through higher productivity.

Fourth, as mentioned, ADAM assumes that employment in the economy depends on the general economic demand in the short term and on the labor supply in the long term. The question is then, how long does it take the model to move from the short term to the long term. The Ministry of Finance increases the tempo from the short term to the long term compared to the original ADAM developed by Statistics Denmark. This calculation rule means that reforms increasing the labor supply by, for example, cutting taxes, cutting social benefits, or changing the retirement rules will have an effect on employment faster than in the original ADAM. An increased labor supply of 10,000 persons will turn into employment in seven years in the Ministry of Finance's version of ADAM compared to 15 to 20 years in the original ADAM.

After 2015, there has been a public debate in Denmark about whether the Ministry of Finance ought to include possible labor supply effects of public spending on, for example, kindergartens, health, or social policies. The Economic Council, among others, has suggested that the economic model set-up might lead to biased conclusions as it includes the labor supply effects of tax cuts but not spending on public welfare (for example, more staff in kindergartens could allow parents to work more) (De Økonomiske Råd, 2017). Until now, the Ministry of Finance has not included such effects in its calculations (Finansministeriet, 2018).

6.2 The Ministry of Finance's use of economic models

The Ministry of Finance uses its economic models (including the calculation principles) for three primary tasks. The following description builds on interviews with Ministry economists.

First, the Ministry uses the models to calculate the effects of new rules or reforms proposed by the government. This can be reforms of economic rules for different sectors (e.g., adjustment of a tariff for a certain product). The Ministry also calculates the effects of policy proposals during negotiations between the government and other political parties. For example, suppose that during the negotiations of the yearly Finance Act, a political party has a policy proposal. In that case, the Ministry can use the models to calculate the price and effect of that proposal during the negotiations.

Moreover, the Ministry calculates the effects of the government's policies on the medium-term policy plans for the economy, which also have long-term forecasts. For example, in 2016, the government presented a medium-term policy plan for 2025. Regarding this plan, the Ministry of

Finance used the models to evaluate the economic effects of the plan in the medium term and published a forecast of the public budgets toward 2060 based on the government's policy plan.

Second, the Ministry uses the models to prepare the economy's yearly forecasts in the short term and in the medium term. These forecasts are not related to any specific policy proposals. The forecasts are thus an analysis of how economic development will be under the conditions of the current economic policy, the current development in the world economy, the demographic situation, and so forth. The Ministry publishes an economic survey three times every year (*Økonomisk Redegørelse)*. The economic survey is a short term business cycle analysis. Furthermore, the Ministry presents a forecast of the public budgets in relation to the EU convergence program, which is a forecast looking four years ahead.

Third, the Ministry uses the models when it prepares answers to parliamentary questions from different political parties on the effect of different proposals or evaluations of the parties' policy plans. An example of such a question is the one that I refer to in the introductory chapter, where the Liberal Alliance asked the finance minister to calculate the effects of the party's economic plan.

Table 4 summarizes the Ministry of Finance's use of its economic models.

Table 4. The Danish Ministry of Finance's use of economic models		
Evaluating the effects of economic policies	**Making economic forecasts not related to specific policy proposals**	**Answering questions from Parliament**
• Effects of economic reforms • Effect of medium-term policy plans • Input to political negotiations • Finance act presentation (August)	• Economic survey (May, August, December) • EU Convergence program (April)	• Questions on the effect of concrete proposals • Evaluation of political parties' programs

7. Contributions to related literature

The dissertation's three papers contribute to different traditions of academic literature that seek to explain the governments' economic policies. This section discusses how the dissertation contributes to (a) the literature on institutional continuity and change, and (b) the debate on capitalism and democracy.

7.1 Institutional continuity and change

This dissertation assumes that the state is not merely a neutral arena where different political parties with different ideas compete to get into government. A political party entering the government is not free to have the policy it wants. Rather, the state represents a system of traditions, legacies, and rules that influence any government's policy, whether that government is left-wing or right-wing. This assumption follows Evans *et al.* (1985), who in their classic analysis argued for "bringing the state back in" as an independent actor in the analyses of politics, highlighting the organization of the bureaucracies as explaining different policy outcomes. These authors demonstrated how different state structures and policy legacies in different countries explain different responses to the economic crisis in the 1930s. For example, the closed and treasury-dominated bureaucracy in the UK prevented Keynesian ideas on counter-cyclical spending from entering the political programs as a response to the crisis. In contrast, the Swedish tradition for bringing in university experts and bureaucrats to advise expert committees paved the way for a comprehensive Keynesian response to the crisis (Weir and Skocpol, 1983; Evans *et al.*, 1985, pp. 107-163).

Another way of thinking about state structures and their influence is via the concept of "institutions." North defines "institutions" as the formal and informal "rules of the game in a society" (North, 1990 p. 3). These are rules that governments operate within. If the government breaks the rules, it might expect legal, economic, or reputational sanctions. So, which rules are we talking about? Hall and Taylor present a definition of institutions that is a little more elaborate: "Formal or informal procedures, routines, norms and conventions embedded in the organizational structure of the polity or political economy" (Hall and Taylor, 1996, p. 938).

The rules include legislation that the government operates within, such as the national constitution or the EU-treaty. They also include norms and conventions on how the government should act in different situations. Furthermore, some authors argue that we should analyze the dominant ideas and discourses in society as part of the institutional framework that governments operate within (Kjaer and Pedersen, 2001; Schmidt, 2008). These could be commonly agreed ideas on the goals and the instruments of the economic policy that the government cannot deviate from without meeting considerable opposition and controversy. For example, in Denmark, the socioeconomic understanding, referred to in section 4.2, could be considered an institution that influences and constrains policymakers.

This dissertation argues that among the important state institutions that influence the government's policy are the economic models embedded in bureaucracy. In Denmark, these models—and the ideas in the models—stay even though the government changes. Thus, the assumptions and mathematical relationships inside the economic models are part of the institutional framework we need to analyze to understand change and continuity in the government's policies. Suppose the government proposes an economic plan that, according to the economic models, will result in an economic downturn. In this case, the government can expect strong criticism from opponents and experts, and voters might punish the government accordingly. Moreover, the models provide an authoritative analysis of the economy, contributing to society's common knowledge and beliefs regarding bad economic policy (i.e., the socioeconomic understanding). In this way, the economic models are important institutions that governments operate within when constructing their economic policies.

In paper 3, I show how economic models and EMU rules on budget balances combined represent powerful institutions that shape "the fiscal room for maneuver." In this way, the power in the ideas embedded in the models and the EMU is significant. While the EU rules set legal limits for deficits on the public balance a government is allowed to run, the models calculate which policies will enable the government to stay within these limits. The government can expect legal as well as reputational sanctions if it deviates from these rules and logics. Both the EU rules and the economic models are powerful institutions in the sense that they are depoliticized and decoupled from national politics to different degrees, i.e., not considered a matter over which national politicians should decide.

7.2.1 How do institutions change?

While the previously described "ideas matter" literature is apt at explaining policy change, which happens when some ideas replace others, the literature on institutions is more capable of explaining continuity. From the institutional perspective, we can see that even though political parties in government change, the bureaucracy and the economic models stay and ensure a certain continuity in the economic policy. Historical institutionalists have argued that with time, institutions become "path dependent" (Pierson, 2000; 2004) as an increasing number of actors (e.g., political parties, academics, businesses, and civil society) invest in and become dependent on them. For example, when some economists have developed an economic model and implemented it in the state, an increasing number of other processes will support this model with time. For example, when the state builds up its accounting system around the model, students at the university learn to think in terms of the model and defend it, and the political parties build up their policy proposals around the model. If the model institutions connect with other institutions, such as the EU, and the state should document the development of different indicators in the model to the EU, the institutions become even more difficult to change.

Authors have argued that institutional change occurs when there is a "critical juncture" (Capoccia and Keleman, 2007). A critical juncture is a situation where everything is turned upside down because of a major economic crisis, a war, or a revolution. In this situation, where business as usual is no longer an option, deeply rooted institutions can be overthrown or fundamentally changed. Other authors have shown that institutional change happens not only via critical junctures but also more slowly and incrementally, for example, when some institutions are neglected over years and/or new alternative institutions slowly develop and replace the old (Streeck and Thelen, 2005; Mahoney and Thelen, 2010). In papers 2 and 3, I show how the Danish models have changed incrementally since the 1970s as economists and politicians have driven the inclusion and exclusion of different equations and assumptions in the model, thus exercising power over ideas in the model and used the model for new purposes. A major economic crisis—a critical juncture—in the 1970s drove the introduction of the models in the first place, but since then, they have developed incrementally as new theory, ideology, and data have emerged.

7.2 The debate on capitalism and democracy

Finally, this dissertation contributes to the debate on capitalism and democracy, which is not new but perhaps more pertinent than ever in the age of globalization. In his classic analysis, Lipset (Lipset, 1960) showed that the relationship is a positive one as capitalism leads to economic development, which leads to public demand for democracy. Lipset argues that democracy will remain stable once established. Other classical statements have emphasized the scenarios in which one of the two systems dominates the other. Hayek (1944, 1966) warned that in some forms, democracy can threaten capitalism when democratically elected politicians interfere excessively with the market and introduce "anti-liberal" policies. Lenin (Lenin, 1991 [1917]), on the other hand, rejected parliamentary democracy as a "talking shop" that serves to blur the exploitation and real power structures of the capitalist system.

A more recent debate between Streeck on the one side and Soskice & Iversen on the other opens perspectives on how we might understand the relationship between democracy and capitalism in the age of globalization. Streeck argues that we see a "splitting of democracy from capitalism through the splitting of the economy from democracy" in Europe (Streeck, 2014, p. 5). According to Streeck, European governments have effectively lost the ability to collect taxes from highly mobile capital that can move abroad to avoid taxes and regulation. States, therefore, become indebted and depend on loans from the financial sector to pay for the provision of public welfare. This dependence creates a conflict between the pressures on governments from voters who want better welfare and the financial sector that wants the governments to pay back their debt (Streeck, 2016).

In Streeck's perspective, the EU has taken away the responsibility of the economic policy from the national governments to make the indebted states prioritize their international creditors before their national voters. Since the introduction of the euro in 1999, The European Central Bank (ECB) controls monetary policy with the aim of securing price stability. Moreover, since 2012, the European Fiscal Compact binds governments to limit public deficits and debt (Streeck, 2014, pp. 61-63; 79-90). According to Streeck, the governments can thus no longer steer either monetary or fiscal policy, which—against the voters' wishes—consists of cutting welfare to pay back the loans from the international creditors. In Streeck's account, globalized capitalism wipes out democracy. Yet, others argue that governments have choice in their political decisions about policy reforms (de la Porte and Natali, 2014; Ferrera, 2014).

Iversen & Soskice present a counter-argument to that of Streeck. They argue that democracy itself, rather than the globalized capitalism, drives the liberalization of the economy (Iversen and Soskice, 2019). Iversen & Soskice explain that capital is not very mobile in the knowledge economy, in which companies produce technically advanced products that require specialized skills and knowledge. According to Iversen and Soskice, knowledge economy companies are highly dependent on the tacit knowledge of the skilled workers who co-locate in skill-clustered networks. Therefore, multinational companies cannot just leave a country if they do not like the regulation or the tax level. The companies need the geographically locked skilled workers.

Iversen & Soskice argue that the governments have not lost the ability to collect taxes, but they have, in some cases, chosen to liberalize the economy to satisfy voters. In the knowledge economy, the decisive voter tends to be a high-skilled worker who earns above the median income and no longer feels the same solidarity with the low-skilled service sector worker as back in the Fordist economy when the two worked in the same factory (Iversen and Soskice, 2015). To win elections, the political parties need to appeal to the decisive high-skilled voter who wants less redistribution and more privatization. In this account, globalized capitalism does not destroy democracy. Iversen and Soskice argue that national voters—not international capital—are in charge of economic policy.

This dissertation represents a third position in the debate. I argue that to understand the dynamics between capitalism and democracy, we should not only analyze the external pressures on government in the form of capital and voters, but also pay attention to the institutions that develop around the governments' policymaking.

In paper 3, I show that neither Streeck nor Iversen and Soskice can explain the Danish liberalizations, including tax cuts for top income earners, cuts in unemployment insurance, and restrictions on early retirement options during the two last decades. The Danish state is not indebted, and the decisive voters in Denmark are low-skilled workers interested in a comprehensive welfare state. However, since the 1970s, Danish policymakers have formed a tighter bond to EU rules and economic models, which specify the allowed public deficits and the correct way to calculate these, respectively. These rules have a supply-side bias. For example, according to the models, cuts in unemployment insurance make it possible to stay within the EU rules. Nobody has forced Denmark to tie itself to models and EU rules, as Denmark is not a full euro-zone state and can, furthermore, choose to use or not use certain economic models. Thus, the Danish story is about a democracy voluntarily constraining itself to navigate globalized capitalism's stormy waters and prevent the excessive public debt that the country experienced in the 1970s when neither models nor the EU constrained the politicians. The room for maneuver for democracy (or at least for nationally elected politicians) has narrowed, but the continuous decision to do this has been democratic.

8. Conclusions and implications

This dissertation started by asking: What is the political potential of macroeconomic models that governments use for economic forecasts, and how does this potential play out through time and in government negotiation processes? In paper 1, I show that, while economic models appear objective, they nonetheless have a political function to simplify the economy for policymakers to make sense of it. In this process, and depending on the variables and relationships inside the models, they have the political potential to promote the allocation of values to certain goals instead of others via certain instruments instead of others. Throughout the dissertation, I have shown how this political function of economic models can be mobilized to influence both politics (power struggles and negotiations between political actors), policies (the concrete economic policies that the state adopts and implements), and polity (the institutional set-up that surrounds the development of politics and policies).

Politics: In paper 1, I show how different political parties use the economic models to promote their interests before and during the 2011–2015 Thorning-Schmidt government in Denmark. Thus, the economic models work as political weapons in power struggles and negotiations, especially interesting in the period of government formation. The models' objective appearance makes it difficult to argue against the policies supported by the models, without losing credibility. In this way, the models can empower some political actors and agendas, at the expense of others.

Policy: In paper 1, I show how policy entrepreneurs used economic models to influence the 2011–2015 Thorning-Schmidt government's policy in a neoliberal direction. The model was used both to discredit non-neoliberal ideas and to provide the government with neoliberal policy goals and the instruments. By helping the government to make sense of the economy, the models yielded a significant influence on the policy.

Polity: In paper 3, I have shown how economic models have become a still more central part of the institutional set-up around Denmark's policymaking since the 1970s until today. As the government today is legally obliged to change policy if the models predict the emergence of excessive public deficits, the models are part of the rules that define which policies changing governments can and cannot have.

Finally, in paper 2, I show how both economist and politicians contribute to driving the development of the models. Even though the main actors behind Danish governments' economic models are economists working to make improved forecasts, some politicians with ideological interests have also influenced the logic of the model set-up. For these reasons, I conclude that economic models indeed have political elements and a political function, which is inseparable from their scientific basis.

I have reached these conclusions by studying the case of Denmark. Before ending, I discuss the extent to which the conclusions have relevance for other cases and future research. I divide this discussion into two parts. First, I consider the implications for the research in convergence towards neoliberalism. Second, I consider the implications for the research in national knowledge regimes.

8.1 Implications for studying convergence towards neoliberalism

Scholars have argued that advanced capitalist economies in the age of globalization converge toward a common model of neoliberal policies focusing on tax cuts, cuts in social benefits, and reduced state involvement in the free market (e.g., Campbell and Pedersen, 2001; Blyth, 2002; Crouch, 2011; Harvey, 2005; Streeck, 2016). There can be different reasons for this convergence. One reason put forward in the literature is that international organizations coerce states to have certain policies. A second reason presented is that states compete against each other to attract footloose capital by reducing taxes and regulation. A third reason put forward for neoliberal convergence is what scholars call "normative learning." Proponents of the "normative learning" perspective argue that economics as an academic field has a large influence on states because states learn what good economic policy is from economists (Campbell and Pedersen, 2014, pp. 12-13).

As an example of the "normative learning" perspective, Fourcade has shown how neoclassical economics developed in the US has become transnational and has been institutionalized in universities, international organizations, and state bureaucracies around the world (Fourcade, 2006). According to Fourcade (in her study: neoclassical theory), economic theory can become transnational because it builds on universalistic rhetoric and mathematical models that governments can use independently of time and place. Thus, neoclassical economics can travel from state to state with the same universalistic perspective on rational economic agents that work and produce more if the state cuts taxes and regulation.

In an analysis of four countries' paths to neoliberalism in the 1970 and 1980s, Fourcade-Gourinchas and Babb (2002) show how economic theory paved the way for neoliberal reforms. In some cases—Chile and the UK—previously marginalized political parties came to power and introduced neoliberalism as an ideological solution to the countries' economic problems. In other cases—Mexico and France—neoliberalism was less ideological and was introduced by technocrats who saw neoliberalism as a pragmatic response to globalization (Fourcade-Gourinchas and Babb, 2002). In all cases, professional economists and economic theory played a role in the paths to neoliberalism.

Following Fourcade, I argue that this dissertation has a relevance beyond the case of Denmark. While Fourcade shows that neoclassical economics has political influence across countries, this dissertation shows how this influence works in practice and the role that economic models play in wielding the influence. We know that neoclassical economics have gained prominence internationally in recent decades (Vroey, 2016; Schlefer, 2012), and we also know that different Western countries have increased the use of economic models (Campbell and Pedersen, 2014). Therefore, we might expect that the influence of neoclassical economics via economic models is not merely a Danish phenomenon. This dissertation has shown an approach for studying how this influence works, and calls for more comparative research in how economic models wield influence on different governments.

8.2 Implications for studying differences in national knowledge regimes

While some scholars analyze how ideas spread internationally and lead to a convergence toward neoliberalism, others have emphasized the differences between how nations adopt economic ideas. Campbell and Pedersen (2014, 2015) study what they call the "national knowledge regimes" to understand which ideas predominate in different countries. The authors define the national knowledge regime as "the organizational and institutional machinery that generates data, research and policy recommendations, and other ideas that influence public debate and policymaking" (Campbell and Pedersen, 2014, p. 3). The national universities, research organizations, ministries, and think tanks are parts of the national knowledge regime, as these organizations produce the ideas that national policymakers use to analyze and govern the economy.

In a study of the knowledge regimes in the United States, France, Germany, and Denmark, Campbell and Pedersen (2014) show how there are significant differences between the national knowledge regimes, and that these produce different economic policy ideas. In the United States, the knowledge regime is characterized by fierce competition between privately funded research organizations that have different ideological perspectives. In France, the state plays a large role in organizing various public and semi-public research organizations. In Germany, the corporatist tradition plays a role in the knowledge regime in the sense that employers' and employees' organizations finance some of the prominent research organizations. Moreover, in Germany, the authors find a stronger tendency for the research organizations to compromise with each other and coordinate their analyses compared to France and especially the United States (Campbell and Pedersen, 2014).

According to Campbell and Pedersen (2014), the Danish knowledge regime shares features of the French and the German knowledge regimes in the sense that the state (here: The Ministry of Finance) plays a large role, while there is a high degree of consensus and compromise among the research organizations. An important example of the consensus is that most of the research organizations use the same economic models. Combined, these two features make the Danish knowledge regime unique and means that the Danish Ministry of Finance uses economic models with which the rest of the knowledge regime agrees, in broad terms. Thus, the synthesis between Keynesian and neoclassical economics—to analyze the short and the long term, respectively—is the compromise between different Danish societal interests. The economic models expressing this compromise are the outset for the political negotiations in Denmark. This situation stands in contrast to the United States, where partisan research organizations with fierce ideological differences use different economic models to make competing analyses of the economic problems and solutions.

We might expect that the Danish knowledge regime's consensus on the Ministry of Finance's economic models strengthens its role and influence. When there is no alternative to the economic model that the leading research organizations and public economists support, this model can influence different governments formed by different political parties. In this way, the economic model represents a stronger institution, which leads government policies down a certain policy path over time, compared to a knowledge regime with less consensus and in which research organizations challenge the model. This dissertation has studied the influence of economic models in a knowledge regime characterized by consensus around the model. However, we need more comparative research across different knowledge regimes to determine if, how, and why the models' influence varies.

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Paper 1: The 'Strange Non-Death' of Economic Models: How Modeling Contributed to Neoliberal Resilience in Denmark

Abstract: *Scholars have attributed the resilience of the neoliberal policy paradigm to external pressure on governments by giant corporations and international financial institutions, and to the neoliberal idea itself. This paper proposes a different explanation based on the political influence of the economic models that governments use for policy planning. I develop a theoretical perspective to capture how economic models, rather than being mere analytical tools, are policy tools with an overt objective function and a covert political function. To illustrate the value of the theory, I use a qualitative case-study approach to analyze how politicians in the aftermath of the 2008 financial crisis used economic models before and during the 2011–2015 Social Democratic Thorning-Schmidt government. I show how Denmark's Finance Ministry's model worked to discredit certain policies while promoting others, and in the process, contributing to neoliberal resilience.*

1. Introduction

Since the financial crisis of 2008, scholars have debated the resilience of neoliberalism in Europe. If the crisis represented a market failure, why did the neoliberal policies of austerity and tax cuts continue to thrive after the crisis (Blyth, 2013)? Why did governments not shift from neoliberalism to other policy paradigms? Such shifts occurred in the aftermath of earlier crises, such as when Keynesianism triumphed after the Great Depression in the 1930s and when neoliberalism replaced Keynesianism in the 1980s (Hall, 1989; Blyth, 2002). However, such a shift did not happen in the aftermath of the 2008 financial crisis. Scholars have shown that while different ideas since the financial crisis have competed, neoliberal assumptions continue to thrive in mainstream economics (Helgadóttir and Ban, 2021), and the neoliberal policy framework is still in place in most Western countries (Schmidt and Thatcher, 2013; Stahl, 2019). Moreover, neoliberalism has successfully adapted to rising nationalist ideologies via political parties that are against open borders for humans but in favor of free markets for capital and goods (Plehwe *et al.*, 2020).

Scholars have offered several explanations of why neoliberal ideas remain dominant. One group of studies highlights external pressures on governments. Crouch (2011) attributes 'the strange non-death of neoliberalism' to multinational corporations' capacity to lock government policies onto neoliberal tracks by, for example, funding political parties or threatening to relocate capital. Some scholars also argue that financial institutions such as the International Monetary Fund (IMF) require states to implement austerity measures to access financing (Hall and Lamont, 2013, pp. 21-22). Another stream of studies highlights the popular appeal of the neoliberal idea and how its easily communicated punchlines—such as 'the state should not spend more money than it has'—often resonate better with the electorate than the counter-intuitive Keynesian proposition that states should spend more money in times of crisis (Schmidt and Thatcher, 2013; Blyth, 2013, p. 7). A third stream of studies highlights how technocrats and economists use their positions in state bureaucracies and in the EU bureaucracy to promote neoliberal ideas (Fourcade, 2006; Blyth, 2013; Christensen, 2017; Matthijs and Blyth, 2018). In addition, scholars have argued that these actors have institutionalized neoliberalism in bureaucracies via seemingly technical devices such as policy evaluation systems and economic forecasting models (Henriksen, 2013; Breidahl and Andersen, 2020). Clearly, the debate on neoliberal resilience remains unresolved.

Defining neoliberalism as the idea that free markets and competition outperform other forms of economic organization in providing wealth and prosperity to the society (Beckert, 2020, p. 320), this paper contributes to the third group of studies by examining how economic forecasting models promote neoliberal resilience. I theorize that economic models serve as policy tools with both an overt objective function and a covert political function, and I argue that economic models are important in empowering economists and their ideas. On the one hand, policymakers view the economic models as objective 'black boxes' because of their reliance on complex mathematical calculations (i.e., econometrics) and economic theories. On the other hand, the economic models have the political function of simplifying the world and promoting certain policy goals and instruments instead of others. Thus, while appearing apolitical, the models do not merely describe the economy but also shape it by guiding policymakers in a certain political direction. Various other scholars have pointed to the political role of economic ideas in models (e.g., Braun, 2014; Angeletti, 2021; Heimberger *et al.*, 2020), but they have not presented a theoretical perspective that explains why the model becomes powerful. In addition, they have not defined the conditions under which the model has an influence.

To illustrate how economic models function as policy tools, I analyze the economic policies of the Social Democratic Thorning-Schmidt government (2011–2015) in Denmark, which is considered a classic social-democratic welfare state with high, progressive taxation, and universal, citizen-based welfare services (Esping-Andersen, 1990; Martin and Swank, 2012; Thelen, 2014). However, during the last two decades, both before and after the 2008 financial crisis, Danish politicians adopted a series of tax and labor market reforms with distinct neoliberal elements (Campbell and Pedersen, 2007; Larsen and Andersen, 2009; Henriksen, 2013; Martin, 2013; Pedersen, 2011, 2018). Both liberal and Social Democratic governments have reduced taxes for high-income groups, reduced social-welfare benefits, and increased the retirement age. The Thorning-Schmidt government continued these policies despite electoral promises to the contrary.

The Danish case is well suited for investigating the political power of economic models. The reasons are the following: As Denmark is a classic social democratic welfare state and having a social democratic government after the financial crisis, Denmark is a least likely case of neoliberal resilience (Flyvbjerg, 2006, p. 231). Therefore, if economic models can contribute to neoliberal resilience here, we might expect the same phenomenon in many other countries. Moreover, we can reject several of the previously cited explanations of neoliberal resilience. (1) It is unlikely that giant corporations drove the Thorning-Schmidt reforms via political donations. The state is the principal funder of most Danish political parties, and the Social Democrats have traditionally received most of their private funding from labor unions, which opposed the Thorning-Schmidt (neoliberal) reforms (Brøndum, 2014; Astrup, 2015). (2) Pressure from the financial sector as an explanation has limited value in the Danish case, as during the Thorning-Schmidt government public sector debt was relatively low[1], and the existing debt was rated triple-A (Danmarks Nationalbank, 2012, pp. 6–8). (3) The Thorning-Schmidt reforms were also unpopular among the government's voter base (Albæk, 2013, Sørensen, 2013), and when the government lost its parliamentary majority in the 2015 national elections, the neoliberal reforms were cited as contributing to the loss (Goul Andersen and Shamshiri-Petersen, 2017, pp. 188–201). Because the above-cited explanations are weak for Denmark, the Danish government case

[1] According to Eurostat, the general government gross debt was between 46 and 40 percent of GDP from 2011 to 2015. The EU average was between 82 and 85 percent of GDP (source: www.ec.europa.eu/Eurostat).

is well suited for testing the explanation highlighting the institutionalization of neoliberal ideas in the state bureaucracy via its economic models.

The next section presents the paper's case study methodology and empirical sources. Section 3 describes my contribution to the literature on the political influence of economic ideas, economists, and economic models in state bureaucracies by building a theoretical perspective on economic models as overtly objective and covertly political. In Section 4, I analyze how economists and politicians used the two functions of economic models during the Danish Thorning-Schmidt government, and in this way, the models contributed to neoliberal resilience. The final section summarizes principal conclusions.

3. Methods and data

To provide an explanation for the neoliberal Thorning-Schmidt policies, this paper proceeds in two parts. In the first part, I develop a theoretical perspective on macroeconomic forecasting models as overtly objective and covertly political. I have developed this perspective with inspiration from the literature that I cite in the next section, and by analyzing the models' role in the Danish case. In this sense, the case itself has given me insight into how and under what conditions economic models can have an influence, and the case has thus inspired my theoretical perspective that I hope can be useful to analyze the role of economic models in other cases as well (George and Bennett, 2005, pp. 3-37).

In the second part, I analyze the model use before and during the Danish Thorning-Schmidt government as a case of how economic modeling can contribute to neoliberal resilience. I analyze how the Ministry of Finance's economic model as a black box, theorized in the first part, influences a reform outcome. More specifically, since the model promotes neoliberal policy goals and instruments while presenting these as objective science, they permeate into policy outcomes. Of course, correlation is not causation, which is why I examine the precise role of the economic model in the policy making process, in a crisis context, when we would expect the effect of the model, if any, to be visible. Neoliberal policies refer to policies that decrease economic redistribution and enhance market logic, by establishing incentives for people to work, rather than classic welfare state policies (such as pensions and unemployment benefits), which would offset market logics by redistributing economic resources.

To untangle the relationships between the economic model and neoliberal resilience, I analyze the process by which the model wields influence on the Thorning-Schmidt coalition's policies (identifying their neoliberal components). The analysis is conducted in three steps. First, I inductively derive five stages that are temporally sequential and defined by the Thorning-Schmidt coalition's shifting political positions, as well as by the model's influence in different stages of the policy process (Bartolini, 1993, p. 151). The five stages are T1) before government (model as weapon), T2) during government formation (model as a tool to craft policy blueprint), T3) during government (model as legitimizer), T4) during government (model as game board), and T5) during and after government (model as shield). [2] The process that I analyze takes place in the context of the economic crisis that followed the 2008 financial crisis. The government had to take measures to handle the crisis, but it was not obvious which measures to take, and therefore, the crisis is a critical period to analyze the real effect of economic models on policies.

Second, I undertake a 'structured, focused' analysis (George and Bennett, 2005, p. 67-72) of the five stages. The analysis is 'structured', as for each of the five stages, I ask the same questions to collect and analyze my empirics. These questions are: Which actors refer to the model, and how do these actors exercise power by activating the model's overt objective and covert political functions? My analysis is 'focused' on the model's influence and contributes to the literature on neoliberal resilience as well as the politics of economic models by showing how the model's two functions can help explain neoliberal resilience when well-placed political actors bring them into play in the context of the economic crisis.

The empirics that I analyze are both official documents, press articles, and interview data. To understand the Ministry's models, I study official documents from Statistics Denmark and the Danish Ministry of Finance, the two institutions that develop and operate the economic models. To examine how political parties use the authority of the economic models to either promote or discredit policy proposals, I rely on public speeches, press briefings, and policy proposals from the government, as well as newspaper articles from the Danish media. Moreover, I use eight in-depth semi-structured elite interviews (Leech, 2002) with high ranking economists in the

[2] I distinguish between T3 and T4 as the model has different functions in the two stages even though they both occur during government. Similarly, while T3 and T4 partly overlap temporally, I analyze them as two separate stages as T4 continues after T3 and the model has a different function in the two stages. In T4, the model is a shield that protects the ideas that lie in the Thorning-Schmidt reforms both during and after the government.

Ministry of Finance (referenced: economist 1-3), as well as with party spokespersons on economic policy, and a former finance minister (referenced: politician 1-5). The interviews with the model developers contribute to our understanding of the functioning of the economic models, and the interviews with the politicians yield insight into its political influence.

Finally, I consider the counterfactual question 'what if the model did not exist?' to reflect upon to which extent the model was a sufficient and/or necessary condition (Mahoney, 2015, pp. 212-215) for neoliberal resilience in Denmark during the Thorning-Schmidt government. I draw on the empirics of the analysis to consider the conditions—such as well-placed politicians using the model and the context of the economic crisis—under which the model can wield political influence.

3. Theoretical perspective: Economic models as overtly objective but covertly political

Hall (1993, p. 273) famously explained how policymakers 'work within frameworks of ideas and standards that specify not only the goals of policy and the kind of instruments that can be used to attain them but also the very nature of the problems they are meant to be addressing'. Scholars have since advanced this perspective for how policymakers rely on such frameworks of ideas and how neoliberal ideas emphasizing the advantages of free markets and competition have been prevalent since the 1980s (see, e.g., Blyth, 2002; Moschella, 2010; Baker, 2013; Ban, 2016; Carstensen and Matthijs, 2018; Kentikelenis and Babb, 2019). In relation to the idea literature, scholars have highlighted the role of economists, who because of their expertise and authority, are powerful producers and promoters of ideas in the public policy sphere (Fourcade, 2006, 2009; Campbell and Pedersen, 2014; Hirschmann and Bermann, 2014). For example, Christensen (2017) has shown how neoclassical economists working inside government bureaucracies have promoted the idea of how lower tax rates are necessary to reach a specific goal of increasing overall economic output.

Recent studies have shown how neoliberals work to limit democratically elected politicians' influence on economic policies, instead promoting the influence of neoclassical economists who they view as more competent and rational (Maradiga, 2020; Stahl, 2020). Mandelkern (2021) has argued that the institutionalization of 'neoliberal ideas of government' involves a more prominent role for economists as de facto policymakers in, for example, independent central banks, government commissions, and strong finance ministries. In effect, the power of elected politicians has been limited over time by such institutionalization, which has normalized certain fiscal rules for how much money the government can spend. According to Mandelkern (2021), economists work in bureaucracies somewhat isolated from democratic influence and continue to promote neoliberal ideas, even though these ideas have lost public legitimacy since the 2008 financial crisis.

While Mandelkern refers to independent commissions and central banks as examples of neoliberal ideas of government that endorse the power of economists, I argue that governments' macroeconomic forecasting models are also essential to economists' political influence. Recent studies have investigated the influence of such models. Following Callon (1998) and MacKenzie (2008), Henriksen (2013) and Braun (2014) analyze how macroeconomic models 'perform' the economy. By performing the economy, these authors mean that models not only describe the economy but also shape it by convincing its agents—including policymakers—to *follow the model logic*. Braun (2014, p. 53) argues that models can create consensus around 'how the economy works' and 'how its dynamics can be managed or controlled,' and that the models in this way can influence the policy instruments and targets that governments use. Henriksen (2013) shows how neoclassic models predicting that tax cuts will increase economic growth changed policymakers' perceptions of the economy and paved the way for Danish tax reductions.

Heimberger *et al.* (2020) argue that economic models can serve as 'transmission devices' that allow actors drawing on the models to promote their political convictions while asserting that they are neutral technicalities. According to Heimberger *et al.* (2020), the models represent a simplified understanding of complex economic processes as they highlight certain variables and downplay others, thus putting emphasis on certain causal relationships while omitting others. The simplification gives power to certain political perspectives at the expense of others; meanwhile, the model becomes difficult to challenge because of its technical and complex nature. Angeletti (2021) likewise asserts that economists simplify the economy when building their models via two operations. First, they 'select' the phenomena to include and exclude. For example, should the model include phenomena like 'inequality', 'employment', 'environmental degradation', and/or 'social cohesion'? Second, the economists 'qualify' these phenomena by assigning to them certain qualities. For example, should 'wages' be a dependent or an independent variable, and what other variables should it be connected to? Depending on these choices, Angeletti (2021) argues, the model can influence the political debate on which policy instruments are relevant for policymakers.

Taken together, these model studies touch upon two main characteristics of economic models that make them powerful policy tools. First, the models involve choices of 'selection and qualification' (Angeletti, 2021) and 'highlighting and downplaying' (Heimberger *et al.*, 2020) of variables that influence the policymakers' understanding of their instruments and goals (Henriksen, 2013; Braun, 2014), as well as the policy debate (Angeletti, 2021). Second, the models appear 'technical' (Heimberger *et al.*, 2020) and can reduce 'normative contestation by black boxing otherwise controversial and contingent claims' (Henriksen, 2012, p. 483).

While the abovementioned studies explore different parts of these characteristics, none presents a theoretical framework that explains *how these two characteristics in combination* make economic models powerful policy tools. My theoretical perspective explains the background and consequences of the combination of the model's overt objective function and a covert political function. My contribution shows how models are not merely extensions of economic ideas that inform the model. Rather, the model both concretizes the ideas, providing policymakers with distinct policy instruments and goals based on the ideas, and empowers the ideas by making them appear objective. Furthermore, the objectification makes the conceptual terrain resilient, as it remains in the model after losing public legitimacy and after the economist(s) who created the model are no longer present. Thus, to understand the non-death of neoliberalism, we have to analyze the non-death of the models that promote the neoliberal idea.

3.1 The political function of an economic model

An economic model is a tool for forecasting and analyzing policy scenarios (Ouliaris, 2020). Ever since Jan Tinbergen developed the first econometric model in 1936, models using diverse theories, data, and methods have been developed (Mankiw, 2006; Vroey, 2016; Rodrik, 2016). Regardless of differences in methods, economic models consist of equations describing relationships among variables (Kærgård, 2015). Some variables are exogenous—that is, model users insert these variables' values into the model. Other variables are endogenous—that is, their values are determined inside the model. For example, if public consumption is exogenous, the model user can decide on the value of this variable and use the model to forecast how a higher or lower value influences endogenous variables such as GDP or employment. In this way, the model user can forecast the consequences of different policy choices.

The political function of an economic model is to *promote certain policy goals and instruments at the expense of others*. To explain this function, I draw on Easton's classic definition of the political system as 'the interactions through which values are authoritatively allocated for a society' (Easton, 1965, p. 21). I argue that economic models are political because they promote an allocation of values to certain goals instead of others and via certain instruments instead of others. To explain this argument, I also draw on Morgan's definition of modeling as a process of 'idealization', where relations of interest are picked out and isolated from frictions in the real world, giving form to a simpler, ideal, world (Morgan, 2012, p. 21). As this ideal model world cannot contain all elements of the real world, it therefore includes certain variables and relationships while excluding others. The ideal world of economic models is helpful to policymakers who operate in the real, complex world where the future is highly uncertain. In the real world, how policymakers should define their own interests and which strategies they should choose for pursuing these interests is far from obvious or straightforward. Therefore, policymakers work out strategies to make sense of the world (Weick, 2009; Borrás and Seabrooke, 2015). They can do so by using an economic model that approximates the real world through a simpler, ideal world, thereby formulating policy goals with the included variables and applying the included relationships as policy instruments.

Figure 1 illustrates these points. All models include some variables (boxes with solid lines) and some relationships (arrows with solid lines), while excluding other variables (boxes with dotted lines) and other relationships (arrows with dotted lines). This inclusion/exclusion process depends on the ideas in the form of economic theory in the model. For example, Keynesian models include variables indicating general demand in the economy: if demand increases, production in the economy increases, leading to increased employment. In contrast, neoclassical models exclude variables of general demand and focus on the long run, where a number of supply-side variables (e.g., the tax rate or official rules for pension applicants) determine the equilibrium employment rate.

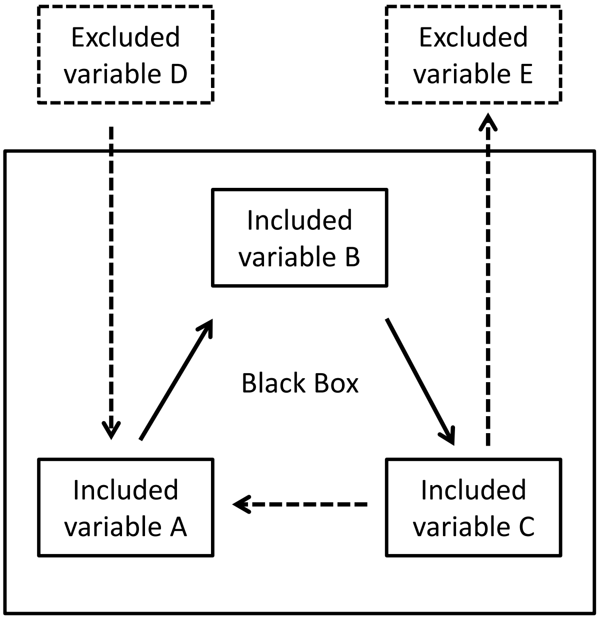

Figure 1. Included and excluded variables and relationships in an economic model. Author's illustration.

Even though some models today represent a synthesis of the Keynesian and the general equilibrium perspectives, they still do not give a full picture of the economy. For example, both Keynesian and the general equilibrium models may exclude variables and relationships describing the effects of economic inequality on growth even though studies show that increased inequality might reduce the chances for lower income group children of taking an education, and thereby may reduce productivity and growth (Stiglitz, 2012; OECD, 2015). Furthermore, both Keynesian and the general equilibrium models may exclude relationships between economic activity and environmental degradation, even though including them may be vital to securing sustainable economic development in the long run (Stern, 2006; Philipsen, 2015, pp. 184-207; Raworth, 2018; IPCC, 2021).

These examples show that the sets of variables and relationships to be included or excluded in an economic model are not self-evident. Given that no model contains all variables and relationships, the purpose of a model is to simplify the economy so that policymakers can make sense of it. Different economic ideas lead to different inclusions and exclusions of variables and relationships, promoting the allocation of values to different goals (e.g., short-run employment or labor supply, income equality, sustainability) via different instruments (e.g., contra-cyclical fiscal policy, tax rates, public investments, green subsidies). Therefore, economic models are political.

3.2 The objective function of an economic model

Several previously cited model studies describe economic models as being technical and complex, and therefore, difficult to contest and scrutinize for policymakers, as well as the wider public (Angeletti, 2021, p. 649; Heimberger *et al.*, 2020). For example, Henriksen (2013, p. 483) writes that models 'add an extra layer of authority and legitimacy to decision making'. However, we lack a deeper understanding of where this authority comes from, and what consequences the technical nature of the models has for policymaking.

The objective function of an economic model is to *make its political content appear apolitical*. To explain the objective function, I draw on Latour's concept of a 'black box'[3], 'used by cyberneticians whenever a piece of machinery or a set of commands is too complex. In its place they draw a little box about which they need to know nothing but its input and output' (Latour, 1987, pp. 2–3). People encounter many black boxes in their daily lives. For example, when turning on a television, few of us understand the technical process between pressing the remote control buttons and the colored images appearing on the screen. For most of us, that process is a black box. We do not need to know the details of why and how it works; all we need to know is that we can give an input (pressing buttons) resulting in an output (e.g., a movie shows up on the screen). As we take what happens inside the black box for granted as a neutral, scientific, objective fact of the 'the way the world works', we do not consider the process inside the black box as political, untrustworthy or suspicious.

In the same way that most of us experience the process between the remote button and the television as a black box, most policymakers experience the calculation process inside an economic model as a black box because of its complexity. The model, which may contain thousands of variables, builds on complex economic theory and statistical methods. Thus, it is too complex for most political actors to understand; many politicians, journalists, and

[3] Henriksen (2013, p. 283) refers to 'black boxing' once but does not define the concept.

bureaucrats accept that outcomes of model usage are neutral and objective facts rather than political phenomena. Political actors who do not fully or even partly understand the model treat it as a black box into which they feed input (e.g., an economic policy proposal) and obtain output (e.g., an economic evaluation of the proposal). These political actors often do not question what happens inside the black box. Thus, when governments use an economic model to make sense of the economy, the ideas embedded in the model attain unremarked influence by supplying policy goals and instruments, all the while, portrayed as objective. Moreover, left- and right-wing governments might use the same model if they perceive it to be objective.

Importantly, the model's objective function can influence who gets 'power through ideas' and who gets 'power over ideas'. 'Power through ideas' refers to 'the capacity of actors to persuade other actors to accept and adopt their views of what to think and do through the use of ideational elements' (Carstensen and Schmidt, 2016, p. 323). As the model's calculations become powerful in public debate because they appear objective, political parties whose ideas are in line with the models' ideas have a power resource in the model, which they can use to increase power through their ideas. For example, if a political party argues for tax cuts by referring to objective model calculations, such a policy will appear more persuasive than if one argues for tax cuts by referring to one's subjective and ideological beliefs. Moreover, because of the model's black box quality, the media will often report model forecasts on job or GDP growth as objective facts, without inspecting or reporting the inclusion/exclusion assumptions integral to the model (Heimberger *et al.*, 2020, pp. 358–360).

'Power over ideas' refers to the ability of actors to impose their perspective in political discourse and to repel the inclusion of alternative ideas (Carstensen and Schmidt, 2016, p. 326). As the model can play an important role in policymaking, those who decide which variables and relationships should be included/excluded in/from the model's black box, have power over ideas. Because of the model's complexity, most political and civil society groups lack the technical and theoretical knowledge to participate in these decisions. Rather, the range of actors who hold power over the ideas in the economic models is narrowed down to a small circle of economists with great technical and theoretical expertise. Moreover, the black-box quality effectively shields the model's political content from critical discussion or scrutiny. If the model is challenged, its proponents often ridicule those challenges as running counter to science or known facts.

4. Analysis: Economic models in Denmark

In this section, I start by presenting the Ministry of Finance's economic model, and the goals and instruments it provides for policymakers. Then, I describe the context of the economic crisis. Thereafter, I proceed by analyzing how policymakers use the model's political and objective functions to exercise power over and through the ideas in the model in five temporally sequential stages to promote neoliberal policies. I end the section by considering counterfactual scenarios of the process.

The five stages of the analysis are T1) before government where the model is a weapon to attack policies, T2) during government formation where the model is a tool to make blueprint for policies[4], T3) during government where the model is a legitimizer of policies, T4) during government where the model is a game board upon which negotiations are based, and T5) during and after government where the model is a shield to protect policies. Table 1 presents these stages, the main actors referring to the model, and the model's functions in each stage.

[4] The notions of models as weapons and tools for crafting policy blueprints draw inspiration from Blyth (2002) who refers to ideas as weapons and institutional blueprints.

Table 1. The process by which the economic model contributes to neoliberal resilience

Cause	*Context: economic crisis*						**Effect**
Economic model	*Time*	*T1: Before government*	*T2: During government formation*	*T3: During government*	*T4: During government*	*T5: During and after government*	**Neoliberal resilience**
	Model's role	The model as a weapon to attack non-neoliberal policies	The model as a tool to make neoliberal blueprint	The model as a legitimizer of neoliberal policies	The model as a game board that inflates price of non-neoliberal policies	The model as a shield against critique of neoliberal policies	
	Main actors referring to model	Liberal-conservative government and journalists	Social Liberal Party and finance minister	Social Liberal Party and leadership of Social Democrats and Socialist People's Party	Thorning-Schmidt government and negotiating parties	Left-wing parties, the finance minister and the Ministry of Finance	
	Model's functions in action	*Objective function:* Journalists and politicians refer to model calculations of Thorning-Schmidt coalition's plan as facts. *Political function:* The model is used to discredit non-neoliberal policy instruments.	*Objective function:* Social Liberal Party and finance minister refers to the model as 'recognized' methods in the government policy program. *Political function:* The model is used to create neoliberal blueprint for Thorning-Schmidt government policy.	*Objective function:* The government presents calculations on positive effects of its policies as certainties. *Political function:* The model is used to legitimize the government's neoliberal policy instruments	*Objective function:* The left-wing parties do not have resources to open the model's black box. *Political function:* The model is used in negotiations to block left-wing policy while paving the way for neoliberal policy.	*Objective function:* The finance minister protects the model from left-wing critique by referring to its scientific status as opposed to left-wing ideology. *Political function:* The model—and the neoliberal policies it promotes—stays in place.	

4.1 The economic model

In Denmark, every government irrespective of its political orientation, is enabled but also constrained economically by the possibilities laid down in the Ministry of Finance's models. The models calculate the effects of reforms and policy proposals on state budgets, especially budget surpluses and deficits, as well as employment and growth (Finansministeriet, 2012). The economists in the Ministry of Finance run its model calculations according to several economic models developed by Statistics Denmark, the Ministry of Finance itself, and (occasionally) other independent research organizations such as the independent Danish Research Institute for Economic Analysis and Modelling[5] (economist 1, interview; economist 2, interview). Thus, Ministry economists hold power over the ideas in the models.[6] For ease of reference, I collectively refer to these models and their corresponding calculation setups as 'the economic model'.

The Ministry of Finance uses the same economic model for policy reform analysis across governmental periods, irrespective of the political parties in government. The Ministry began applying the model for policy analysis in the mid-1970s, and since then, the model has undergone many changes. Today, the model expresses a mixture of Keynesian and neoclassical ideas: in the short term, the labor demand determines the unemployment rate, whereas in the medium term (seven years) and long term, the labor supply determines the unemployment rate (Danmarks Statistik, 1993; 2013).

For different reasons, the neoclassical part of the model has become increasingly dominant in recent years. One reason is that the Ministry has added 'rational expectations' assumptions to the model, which means that labor supply turns into employment faster than before.[7] Moreover, the Ministry puts much emphasis on 'the structural public balance', which is the public balance in a general equilibrium scenario (see paper 3). In this scenario, the labor supply as opposed to

[5] Among these models are ADAM: the Annual Danish Aggregate Model (Danmarks Statistik, 2013), DREAM: Danish Rational Economic Agents Model (www.dreammodel.dk), and the Law Model (Finansministeriet, 2003).

[6] As we shall see in paper 2, in some instances, politicians influence the models, and also wield power over the ideas in the models. However, in recent decades, Ministry economists have dominated the model development.

[7] With the faster adjustment rate, an increased labor supply of 10,000 people turns into 5,000 jobs in three years and 10,000 jobs in seven years. With the slower adjustment rate, the speed was half as fast (Finansministeriet, 2014, pp. 219-220).

the demand decides the employment rate. The labor supply has thus increased in importance in the forecasts, as increased labor supply in the forecasts leads to increased employment, more economic growth (i.e., more employment leads to more production), and an improved balance on the public budgets (i.e., more employed people pay more taxes).

The model holds relationships expressing the idea that economic incentives influence the labor supply (Finansministeriet, 2002). According to the model, when the marginal tax on income decreases, people have more incentive to work, thereby increasing the labor supply. Likewise, the model shows that when the difference between wages and social benefits grows, the labor supply increases, providing evidence for the 'make work pay' slogan often used by center-right governments.[8] The model also shows that increasing the public retirement age increases the labor supply, as people work more years before they retire.[9]

In sum, in the years before, during, and following the Thorning-Schmidt government, the Ministry of Finance used an economic model that was a synthesis of Keynesian and neoclassical economics, but with the neoclassical side as the dominant. In the remainder of the paper, I refer to this economic model. Demand drives the economic activity in the short term, while supply drives the economic activity in the medium term and long term. The economic model provides policymakers with (a) the possible policy goal of increasing labor supply, and (b) some possible instruments for reaching that goal: reducing taxes, reducing social benefits, and increasing the retirement age. Figure 2 illustrates these possible instruments and goals.

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[8] In the model, a 10 percent reduction in the replacement ratio (the social benefit level compared to disposable wage income) will—by increasing labor supply—result in a 0.7 percent reduction of unemployment. For marginal taxes, a reduction of taxes leading to a real wage increase of 1 percent will lead on average to a 0.7 percent increase in working hours (Finansministeriet, 2012, pp. 18-19).

[9] Increasing the pension age has been the most effective instrument to increase labor supply from 2010 to 2013. The Ministry of Finance's economic model predicted that pension reforms carried out in this period increased labor supply by 65,000 people, while reducing marginal taxes and social benefits increased labor supply by around 42,000 people (Finansministeriet, 2013). Table 2 provides an overview of the reforms.

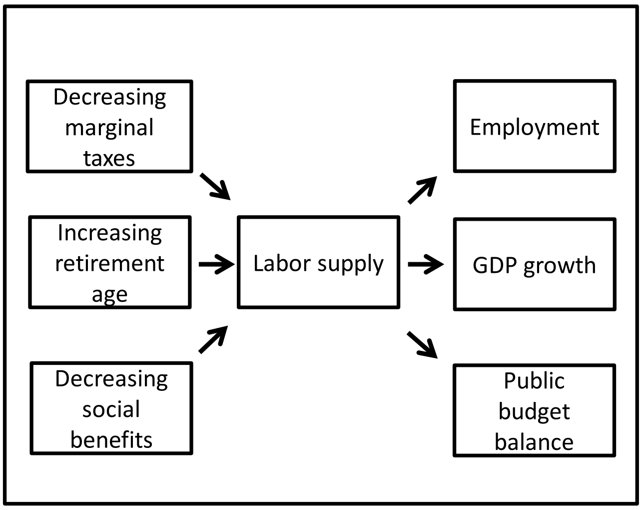

Figure 2. Medium-term and long-term instruments and goals provided by the Ministry of Finance's economic model during the Thorning-Schmidt government. Author's illustration. Source: Finansministeriet (2002; 2012).

4.2 Context: the economic crisis

The process where the Ministry's model was used took place in the aftermath of the financial crisis, which hit Denmark hard. The GDP fell by 7.4 percent from 2007 to 2009 (Danmarks Statistik, 2015), and unemployment rose by around 100,000 people from 2008-2010 (from 2.4 percent to 6.1 percent) (Finansministeriet, 2020, p. 33). Moreover, the public balance went from around a surplus of 5 percent of GDP in 2007 to a deficit of between 2 and 3 percent of GDP in the years after 2008 (De Økonomiske Råd, 2021). In 2010, Denmark underwent an excessive deficit procedure (to correct the deficit) in the EU's Stability and Growth Pact, which does not allow public deficits above 3 percent (de la Porte and Natali, 2014, pp. 739-742).

In the aftermath of the financial crisis, the political discussion in Denmark centered around which policy was appropriate to tackle the economic crisis. The liberal-conservative government proposed to increase labor supply by restricting early retirement options and decreasing the length of unemployment insurance from four to two years (Ritzau, 2011a). This policy used the instruments of the Ministry's model to reach the goal of increased labor supply, and was also in line with the Ministry's model (see figure 2). In contrast, the center left opposition parties—the

Social Democrats ('Socialdemokraterne') and the Socialists People's Party ('Socialistisk Folkeparti')—formed a coalition and ran on a common plan they called 'A fair solution – together out of the crisis' (Socialdemokratiet & SF, 2010). In the plan, they criticized the tax cuts of former governments and warned against rising economic inequality. The plan entailed a Keynesian-inspired stimulus package, financed by longer working hours and increased taxation of top income groups.

4.3 Before government: The model as a weapon to attack non-neoliberal ideas

The 'Fair solution' plan, explicitly dealing with the 2008 financial crisis, was aimed at creating jobs and reducing the public budget deficit. It was to expand public spending in the short-term, and to increase demand and create new jobs, while in the medium-term and long-term, increasing employment by increasing the labor supply. The plan to increase the labor supply followed the logic of the Ministry of Finance's economic model (see figure 2). Thus, the coalition's economic policy goals were the same as the liberal-conservative government's: higher labor supply, which in the model leads to growth in GDP and employment while improving public budgets.

Although the coalition accepted the goal provided by the Ministry's economic model (i.e., increasing labor supply), the coalition did not accept the model's instruments for reaching this goal. In particular, the coalition did not agree that lower marginal taxes on income lead to a higher labor supply. Therefore, it rejected the liberal-conservative government's policy for increasing the labor supply by decreasing both taxes and social benefits, instead, proposing to raise taxes for top income groups and cancel the liberal-conservative plans for reducing social benefits. In place of this, the Thorning-Schmidt coalition proposed to increase labor supply by reaching an agreement with the labor unions on longer working hours, improving efforts to integrate immigrants into the labor market, and reducing the length of university education so that students would enter the job market faster.

During the campaign, the Ministry of Finance, under the liberal-conservative government, analyzed the 'Fair solution' plan and concluded that it would not increase the labor supply as much as the Thorning-Schmidt coalition claimed (Finansministeriet, 2010; 2011). Whereas the Ministry's economic model contained clear relationships between labor supply, social benefits, and marginal tax rates (see figure 2), it did not include relationships between labor supply, integration efforts, and labor union negotiations. Therefore, the Ministry of Finance could not confirm whether integration efforts and labor union negotiations would increase labor supply, and the Ministry concluded that the plan would result in public deficits.

National newspapers ran headlines such as ‘The Ministry of Finance butchers the red plan’ and reported that the Ministry had calculated that the Fair-solution plan was under-financed by 11 billion Danish crowns towards 2020 (Ritzau 2010; 2011b). On that basis, the government spokespersons called the plan ‘a huge bluff’, and one liberal-conservative government party ran a media campaign, claiming that the plan would lead to a catastrophic ‘Greek’ economic situation (Larsen, 2010). Although the Thorning-Schmidt coalition lost voters during the campaign, it managed to win a narrow majority in 2011. It also managed to form a government by bringing in the Social Liberal Party, resulting in a final Thorning-Schmidt coalition of the Social Democrats, the Socialist People’s Party and the Social Liberal Party (‘Det Radikale Venstre’).

In sum, the liberal-conservative government exercised power through the ideas in the model by using it as a weapon to delegitimize the Thorning-Schmidt opposition’s policy instruments. The model’s objective function came into play when the media reported on the model’s output as neutral facts without opening the black box and questioning the model’s assumptions; meanwhile the model’s political function demonstrated how the opposition’s policy was inferior to the government’s policy.

4.4 During government formation: The model as a tool to craft a neoliberal blueprint

During the government formation negotiations, the Thorning-Schmidt government developed a government program, which entailed scrapping the ‘Fair solution’ plan and instead continuing the economic policies of the former liberal-conservative government ‘in the widest sense’ (Regeringen, 2011, p. 9). The Social Liberal party insisted on this change of policy as a precondition for its participation in the government. Since the Social Democrats and the Socialist People’s Party did not have sufficient mandates to form a government without the Social Liberal Party, they had to compromise, which involved this change of policy (Jensen, 2014).

The limited parliamentary options concretely meant that the Social Democrats and the Socialist People's Party had to accept two neoliberal reforms that the model predicted would greatly expand the labor supply (Ritzau, 2011c). As mentioned in section 4.2, the preceding liberal-conservative government had planned these reforms, which would restrict early retirement options and reduce the maximum amount of time for receiving unemployment insurance from four years to two. Moreover, in the government program, the Thorning-Schmidt government committed to launch reforms that would expand labor supply by 55,000 people using instruments such as cutting income taxes, and reducing social benefits (Regeringen, 2011, pp. 9-10).[10] The government program stated that the government would calculate the effect on the labor supply of the initiatives according to the 'recognized' calculation methods (Regeringen, 2011, p. 8), i.e., the Ministry's model.

In developing the blueprint for the government policies, the Social Liberal Party had a powerful ally in the Social Democratic finance minister, Bjarne Corydon, who, once in office, acknowledged the Ministry of Finance's negative assessment of the 'Fair solution' plan (Arnfred and Thobo-Carlsen, 2012). He stated, that from now on, the government would use the 'conventional calculation principles', as it was 'the only responsible thing to do' (Corydon, cited in Arnfred and Thobo-Carlsen, 2012). According to a former Social Democratic finance minister and party leader, Mogens Lykketoft, who was more critical of the calculation methods, the model played a central role in creating the blueprint for the Thorning-Schmidt government: '*You could say, that more recent governments have exalted these models to something unearthly, divine, that one should not even dare to question.*' (Politician 4, interview).

In sum, during the government formation, the Social Liberals exercised power through the ideas in the model by using it as a tool for creating a neoliberal blueprint. The model's political function provided the goal (i.e., labor supply) and instruments (i.e., cutting taxes, reducing social benefits, and raising the retirement age). The model's objective function came into play as the government referred to it in apolitical terms as the 'recognized', 'conventional', and 'responsible' method to plan policy.

[10] The government program furthermore mentions an agreement with the labor unions as an instrument to expand the labor supply. However, an attempt to make such an agreement failed (Søndergaard, 2012).

4.5 During government: The model as a legitimizer of neoliberal policies

From 2011 to 2015, the Thorning-Schmidt government routinely used the model forecasts in communication efforts regarding the beneficial effects that different reforms would have on labor supply, and thus, on employment, GDP growth, and the public budget balance. For example, in 2012, the government proposed a tax reforms that would cut income taxes, and increase the threshold for who is eligible for paying top income tax. The government proposed to finance the reform partly by reducing a number of social benefits relative to wage growth. To legitimize the reform, the leader of the Social Liberal Party, Magrethe Vestager, referred to the forecasts (Regeringen, 2012, p. 3) regarding the number of jobs the government's proposed tax reform would have:

'We have managed to design a proposal for a tax reform, which entails a large labor supply of 14,600 persons. I am very content with that. It is imperative for the future economic growth that we get more people into the labor force.' (Magrethe Vestager, cited in Schouboe and Bonde, 2012).

While the Social Liberal Party and Social Democrat finance minister supported the reforms, other Social Democrat and Socialist People's Party politicians and voters were more critical (Gjertsen and Boddum, 2012). Nevertheless, the government implemented the reform. To defend the reforms against criticism, the leadership of the Social Democrats and the Socialist People's Party referred to the same numbers from the model on labor supply as did the Social Liberal Party, and added that because the reforms increased labor supply, they would furthermore add 2.7 billion crowns to public coffers (Petersen, 2012; Bjerregaard, 2012).

Later, in the 'Growth Plan DK', which the government presented in 2013, the Ministry of Finance calculated that the cuts of social benefits and tax cuts from 2012-13 would expand labor supply by 33,000 and thus−according to the model−create 33,000 jobs (Regeringen, 2013, p. 16). Presenting the reform at a press conference, the prime minister referred to the Growth Plan DK, which, among other things, included corporate tax cuts and was partly financed by cuts in social benefits, as 'classic social democratic policy' that would create jobs and, thus, help the unemployed.[11] At the press conference, the tax minister, Holger K. Nielsen, from the Socialist

[11] While the model's logic may have convinced the Prime Minister, Helle Thorning-Schmidt, several ministers and MP's were critical, and voters left the Social Democrats according to national polls (Skjoldager et al, 2013;

People's Party, likewise stated that the Growth Plan DK was 'completely in line with what the Socialist People's Party had always represented' because it would create 'private manufacturing jobs' (Statsministeriet, 2013).

In sum, the Social Liberal Party and certain members of the Social Democratic leadership exercised power through the ideas in the model by using it to legitimize the government's neoliberal policy. The political function showed how the government's policy instruments would create jobs and improve the public sector budget. The objective function came into play when the model delivered exact numbers on the effect of each initiative that the government communicated as certainties.

4.6 During government: The model as a game board that inflates the price tag of non-neoliberal policies

The Thorning-Schmidt government made the majority of the reforms with the liberal-conservative opposition (the parties 'Venstre' and 'The Conservative's People's Party') that agreed with the labor supply strategy. On the other hand, the Red-Green alliance ('Enhedslisten'), the most left-oriented party in the Parliament that formed the government's parliamentary basis, found it difficult to make deals with the government. The Red-Green Alliance wanted tax increases for top income groups and went against reducing the unemployment benefits (Haslund, 2013). Commentators had expected that the government would make more political compromises with the Red-Green Alliance, and when the government instead made policy with the liberal-conservative opposition, it evoked surprise and anger from the Red-Green Alliance (Blem et al., 2012).

Statsministeriet, 2013). We can understand the rhetoric from the prime minister on "jobs" as an attempt to legitimize the neoliberal policies in terms of the social democratic expectations on policies that would create working class jobs. As the prime minister said at the press conference: "*This is a plan that is concerned with those who would like a job at Toms [Danish company producing chocolate], ISS or Siemens or some of the other skillful companies that we have in Denmark*". (Statsministeriet, 2013)

According to the main political advisor of the Red-Green alliance and later Member of Parliament, Pelle Dragsted, the economic model was an obstacle for a cooperation with the government:

'It is my clear view that one of the main reasons for the conflicting relationship between us and that government, lies in those calculation methods (...) it is simply these premises, this 'game board' that makes it is almost impossible to have a policy that is different from the policy of the bourgeois-liberal governments.' (Politician 3, interview).

The conflicts between the government and the Red-Green Alliance arose at the negotiation table, where the Ministry of Finance calculates the price of each reform initiative for the structural public budget. The political parties have to accept the model's price estimations if they want to be part of the negotiations.[12] However, the price of raising social benefits is higher than the direct price of the actual initiative, as the Ministry of Finance takes into account the estimated effects of the changed behavior of the whole population, which will now have less economic incentive to take up work (Finansministeriet, 2012). For example, in 2015, when the Red-Green Alliance proposed to introduce a temporary unemployment benefit, the model's estimation of the price for the public budget was more than 40 times higher than the direct cost (the price went from 10-15 million Danish *kroner* to 610 million Danish *kroner*) (Enhedslisten, 2018, p. 21). The result is that fewer of the Red-Green Alliance proposals could be afforded on the public budgets.

The Socialist People's Party—that participated in the Thorning-Schmidt government until 2013—had similar experiences. According to their spokesperson on economic policy, the model put their policies in an unfortunate light compared to the proposals on tax cuts from the liberal-conservative opposition:

'The model is fundamental in relation to ... political priorities but also the never-ending discussion on what can be afforded. Tax cuts are affordable because they are 50-percent self-financing in the model.... It is a ... problem [for democratic governance], because even I, who work in this field, do not understand the models in depth. I have plenty of colleagues who don't know anything about it. And if you are told that 'this is the way the world works', [and then] if

[12] This account is confirmed by politicians and civil servants (Economist 1, interview; Politician 1, interview; Politician 3, interview; politician 5, interview).

you cut taxes on cars, the labor supply increases, and if you don't know anything about it, you just say: yes.' (Politician 1, interview).

In sum, the left-wing parties' capacity to exercise power through their ideas diminished when the model served as the game board for negotiations, which pronounced the price tags of their policies. The model's political function worked to raise the cost to the public purse of non-neoliberal policies compared to neoliberal policies. The 'objective' function came into play, as the left-wing parties did not have the analytical resources to open the model's black box and challenge its logic.

4.7 During and after government: The model as a shield against critique of neoliberal ideas

Both during and after the Thorning-Schmidt government, scholars from different research institutions have questioned the validity of the relationships in the Ministry's economic model, and thus the policies it legitimized. One criticism, primarily raised by Keynesian economists and left-oriented think tanks, is that whether increased labor supply always results in increased employment, and, if so, how quickly, remains unclear (Jespersen, 2012; Bjørsted, 2015). Another criticism raised by the independent economists of the Danish Parliament and the independent think tank, 'the Rockwool Foundation' is that the effect of reduced tax cuts and reduced social benefits on the labor supply is uncertain (Folketinget, 2016; 2017; Rockwool Fonden, 2019, pp. 153-182). A third criticism—e.g., raised by the independent Danish Economic Councils—is that the economic model can yield biased conclusions through built-in assumptions that tax reductions increase labor supply, while public spending on, for example, schools or social policies, has no such effects (Arbejderbevægelsens Erhvervsråd, 2013; De Økonomiske Råd, 2017, pp. 111-168).

The economists in the Ministry of Finance, whom I have interviewed, acknowledge that the world is more complex than their model, and that the Danish public sector has a number of effects on productivity and labor supply. For example, a former economist from the Ministry of Finance said:

'We use more resources on public consumption compared to the rest of the world, according to my best judgment, on areas such as daycare institutions, kindergartens, nurseries, elderly care, and to a limited extent, public schools,. This is interesting because, except for the public

schools, almost all of the rest would have significant implications for labor supply if it did not exist.' (Economist 3, interview).

However, according to the Ministry of Finance, there is a limited empirical basis for including such labor supply effects of marginal changes in public consumption (Finansministeriet, 2012, p. 9; 2018).

During the Thorning-Schmidt government, center-left and left-wing politicians used the academic critique to criticize the model for having a right wing bias (Kristensen, 2012). In response, the finance minister, Bjarne Corydon, defended the model, insisting that it was 'based on facts', and warned against 'letting political ideology control the economic models' (Corydon, cited in Kamil, 2012). The Ministry of Finance and the liberal-conservative opposition shared this view of the model as objective and fact based. For example, according to their spokesperson on economic policy, the free market promoting party, the Liberal Alliance, was against what they saw as left-wing politicization of the model: '*We should not politicize science and research. This is a fundamental principle in the western world.'* (Politician 2, Interview).

After the Thorning-Schmidt government ended, the political criticism of the models intensified from center-left and left-wing parties. They questioned whether the effects of tax cuts on labor supply really existed, and whether the Ministry's model reaches biased conclusions by not taking into account the effects on labor supply of public spending (e.g., Enhedslisten, 2018; Rosenkrantz-Theil and Halsboe, 2018). However, the Ministry of Finance continued to reject the criticism, comparing it to 'fake news' and to 'Donald Trump'-style populist politics challenging science and facts (Rasmussen, 2018; Bæksgaard, 2018). Thus, the Ministry used the black box features of the model to depoliticize the instrument and goals, and shield them from criticism. The criticized elements in the model remain in place today.

The liberal-conservative government that succeeded the Thorning-Schmidt government did not change the model. The current Social Democratic government, which took office in 2019, is critical of the model and has initiated several working groups where recognized economists work to integrate environmental effects and the economic value of the public sector into the model (Ritzau, 2019a, 2019b). However, until now, the model as described in Section 4.1 remains in place, and the president of the Danish Economic Councils who oversees part of the model reform work has stated that one should not expect 'revolutions' (Beim, 2020). Thus, economists, who have traditionally supported the models, retain the prerogative to reform these.

Moreover, with a few corrections, the Thorning-Schmidt reforms (see Table 1) have remained in place, and undoing them will reduce labor supply according to the model.

In sum, the civil servant economists and the finance minister exercised power over the ideas in the model by using it as a shield to exclude new ideas from the model. The objective function serves to protect the model's ideas, allowing economists to portray these as objective and scientific, whereas political critics are portrayed as ideological and populistic. When the ideas stay in the model, the policies it legitimizes also tend to stay, as undoing them will, according to the model, reduce labor supply, and, thus, harm employment and growth.

4.7 Neoliberal resilience through the model?

From 2011 to 2015, the Thorning-Schmidt government used the Ministry of Finance's economic model to plan and launch a number of distributional reforms to get Denmark 'safely through the crisis' (Thorning-Schmidt, 2012). Table 2 lists the most important of these reforms and classifies them according to the indicators I used previously measuring neoliberalism (see Section 4).

Table 2. Main distributional reforms adopted during the Thorning-Schmidt government (2011-2015).			
Reform	**Explained by attendance to policy goals (labor supply) and instruments of the economic model?**	**Neoliberal?**	**Directly explained by limited parliamentary options?**
Reduction of unemployment insurance from four to two years	Yes	Yes	Yes
Retirement age increase	Yes	Yes	Yes
Threshold increase for paying top income tax	Yes	Yes	No
Reduction of unemployment insurance compared to wage development through 2023	Yes	Yes	No
Reduction of corporate taxes from 25 to 22 percent	Yes	Yes	No
Restriction of early retirement for health reasons for young people	Yes	Yes	No
Restriction of social benefits for young people	Yes	Yes	No
Reduction of educational support	Yes	Yes	No
Increase of social benefits for immigrants	No	No	Yes
Energy tariff increase	No	No	No
Increase of general employment deduction for all employed citizens	Yes	No	No

Source: Finansministeriet (2013), Regeringen (2015).

Most of its reforms followed the goal provided by the model of expanding the labor supply[13], thereby increasing employment, increasing economic growth, and improving the public budgets (column 2). Most of the reforms did so via the instruments suggested by the model, i.e., cutting taxes, cutting social benefits, or raising the pension age (column 2). In this sense, many of these reforms were neoliberal, in that they entailed reductions in tax rates for upper income groups,

[13] To which extent the reforms actually had the predicted effect on labor supply, and thus, on employment is still disputed and deserves a comprehensive study in itself. Evaluation studies have both confirmed (Kraka, 2014) and questioned the effects of the unemployment insurance reforms (Rockwool, 2019). The Economic Councils have concluded that although the pension reforms are 'essential' for the long term public budget, the effect on employment was smaller than predicted (De Økonomiske Råd, 2021).

reductions in social benefits, or a raise of the retirement age (column 3). However, I do not count tax reductions for the bottom and middle-income groups as neoliberal, even though the model predicted that they would expand labor supply. This is because they do not necessarily reduce the degree of progressive redistribution, contrary to tax cuts for top income groups.

In a few instances, the government enacted reforms that the model predicted would decrease the labor supply. For example, the government increased benefits for immigrants and increased energy tariffs to decrease CO2 emissions. The government enacted such reforms to deliver on promises given in the electoral campaign, and these reforms did not follow the goals provided by the economic model (Kildegard, 2013; Ris, 2011).

In sum, the majority of the government's reforms were neoliberal. The choices were political, and made by the government in a situation of uncertainty. The policies proposed by the model (and suggested by the Social Liberal Party and the finance minister) were strongly influential, as shown in my case study.

4.8 Counterfactuals: what if the model did not exist?

The aim of this section is to show reflect upon the role of the model in the policy outcome, and to consider the counter-factual, i.e. a plausible outcome if the model had not been present. On this basis, I argue that the model is not in itself a sufficient condition for the neoliberal policy. The model does not act itself; it needs a well-positioned political actor to use it at a specific point in time. Such political actors were the Social Liberal Party, which used its parliamentary position to push the model logic into the government program, and the social democratic finance minister, Bjarne Corydon, who stood guard around the 'conventional' and 'responsible' methods for policy planning. These political actors acted at the time of the economic crisis where the need to make reforms was evident, due to decreased economic growth, rising unemployment, and public deficits, giving a momentum to planning reforms with the model. Thus, the politicians and the crisis are necessary conditions for the model to become influential.

We could then ask the counterfactual question of what would have happened if the model did not exist. Was the model a necessary condition for the policy result, or would the politicians in the context of the crisis have been able to promote the same neoliberal policy without the model?

First, can the crisis itself explain the policy? It seems unlikely, as expanding the labor supply via cuts in taxes and social benefits is not a self-evident strategy for handling an economic crisis where unemployment rises. While neoclassical economists praised the reforms (Karker, 2012), some Keynesian-oriented economists criticized that increasing labor supply in a crisis would not lead to more employment, but rather to more unemployment as the labor market might not absorb the expanded labor supply fast enough (Sørensen and Rosted, 2013; Jespersen, 2012). Moreover, the 'Fair Solution' plan offered an alternative strategy to tackling the crisis. The 'Fair Solution' plan was based on the goal suggested by the model, i.e., higher labor supply, but it rejected the neoliberal instruments suggested by the model. In short, we need an explanation of why the government chose the neoliberal strategy out of the crisis.

Second, can the finance minister alone explain the policy? The Social democratic finance minister in the Thorning-Schmidt government, Bjarne Corydon, is a controversial figure who declared that it was a 'misunderstanding' to consider the Social Democrats a 'left-wing party' (Jensen, 2013). After 2015, Corydon went on to a senior position in the consultancy company McKinsey, and today, he is editor in chief of the leading Danish business daily, *Børsen*. In this context, he quit his party membership. However, Corydon himself seems to have taken an ideological journey entering the Ministry of Finance. In opposition, Corydon was central in designing the 'Fair solution'-plan (Kristensen, 2011), which as described aimed at decreasing inequality by increasing taxes for top income groups. Once in government, he changed position and acknowledged the Ministry of Finance's negative assessment of the 'Fair solution' plan (Arnfred and Thobo-Carlsen, 2012). Thus, Corydon's position is not independent of the Ministry's model, and his position alone cannot explain the policy.

Third, can the Social Liberal Party alone explain the policy? As described, the Social Liberal party used their parliamentary position to insist on a government program that aimed at expanding the labor supply via the instruments, such as tax cuts and cuts in social benefits. The Social Liberal party was no doubt a crucial influence on the government's policy. However, there are several reasons why we should be cautious not to reduce the neoliberal influence to the influence of the Social Liberal Party.

One reason is that while the Social Democrats depended on the Social Liberal Party to form a government, the same was true the other way around. Why, then, did the Social Liberal Party manage to win almost every battle in the government concerning the economic policy? As shown, the Social Liberal Party politicians had a resource in the model, as they—contrary to their opponents—could refer to seemingly objective calculations on the positive effects of their policy. A second reason is that while the Social Liberal Party pushed certain neoliberal reforms into the government program, the government—often spearheaded by Social Democratic of Socialist People's Party ministers—continued to launch additional neoliberal reforms in the subsequent years that was no dictated by the government program. For example, in 2013, the reforms included cutting corporate taxes from 25 to 22 percent (see table 2). Cutting corporate taxes was not part of the government program, but it made sense according to the model as it increases productivity and is partly (42 percent) self-financing on the public budget because of increased labor supply and, thus, increased tax revenue (Finansministeriet, 2017). Furthermore, the reform was planned in the Ministry of Finance and was not initiated by the Social Liberals (Hardis og Mortensen, 2013). Thus, the Social Liberals position cannot explain all the Thorning-Schmidt reforms.

In sum, neither the crisis nor the politicians (the Social Liberal Party and the finance minister) are in themselves sufficient explanations of the Thorning-Schmidt government's neoliberal policies. Thus, I conclude that the Ministry's model was a necessary but not sufficient condition for the policy. In the hands of political actors and in the context of the crisis, the economic model's overt objective function and covert political function contributed to neoliberal resilience in Denmark. Finally, another important intervening factor is the minority government, which needed an agreement with support parties to create a government just after the elections. All these factors, together, play a role in explaining the conditions under which models are (most) powerful economically and politically.

6. Conclusion

This paper has proposed and presented a novel perspective on macroeconomic economic forecasting models that governments use for policy planning. I have argued that economic models are policy tools with both an overt objective function and a covert political function. Because of their complexity, economic models constitute a black box to most policymakers, who view the models' evaluations of different policies as objective analyses. However, the economic models also have a political function, because they simplify the world by including certain variables and relationships while excluding others. In this way, the models can help policymakers make sense of the world by providing them with certain policy goals and instruments for meeting them. While one economic model, with its variables and relationships, may set one political direction for the economy, another model may set a different one.

Using this perspective, I have analyzed how politicians exercised power through the ideas embedded in the Finance Ministry's economic model in the aftermath of the 2008 financial crisis, and how the model in this way contributed to neoliberal resilience before, during and after the 2011–2015 Danish Thorning-Schmidt government. I have shown how economists in the Ministry exercised power over the ideas in the model, which provided the government with the policy goal of increasing labor supply by using policy instruments of reducing tax rates for top income groups, reducing social benefits, and raising the retirement age. These goals and instruments were in line with the political agenda of the Social Liberal Party, on whose support the government depended, and the Social Liberal Party used the model to promote their policy. While both scholars and politicians sought to open the black box of the economic model and question the ideas in the model, Social Democratic finance minister Corydon insisted that the model was 'based on facts', and warned against letting 'ideology' influence it. The model's two functions allowed it to be used as a weapon to attack non-neoliberal ideas, a tool to craft a neoliberal blueprint, a legitimizer of neoliberal policies, a game board to inflate the cost of non-neoliberal policies, and a shield to protect the neoliberal ideas it encapsulates.

Thus, by promoting certain policy goals and instruments and portraying these as apolitical, the economic model was a necessary condition for neoliberal resilience following the 2008 financial crisis in Denmark. However, the model was not a sufficient condition in itself. Rather, I have shown the model became powerful via well-placed political actors who, in the context of the crisis, used the model's overt objective and covert political function to set a neoliberal policy direction.

I have shown how these political actors brought into play the objective and the political function of the model in five stages. Before the Thorning-Schmidt government, the model worked as a weapon to attack non-neoliberal policies. During government formation, the model worked as a tool to make a neoliberal blueprint. During government, the model worked as a legitimizer of neoliberal policies. During government, the model also worked as a game board that raised the price of non-neoliberal polices. Finally, during and after government, the model worked as a shield to protect neoliberal policies.

Although one should exercise caution in applying the findings from Denmark to other Western economies, the conclusions of this paper show the importance of analyzing when and how models underpin the political decisions of governments. Neoclassical models have gained prominence internationally (Fourcade, 2006; Mankiw, 2006; Vroey, 2016), providing input to political decisions both in Denmark and in a broad range of governments and international organizations. To understand why governments set one political course instead of another, political economists need to study not merely the overall policy paradigm but also the technical details of the economic models that transform this paradigm into concrete policy (Heimberger *et al.*, 2020). This paper offers a novel way of conducting such a study and encourages more research in the economic models as policy tools that are overtly objective but covertly political, and the conditions under which the models wield political influence.

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Paper 2: The Economic Model Runs the Economy, but Who Runs the Economic Model? Economists and Politicians as Driving Forces Behind Danish Economic Models

Abstract: *Scholars have argued that macroeconomic forecasting models influence policy outcomes by providing the instruments and goals that governments use to govern the economy. However, the literature says little about the driving forces behind the development of economic models. Who and what drives their development? I investigate those questions via a case study of the Danish economic models' development and the driving forces behind these since their introduction in the mid-1970s to 2015. Through triangulation of primary archive and interview data, I show how the models transformed from being short-term Keynesian models to expressing a synthesis between short-term Keynesian and long-term neoclassical economics. I investigate two propositions about the driving forces behind the models as either economists or politicians. I show that, while economists have been the main driving force, politicians have influenced the models both directly and indirectly in critical periods. The paper concludes that economic models represent an inseparable mix of science and politics.*

1. Introduction

When governments develop economic policy, they often use economic models to forecast the policy's economic consequences. Economic models consist of a set of equations describing relationships between variables (Kærgård, 2015), allowing the model user to forecast the effect of changing one variable (e.g., the tax level) on other variables (e.g., the public debt, labor supply, or GDP) in the following years. Different economic models describe different relationships between these variables depending on their theoretical assumptions about the economy (Mankiw, 2006; Vroey, 2016).

Scholars have argued that macroeconomic models matter for which policy the government conducts, as the models influence the governments' understanding of the economic goals and the instruments to reach these (Braun, 2014; Hirschman and Berman, 2014). For example, neoclassical models predicting that tax cuts will affect the labor supply positively may open politicians’ eyes to such policies’ benefits and help legitimize these (Henriksen, 2013). Moreover, the models’ variables are not neutral, but empower certain perspectives and actors while disempowering other perspectives and actors. For example, how the model counts public debt can put the government’s policy in a better or worse light depending on the accounting methods (Mügge, 2016). Also, the models’ omission of environmental externalities when counting GDP may lead to an overvaluation of the fossil fuel industry’s contribution to the economy in the long term (Philipsen, 2015). The models can also work as tools that politicians and interest organizations use to promote their interests while presenting these as objective model calculations (Madsen, 1991; Pedersen, 1985; Heimberger *et al.*, 2020).

The literature cited here suggest that economic models’ can have political influence, but it says little about the driving forces behind the economic models. This paper fills this gap by examining the research question: What and who drives the development of economic models? Put differently, who holds power over the ideas (Carstensen and Schmidt, 2016) in the economic models, and, thus, over the ideas that that policymakers draw on when they plan their policy? In answering these question, the paper takes inspiration from Hall (1989), who points to three theoretical approaches to explaining the spread of economic ideas emphasizing the state, economists, and coalitions of politicians. I analyze 1) the economists in the state, and 2) the politicians in the government as potential driving forces behind the development of Danish government’s economic models, since their introduction in the mid-1970s.

The paper proceeds as follows. Section 2 presents the Danish case and argues its relevance. Section 3 positions the paper in the debate on the relative influence of professional economists and politicians on policy ideas, and presents two propositions of economists and politicians as driving forces behind the governments’ economic models. Section 4 accounts for the paper’s methodological structured, focused analysis approach and its data in the form of archive documents and in-depth expert interviews. Section 5 analyzes how the Danish economic models’ variables and relationships change over time from expressing Keynesian economics to expressing a synthesis between Keynesian and neoclassical economics, and how economists and politicians at different times have driven this development. Section 4 draws conclusions.

2. The Danish case

The Danish case provides a good starting point for studying the driving forces behind economic models for empirical and theoretical reasons. Empirically, Denmark has seen a heated public debate on the government's economic models and the driving forces behind these. The debate gained momentum in 2015 when the models forecasted the effects of an economic plan put forth by the free-market-promoting Liberal Alliance party; the plan aimed to cut taxes and shrink the public sector. Building on neoclassical theory, the models predicted that the plan would increase incentives to work, expand the labor supply, and thereby increase employment and growth (Finansministeriet, 2015).

Subsequently, leading voices within both the center and left political parties attacked the models for having a free market bias, omitting positive effects of public spending on, for example, childcare and hospitals (Enhedslisten, 2018; Rosenkrantz-Theil and Halsboe, 2018; Ritzau, 2018b). The center-right political parties (Venstre and the Conservative People's Party) rejected the criticism. They argued that economists in the Ministry of Finance used scientific methods to develop the models, and politicians should refrain from influencing the models from ideological perspectives (Winther, 2019; Rasmussen, 2018). The Ministry of Finance and several prominent Danish economists backed this argument (Bocian, 2018; Bæksgaard, 2018). Thus, the Danish case provides an empirical puzzle: Do economists develop the models independently or do politicians influence this process?

Theoretically, the Danish case allows us to make propositions about the driving forces behind economic models in a wider range of countries (Gerring, 2004, p. 342). Denmark has organized its bureaucracy in a classic Weberian style where civil servants advance based on their technical qualifications with no regard to their political orientation (Blom-Hansen *et al.*, 2019). Generally, the politically appointed minister does not hire or fire civil servants. The economists in the Ministry of Finance run the government's economic models, and neither the economists nor the models change automatically when the government changes. Furthermore, the independent Statistics Denmark develops the Ministry of Finance's primary model, ADAM ('Annual Danish Aggregate Model'), in accordance with an arm's-length principle. Even though the Ministry of Finance can influence Statistics Denmark's work program, neither the Ministry nor the minster can instruct Statistics Denmark to change the model.

Denmark is thus a "least likely" case of political influence as a driving force behind the economic models (Flyvbjerg, 2006, p. 231), as the politically neutral economists in the Ministry of Finance and Statistics Denmark are the formal gatekeepers to the models. Nonetheless, if we can document political influence on the models in the Danish case, we can also expect political influence on the governments' economic models in countries where the minister has wider possibilities of hiring political civil servants to run the economic models.

3. Theory and propositions: Economists and politicians in Danish policymaking

Hall's (1989) study of how Keynesian ideas spread across nations points at three approaches to studying how economic ideas gain political influence. The first is the state-centered approach, which focuses on the traditions and the capacity of the civil servants to incorporate new ideas in government policies. The second is the economist-centered approach, which studies how and why certain economic ideas appeal to the economists and experts who give advice to the government. The third is the coalition/politician-based approach, which argues that those political coalitions that come to power have different interests and ideologies that explain which ideas gain influence.

Hall's three approaches inspire my two propositions on the driving forces behind the economic models. The first proposition emphasizes the economist in the state, while the second proposition emphasizes the elected politicians. In the following, I refer to literature that studies the power that economists and politicians have on policy ideas, respectively. I use this literature to formulate the propositions while also pointing out the literature's limitations, which this article seeks to address.

3.1 Economists in the state as the driving force

A literature that shares features with Hall's economist-centered approach investigates the power of networks of "professionals" (e.g., economists, lawyers, accountants) who have access to specialized knowledge, and who use this knowledge to give expert advice to policymakers, thereby influencing policy decisions (Abbot, 1988; 2005; Brint, 1994; Seabrooke and Tsingou, 2014). Professionals can exert power via think tanks that produce expert analysis and guidance to policymakers (Smith, 1991; Rich, 2004; Campbell and Pedersen, 2014). Moreover, professionals can exert influence via NGO's that link expert knowledge of how things are to moral claims of how things should be (Seabrooke and Wigan, 2016), and via state bureaucracies where they have direct access to policymakers (Porter, 1995; Christensen, 2017).

Some scholars have studied how professionals can use their international networks to spread their expert ideas and wield influence across borders. For example, Fourcade (2006) has argued that economics has become a "global profession" that developed primarily in the US but exercise power across countries via a universalistic language in the form of neoclassical theory, as well as transnational linkages between economists. Babb (2001) has studied how US-trained neoclassical economists gained influence in Mexico in the 1980s and were able to use their economic expert knowledge to promote neoliberal policy reforms. By analyzing Spain and Romania, Ban (2016) has shown that how well integrated the two countries' economists are into the "global neoliberal consensus" contribute to explaining the spread and influence of neoliberal ideas that affect national policies.

In contrast, other scholars have emphasized the competition rather than cooperation between professionals. Henriksen and Seabrooke (2016) assert that professionals compete over "issue control", i.e., to decide how an issue is treated and who should be permitted to work on it. Christensen (2021) studies international negotiations on tax reform to show how elite professionals mobilize their resources both in terms of their expertise and in terms of their network among other professionals in the competition for prestige and influence over tax reforms.

In their book, *The National Origins of Policy Ideas*, Campbell and Pedersen (2014) analyze the Danish political economy from a perspective that shares features with the literature on professionals, as they highlight the influence that economists have on the ideas that gain prominence among Danish policymakers. They also emphasize the role of the state, and their analysis thus expresses both the economist and the state centered perspective. Campbell and Pedersen explain how Denmark's economic crisis of high unemployment and debt in the 1970s led to a stronger role for the state and for economic experts who provided evidence-based analysis. The authors argue that the economic crisis led to a "crisis of ideology" in which the Danish political parties realized that their ideologies could not make sense of what happened. Thus, the political parties began to seek new advice from a more ideologically neutral analysis, and hereunder, to use econometric models based in the Ministry of Finance (Campbell and Pedersen, 2014, pp. 199–205).

The literature on professional economists and, in particular, the work of Campbell and Pedersen inspires my first proposition: *Professional economists in the state using their expert knowledge to provide better economic analysis, and at the same time, aiming to increase their influence towards the politicians, drive the development of the economic models.*

While building on the literature on professional economists, my ambition is, furthermore, to advance it in two areas. First, while the literature studies the influence of professionals in different contexts (e.g., on global discourse or on concrete policy reforms), it does not systematically study professional economists' influence on government economic models. However, as argued in the introduction, economic models and the ideas they embody can potentially hold great influence over economic policies, and I therefore contribute by showing who influences such models. Second, the literature focuses on how professionals can use their knowledge to wield power in transnational cooperation or competition, but it tells us little about the interaction between the professional economists and the politicians. Much of the literature on professional economists implicitly assumes that the influence goes only in one direction from economists to politicians. However, this assumption does not seem self-evident and remains under-explored. Thus, I seek to contribute to the literature by investigating the development of a national government's economic models, and by exploring the concrete interaction between state economists and politicians in relation to the development of such models.

3.2 politicians as driving forces

I now turn to literature that shares features with Hall's coalition/politician perspective in emphasizing coalitions of politicians as those that influence which ideas gain prominence. While the literature cited previously shows that economists have resources such as expertise, authority, and an abstract and universal language that can travel across countries, and that they can use these resources to influence policies, Farrell and Quiggin (2017) stresses that politicians likewise have important resources in the struggle over ideas. These authors argue that politicians influence which ideas gain prominence, as politicians have the power to promote or demote different professionals. Farrell and Quiggin (2017) show how powerful politicians in the German government after the financial crisis publicly referred to and promoted economists that disagreed with the apparent Keynesian consensus, thereby increasing the status of more ordoliberal economists and their ideas in the European Union. According to Farrell and Quiggin (2017), the politics of ideas does not only go one-way from professionals to policymakers, but is a "two-way process" where both groups influence each other. Thus, Farell and Quiggin (2017) do more to explore the interaction between economists and politicians than the literature on professionals cited previously. However, their study concerns the European debate on economic policy and not a national government's economic models, which is what I study.

Asmussen (2007), on the other hand, does study the national context in Denmark, and he does refer to economic models in his analysis even though these are not the focus of his analysis. Rather, Asmussen (2007) studies the ideas behind the Danish economic policy from 1974 to 1994, and he only refers to the government's economic models occasionally. However, he does show how top ministers in the Danish government influenced the model calculations in the 1980s by using their formal power towards the economists in the public administration to make these use neoclassical calculations in their publications. According to Asmussen (2007), the ministers did so because they wanted to legitimize tax cuts, which they wanted for ideological reasons. They could legitimize this policy with Keynesian arguments until the late 1980s when economists in the Ministry of Finance repelled tax cuts using Keynesian arguments. Therefore, top ministers promoted neoclassical economists in the public debate to break the consensus among the Danish economists, and used their formal power to push for neoclassical assumptions in the economic models. The politicians thereby helped to promote a paradigm shift from Keynesianism to neoclassical ideas in Danish economic policymaking.

Thus, Asmussen (2007) shows that in some cases, politicians can have an influence on the economic models that the state bureaucrats develop. However, Asmussen (2007) does not systematically weigh the influence of politicians and economists respectively as he is more concerned with the general influence of ideas than who promotes them. Neither does he systematically study the development of the economic models, but rather the development of policy. I build on the study of Asmussen, and I seek to complement his research in a focused study on the driving forces of the economic models.

Christensen likewise expresses the politician-centered account in his book *The Power of Economists within the State* (Christensen, 2017). He compares the power of economists in the state in different countries by studying tax reforms. Christensen argues that the economists in the Danish state are weak because they have no single stronghold in the bureaucracy but are spread between different ministries such as the Ministry of Finance, the Ministry of Economy, and the Ministry of Taxation. Furthermore, the economists do not dominate in the Ministry of Finance, which also hires other professionals (Christensen, 2017, pp. 135–159). Christensen (2017, pp. 29–58) argues that politicians rather than economists have had the strongest influence on Danish tax reforms. He shows that the Danish tax system focuses more on redistribution than in Norway where neoclassical economists have a stronger position in the state. While Asmussen (2007) suggested that politicians had an influence as they successfully pushed neoclassical ideas into the policy making process, Christensen (2017) concludes that the politicians' influence goes against neoclassical economics. The two authors focus on different periods (Asmussen studies the period 1974-1994, while Christensen mainly studies the period after 1990), and Christensen only studies tax policy, while Asmussen studies economic policy in a broader context. Neither of them systematically study economic models, which is where I seek to complement their work.

The cited literature in this section inspires my second proposition: *Politicians in the government aiming to integrate their policy preferences in the models drive the development of the economic models.*

3.3 Limitations to the propositions

I investigate the extent to which we can find support for the two propositions in the Danish government's economic models' history. However, we should be aware that the analytical distinction between scientific economists and interest-driven politicians is less clear in reality. There are two reasons for this. First, the Danish knowledge regime is relatively small and consensus-oriented, which means that politicians, economists, and interest organization representatives often share ideas and influence each other's positions via boards and commissions in which they plan the economic policy together (Campbell and Pedersen, 2014; Grau Larsen *et al.*, 2016).

Second, one can argue that economic theory is always political as it represents a certain lens on the world, emphasizing certain aspects while leaving out others (Schlefer, 2012; Morgan, 2012). The debate between Keynesian and neoclassical economists thus relates to the left-right political debate on how much the state should interfere with the market. In neoclassical models, the free market economy reaches a general equilibrium where there is only voluntary unemployment. In contrast, in Keynesian models, the economy does not necessarily reach a general equilibrium (or it might take a long time for the market to reach a general equilibrium), and so the state has to stimulate demand to decrease involuntary unemployment. Keynesian-inspired economists thus tend to argue for a more active state than neoclassical economists (Skidelsky, 2010, pp. 29–52).

Having these caveats in mind, the propositions nonetheless allow me to explore when and how economists and politicians respectively influence the economic models.

4. Methods and operationalizations

The following analysis is a case study of the Danish government's macroeconomic forecasting models from 1975 to 2015. The Danish case is a least likely case of political influence on the economic model development. My ambition is to investigate how the models develop and who drives their development. I have analyzed the case in two steps.

First, I have inductively derived three stages that are temporal sequential, and each represent a shift in the development of the economic model (Bartolini, 1993, p. 151). I used the official publications describing the models' development to derive these stages, where after I used the interviews with economists to verify the stages, asking what they say as important stages in the models' development. In the first stage, the models have only Keynesian elements. The second stage starts in 1989 when supply-sided elements appear in the models. The third stage starts in 2002 when the models embed fixed relationships between tax levels, unemployment insurance, and labor supply, while the short-term demand-side logic diminishes. The three stages are also characterized by a gradually larger role for microdata in the models.

Secondly, I have conducted a structured, focused analysis (George and Bennett, 2005, pp. 67-72), asking the same questions at each stage: how does the model develop, and who drives this development? I looked for answers to these questions in the empirical documents (see sources below), and I asked the questions to the interview respondents. For each stage, I assess the relative influence of politicians and economists as defined above. I build on and seek to contribute to the literature on professionals and politicians in policymaking quoted previously.

Measuring the development of the dependent variable (the economic models), I have operationalized (Adcock and Collier, 2001) the broad concepts of Keynesian and neoclassical economics as follows: I understand the variables and relationships as Keynesian-inspired if they underpin the concept of business cycles and emphasize aggregate demand as the primary driver for employment and production. I understand variables and relationships as neoclassical-inspired, if they underpin the concept of general equilibrium and emphasize the labor supply as the primary driver for employment and production.[1]

Measuring the independent variables—the influence of economists and politicians—respectively, I make a conceptual distinction concerning politicians' influence. I distinguish between direct influence when politicians have direct contact with the economists with the aim to change the models, and indirect influence when economists listen to the signals the politicians send in the media and consider these signals when developing the models.

My propositions focus on actors in the state (economists and politicians working within the state). I could have focused elsewhere, for example, on the possible model development in the policy developing ad hoc commissions that shifting governments establish (Christensen *et al*., 2009), or on the knowledge regime of economists and experts in universities and think tanks (Campbell and Pedersen, 2014). However, my focus on economists and politicians offers empirical and theoretical insights into the economic models' scientific and political nature. I am nonetheless aware that model development does not happen in a vacuum independently of the rest of society. Therefore, I will introduce the context of Denmark's economic challenges/position and the development of economic theory in each stage of the analysis.

One last clarification here is regarding my conception of economists in the state. By economists in the state, I mean the economists working in either Statistics Denmark's model department developing the model ADAM, which the Ministry of Finance uses, or civil servants working in the Ministry of Finance's model department or in relation to the model department. Thus, when I refer to Statistics Denmark and to the Ministry of Finance, I refer to the economists there working with model development and model operation. Naturally, these organizations perform a

[1] I focus on the Ministry of Finance's economic model set-up rather than the broader academic debates on economic theory. Thus, I limit my analysis to identifying Keynesian theory in the model set-up from the 1970s and onwards, rather than venturing into the broader debates between Keynesian economists in the academic world. While I do refer to the academic debates launched by neoclassical economists as a reaction to Keynesianism to explain their background of these ideas, it is only when the ideas enter the Ministry of Finance's model set-up in 1989 that I consider these to be relevant as a change of the dependent variable.

long range of other functions besides model development and model operation, but that is not the focus of my analysis. I consider the civil servant economists if they work with models in their professional capacity. Most of them are trained economists but there are exceptions. As the next section shows, my interviews from Statistics Denmark and the Ministry of Finance are with civil servants in or with relations to the model departments.

4.1 Data

The primary data comprises archive documents from Statistics Denmark and the Ministry of Finance and nine in-depth semi-structured expert interviews. The interviews are with two former ministers of finance (referenced: politician 1-2), all former and current heads of model departments in the Ministry of Finance and Statistics Denmark, and one former permanent secretary of the Ministry of Finance (referenced: economist 1–8).[2]

Statistics Denmark has published documents in 1975, 1979, 1984, 1988, 1993, 1996, and 2012 describing the development of variables and equations in the model ADAM. The Ministry of Finance has published annual "Financial Accounts" (*Finansredegørelser*) from 1978 to 2002, in 2004, and in 2014, describing the economic situation of Denmark and the model adjustments the Ministry undertakes. Furthermore, since 2002, the Ministry of Finance has published several articles on its website, describing its use of models and calculation methods for the public.

As far as possible, I have made sure I triangulate the findings by using both written sources and interview data as evidence of the papers' assertions. The archival documents have mainly yielded an insight into the development of the models' variables and relationships, while the press articles and interviews have yielded insights into the motivations of the actors who developed the models.

[2] The former permanent secretary is not a trained economist but has worked with economic policymaking in his capacity.

5. Analysis: The development of the Danish economic models

In this section, I analyze the development in three stages to show how neoclassical elements enter the economic models over time, and I look for evidence that can both confirm and disconfirm the propositions on economists and politicians as driving forces behind the models.

Table 1 contains the findings of the analysis. As I will show throughout the analysis, economists mainly drove the development in stage 1, while politicians had a direct and indirect influence as a driving force behind the introduction of neoclassical theory in the models in stage 2. Economists have dominated the development in stage 3, but the politicians still influenced the models indirectly.

Table 1. Development and driving forces of the Danish government's economic models.

	Stage 1 (1975-1989)	**Stage 2 (1989-2002)**	**Stage 3 (2002-2015)**
Theoretical logic of the model	Keynesian	Keynesian-neoclassical synthesis	Keynesian-neoclassical synthesis with stronger supply-side dynamic
Data in the model	Macrodata	Macrodata and introduction of microdata	Macrodata and increasingly microdata
Driving force behind the model	Economists	Economists/Politicians (direct and indirect)	Economists/Politicians (indirect)
Political party leading the government	1975-82: Social Democrats 1982-93: Conservatives	1982-93: Conservatives 1993-01: Social Democrats	2002-11: Liberals 2011-15: Social Democrats
Context	Challenge of unemployment, inflation, and foreign debt. Dominating Keynesian ideas on how to govern the economy.	Challenge of unemployment and foreign debt. International spread of neoclassical ideas on how to reduce unemployment.	Challenge of an aging demography. A still greater role for the EU in the Danish economy.

5.1 Stage 1: The short-term Keynesian-inspired model (1975–1989)

<u>5.1.1 The context</u>

Entering the 1970s, Denmark was building up several economic problems connected to the expansion of the welfare state and increased public spending. The country had chronic deficits in the trade balance, growing public and foreign debt, and wage inflation peaking at above 20 percent. After the oil crisis of 1973, unemployment furthermore increased significantly (Andersen *et al*., 2005, pp. 17–25). By the end of the decade, the finance minister resigned, famously stating that Denmark's economy was "heading for the abyss" (Heinesen, 2006, pp. 374–375).

5.1.2 The model development

Economists at the University of Copenhagen and Statistics Denmark collaborated in the late 1960s and in the 1970s on developing the model ADAM (Economist 1, interview; Economist 2, interview; Economist 3, interview). Ellen Andersen, an economics doctorate student at the Copenhagen in the 1960s, explains how she developed the first version of the model in collaboration with Statistics Denmark:

"Erling Jørgensen was head of department in Statistics Denmark, and he had said that Statistics Denmark needed a "research department" (...) I had already written some chapters in my doctoral thesis about this model [ADAM] that I was constructing. That was when the cooperation [with Statistics Denmark] began. (...) I wrote some more chapters, and we discussed it." (Economist 1, interview).[3]

When the head of the model department at Statistics Denmark, Erling Jørgensen, took over the position as permanent secretary in the Ministry of Finance in 1975, he brought ADAM with him (Østergaard, 2007, p. 210). Statistics Denmark continued to develop the model in arm's length from the Ministry to secure a degree of independence, while the economists in the Ministry began using the model from short-term forecasts of economic indicators.

The economists in the Ministry of Finance saw a culture of talking problems down among politicians and in the bureaucracy (Schmidt, 1993, p. 397), and they could use ADAM for providing more reliable forecasts that could not be ignored by the politicians (Economist 3, interview; Economist 4, interview). As one economist who was centrally placed in introducing the models in the the Ministry of Finance in the 1970s states:

[3] Other economists from Statistics Denmark that I have interviewed confirm this account in which ADAM was developed by economists without political interference in the environment around Statistics Denmark in the 1970s (economist 2, interview; economist 5, interview).

"*Before the civil servants began using economic models, they did not discuss their calculation methods (...) And I suppose that nobody really believed the numbers, because the civil servants could not document where it came from. Thus, the numbers had no impact. And that was one reason why it was so difficult to have an economic policy, which had effects that the politicians believed, because it was very sloppy.*" (Economist 3, interview).

ADAM was a short-term Keynesian model in the sense that aggregate demand determined production and employment. The model was inspired by the work of model pioneers such as Jan Tinbergen and Lawrence Klein, who had constructed similar Keynesian-inspired econometric models (Andersen, 1991). ADAM only forecasted the economy a few years ahead as the economic theory, data, and computer technology were limited (Economist 5, interview; Economist 1, interview). Statistics Denmark estimated the equations in ADAM on time-series macrodata from the national accounts, and for the most part, the variables corresponded with categories in the national accounts such as "import", "employment", "public consumption", and "GDP" (Andersen, 1975).

Figure 1 illustrates some of the central relationships in ADAM. Increased demand leads to more production, which in turn, leads to higher employment rates. Higher wages lead to higher prices, which lead to a deterioration of the foreign trade balance (more import/less export) and thus, less aggregate demand. As the dotted arrow indicates, there was no direct link between the ADAM wage and employment variables. Thus, the model had no "Phillips curve" linking lower unemployment to higher wages/inflation.[4] Instead, the wage variable was an exogenous variable, which means the model user inserted the value independently of other variables (Danmarks Statistik, 1979).

[4] The original ADAM developed by Copenhagen University Economist Ellen Andersen had a Philips curve (Andersen, 1975), but in subsequent versions developed in collaboration with Statistics Denmark, the Philips curve did not appear (Danmarks Statistik, 1979). One reason for this was the prominence of "income policy," where one assumed that wage development could be politically decided (Economist 2, interview and correspondence).

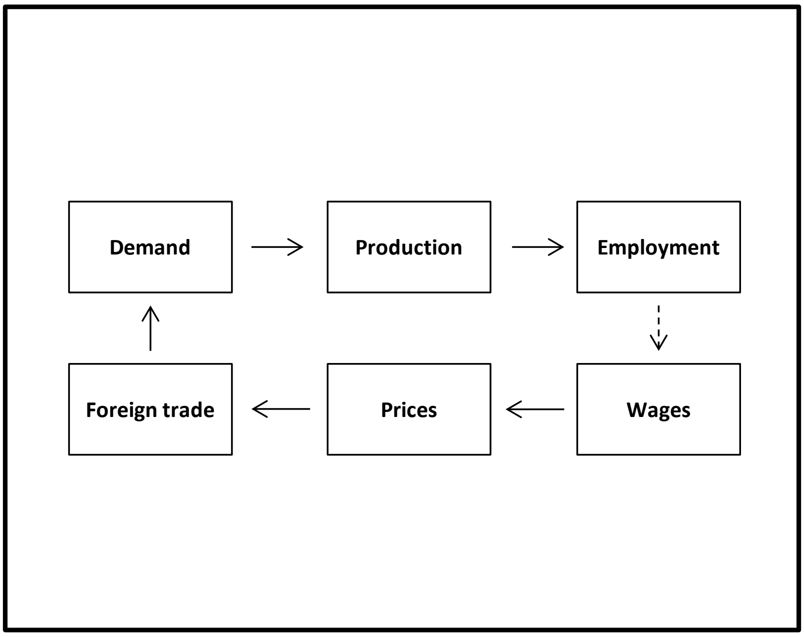

Figure 1. Central Keynesian elements in Danish models 1975–1989. Author's illustration.

The model could forecast fiscal and income policy consequences on variables such as GDP, employment, public balance, and trade balance. Successive governments used such policies to try to remedy the economic situation, but this worsened throughout the 1970s and into the 1980s with unemployment, inflation, and increasing debt (Heinesen, 2006 pp. 256-297; Asmussen, 2007, pp. 41-114). ADAM did not predict the inflation as it had no Phillips curve. Neither did ADAM say anything about the structural levels and the supply side of the economy. Wishes of both economists and politicians who wanted to improve the models led to their further development, which I analyze in stage 2.

5.1.3 Driving forces in stage 1

The empirics that I have analyzed point to the economists in Statistics Denmark and the Ministry of Finance as the primary driving force in stage 1. These findings support proposition 1. The findings are in line with Campbell and Pedersen's (2014) account that shows how Denmark's economic challenges in the 1970s resulted in a demand for better economic analysis. As one economist at Statistics Denmark who contributed to developing ADAM to the needs of the Ministry of Finance in the 1970s states:

"In the 1970s, the model work was about improving the basis of the economic policy (...) The Ministry of Finance had the idea that we should increase the quality of the economic analysis, and that economic models were the right way to go. ADAM was their model, which was placed at arm's length from the Ministry with the intention of being used by the Ministry." (Economist 5, interview).

I have found no evidence that points to the politicians being the driving force behind the demand for economic models in stage 1. Instead, my data shows how the economists took the initiative to develop and use the models. As one civil servant, who worked in the Ministry in the 1970s and later became permanent secretary of the Ministry, states:

"The models were a way for the civil servants to short-circuit the politicians, or to checkmate them. The politicians can no longer pull a number out of nowhere and introduce it in the forecasts. Because the models have their own systematics." (Economist 4, interview).

Thus, the economists in the Ministry and Statistics Denmark used the models to make technical analyses that the politicians could not ignore, and thus used the model to strengthen their status and power towards the politicians. [5] This finding corresponds with much of the literature on professions that points to how professionals use their expertise to increase their power over different issues (e.g., Seabrooke and Wigan, 2016; Christensen, 2021). In this case, the professional economists do not compete against other professions but against politicians.

5.2 Stage 2: The neoclassical synthesis (1989–2002)

5.2.1 The context

In the 1980s, the successive Conservative-Liberal governments managed to control inflation by introducing a fixed exchange rate for the Danish currency combined with wage restraints, among other policies. The unemployment rate, however, peaked at 10–12 percent in the late

[5] As shown in section 5.2.2, there are examples of politicians influencing the work of the Ministry of Finance and Statistics Denmark already in the first years of modeling. However, contrary to the politicians' influence in stage 2, this influence did not leave permanent footprints, and therefore, I conclude that economists were the main driving force behind the models in stage 1.

1980s and public and foreign debt levels grew throughout the 1980s (Andersen *et al*., 2005, p. 17).

Internationally, neoclassical theory introduced new ideas on how to combat unemployment without increasing public debt or inflation. These ideas focused on the supply side of the economy (Mankiw, 2006). Nobel laureates Milton Friedman and Edmund Phelps argued that Keynesian monetary and fiscal policy stimulus would not permanently increase employment but only create inflation in the long term. As an alternative strategy to fight unemployment and inflation, they proposed improving the labor market structures to increase "the natural rate of employment," which depended on the incentives the labor market provided to take up work (Friedman, 1968; Phelps, 1967). Following this logic, Nobel laureate Robert E. Lucas argued that the economic agents are utility-maximizing and have "rational expectations" (Lucas, 1976). According to Lucas, to analyze employment rates, one should use microeconomic methods to study the economic incentives of the individuals.

5.2.2 The model development

In the following, I first describe the economists' development of ADAM into a Keynesian-neoclassical synthesis. Second, I analyze the political push for adding neoclassical assumptions in the Ministry of Finance's calculations of the effect of the government's policies. Third, I evaluate the strengths and limits of the arm's-length principle between the Ministry of Finance and Statistics Denmark, when the Statistics Denmark develops ADAM.

First, economists in Statistics Denmark introduced a new wage equation with a Phillips curve in ADAM in 1991 (Danmarks Statistik, 1993; Finansministeriet, 1991, pp. 330–331; Andersen, 1990). The new wage equation made the wages endogenous: the lower the unemployment, the higher the rate of wage increases, and the higher price-increases (inflation). The wage equation has the consequence that an economic boom in the model with time turns into an economic downturn until the economy reaches a general equilibrium. When there is an economic boom, unemployment falls and wages rise, which causes prices to rise, which again causes exports to fall. This leads to less production, higher unemployment, lower wage increases, and improved international competitiveness. This goes on until domestic wage increases run parallel with the development in production costs abroad. In the end—lasting several decades—the model reaches a general equilibrium where employment/unemployment rates reach their structural levels. The labor supply determines the structural/natural level of employment. The logic is that an increased labor supply puts downward pressure on wages, increasing the Danish economy's competitiveness and increasing net exports. The increased exports create extra demand, which turns the labor supply into employment.

An important reason for introducing the wage equation was that it gave better possibilities for medium-term and long-term forecasts. The Ministry of Finance wanted a model that could make better forecasts longer into the future. An economist from Statistics Denmark explains:

"A central theme for the ADAM's development all the way through the 1980s has been to make the model increasingly suitable for long-term analysis. There are many aspects to this, but the crucial part is the wage relation and the competitiveness of the foreign trade sector (...) As the Ministry of Finance had a consistent focus on the medium-term, they wanted to develop the model in that direction, to make it better suited for this purpose." (Economist 5, interview).

An economist from the Ministry of Finance from this period confirms the medium-term focus: "What we used the model for in particular was medium-term forecasts" (Economist 6, interview). The Ministry of Finance could use the new version of ADAM to analyze the consequences of policies influencing the labor supply and to improve its medium-term forecast (five to seven years), which it had begun making in the mid-1980s. This way of analyzing the economy—the Keynesian-neoclassical synthesis—has been standard in the Ministry of Finance's model set-up since the late 1980s under shifting governments.

Second, in the late 1980s, there was growing political interest for incorporating neoclassical ideas into the Ministry of Finance's forecasts of the labor supply effects of the conservative-liberal government's policy. In a report from 1988, the Danish Economic Council promoted such neoclassical ideas on how high compensation for unemployed people lowered the incentive to take up work and how more market-conforming wages would improve the international competitiveness (De Økonomiske Råd, 1988). The report was inspired by the ideas of Robert E. Lucas and gained influence among politicians and civil servants (Asmussen, 2007, pp. 117–121). One of the politicians who cited the report was the liberal minister of taxation from 1987 to 1992, Anders Fogh Rasmussen, an economist by training. Fogh Rasmusen was inspired by Lucas, whom he had met during a trip to the US (Asmussen, 2007, pp. 123–127).

Fogh Rasmussen became powerful in the government, and he rejected the calculations on the effects of the government's policy if these did not take into account the effects of economic incentives on the labor supply. Furthermore, Rasmussen wanted the calculations to include the "Laffer curve," which shows that as marginal income taxes increased, the incentive to work decreases, and there is a point at which increasing taxes will result in less revenue for the state (Asmussen, 2007, pp. 123–127).

According to the economist who was in charge of the models in the Ministry of Finance, Fogh Rasmussen insisted with "brutality" that the Ministry of Finance should take these assumptions into account. The economist states:

"We ran into trouble when Fogh Rasmussen became minister of taxation and economy. And the prime minister listened more to him than to Palle Simonsen [the finance minister]. There, we ran into trouble. And he was really tough, Fogh Rasmussen. He just said: "No". When we came with a five-year forecast, he just said that he could not accept it. He barely bothered to argue (…) he just said that we had not taken into account all these liberal assumptions regarding how lower marginal taxes would increase this and that, and the markets would work better and so on." (Economist 3, interview).

Finally, the civil servants agreed to include assumptions on economic incentives of tax cuts in their calculations to the extent that they felt they could defend this from a scientific point of view, but also because they wanted to save the models from being discarded by the government (Andersen, 2018; Economist 3, interview).

Consequently, when the Conservative-Liberal government presented their economic plan, "The Plan," in 1989, the Ministry of Finance supplemented ADAM with calculations on the effects of the work incentives that The Plan would create (Finansministeriet, 1989a; Economist 3, interview). A former head of department from the Ministry of Taxation, who represented Fogh Rasmussen in the group of civil servants who designed "The Plan", has confirmed in a newspaper interview "that it was on the initiative of the former minister of taxation, Anders Fogh Rasmussen, that the dynamic effects [economic incentives] of changes in marginal taxation rates were introduced" (Andersen, 2018)

The Plan aimed at improving the long-term structures of the economy by cutting public spending and taxes to give better incentives to work and save (Finansministeriet, 1989c; Politician 1, interview). In the calculations on the effects The Plan would have on the economy, the Ministry of Finance used the tax level as an exogenous variable to forecast the labor supply:

the lower the marginal tax, the better the incentive to work. In this context, the Ministry referred to the Laffer curve (Finansministeriet, 1989c, p. 114).

According to the Conservative finance minister, Henning Dyremose, who was in office when The Plan was published, there were several reasons for including effects of economic incentives in the calculations of the economic effects of The Plan:

"It was the first time we started working with dynamic effects (...) Why then? Well, it was because the economists had obtained the skills to do it. And because we would have a number of discussions on various dynamic effects, in particular, of tax cuts. Because we who are conservative or liberal… Because it is not only economic models, it is also a matter of what you believe in politically. And we believed politically that tax cuts would increase labor supply." (Politician 1, interview).

The Social Democratically-led government, which came to power in 1993, scrapped "The Plan" as it had an alternative economic plan, the "New course." However, the Social Democratic government continued to use the Keynesian-neoclassical synthesis version of ADAM. Moreover, under the Social Democratic government, the Ministry of Finance continued to supplement ADAM occasionally with assumptions on the effect of tax cuts on structural unemployment and labor supply. The Ministry of Finance used such assumptions both in the calculations on the economic effects of the government's policies (Regeringen, 1993) and in the medium-term forecasts (Finansministeriet, 1995, p. 68).

Social Democratic Finance Minister Mogens Lykketoft—an economist by training—furthermore emphasized "active labor market policy," which aimed to reeducate and activate the unemployed while, at the same time, providing better incentives for the unemployed to take up work via reduced magnitude and length of unemployment support. The Ministry of Finance supplemented ADAM with calculations on the effect of the active labor market policy on the structural unemployment and labor supply (Finansministeriet, 1997, pp. 169–204). Moreover, the Ministry included calculations in medium-term forecasts on the effect on labor supply of the government's policies changing the pension rules, making it more attractive to work longer before retiring (Finansministeriet, 1999, pp. 286–288).

Figure 2 illustrates how the neoclassical variables and relationships supplement the Keynesian logic in the model set-up in the 1990s.

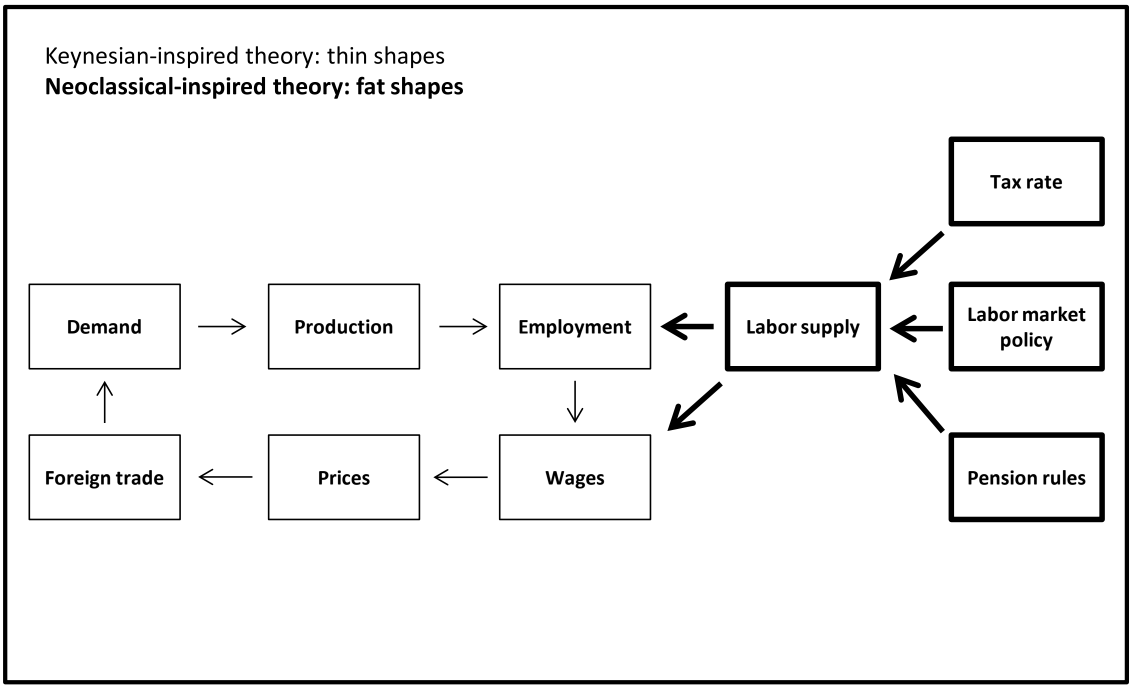

Figure 2. Central Keynesian and neoclassical elements in Danish models 1989–2002. Author's illustration.

The section's third and final point concerns the arm's-length principle between the Ministry of Finance and Statistics Denmark that develops ADAM. Statistics Denmark is an independent organization, and as such, the Ministry of Finance cannot instruct Statistics Denmark to change ADAM.[6]

As has been shown, Statistics Denmark incorporated the Keynesian-neoclassical synthesis in ADAM in the late 1980s and the beginning of the 1990s. The addition of the synthesis reflects the economists' desire to make longer forecasts of higher quality, while also reflecting the evolution of the Danish and international economic debate. This is the core of the Ministry of Finance's economic models, which have not changed even though governments have changed.

[6] See "Law regarding Statistics Denmark" (*Bekendtgørelse af lov om Danmarks Statistik*), link: https://www.retsinformation.dk/eli/lta/2018/610

However, there are limits to the arm's-length principle (Economist 2, interview). One limit is that the Ministry of Finance—if not satisfied with the relationships in the ADAM model—can supplement the model with its calculation principles. For example, the calculations on the tax cuts effect on labor supply are not part of ADAM. Rather, the Ministry of Finance supplemented ADAM with these.

Moreover, The Ministry of Finance can change the parameters in its version of ADAM. For example, the leader of the liberal party, Henning Christophersen, who became finance minister in 1982, wanted ADAM to take into account how the government's policy of improving the current accounts would lead to a lower interest rate and increase industrial investments. Christophersen was an economist by training and he had publicly criticized ADAM as not being able to forecast interest rate dynamics. The head of the model department in the Ministry of Finance shared Christophersen's view and had earlier worked on including these effects in the model. When Christophersen became finance minister, the head of the model department took the initiative to change the Ministry's version of ADAM, taking into account the minister's critique (Finansministeriet, 1988, pp. 51—61; Economist 3, interview). He explains how he approached Christophersen:

"*I was invited to a finance minister summit in Iceland, which Henning Christophersen also attended. After dinner, during the coffee and cognac, I made my way to his table. I told him that I was responsible for ADAM. He could give a lecture on why and how the model was flawed. Then, I said: "Well, I have made a version where I have done this and that and so on. A research project."*" (Economist 3, interview).

Thus, for a time, the Ministry of Finance used a modified version of ADAM, which had an endogenous interest rate. This change was significant as it meant that the model could show the government's policy of reducing public deficits and would lead to a lower interest rate, which again would increase investments and employment. The change was later reversed when ADAM took into account that the Danish krone was pegged to the D-mark (consequently from 1986), and later, to the Euro (from 1999).

Finally, the Ministry of Finance can influence Statistics Denmark. This can happen via the Ministry's seat on the ADAM board, which decides the ADAM economists' priorities in the work program (Economist 1, interview). Additionally, Statistics Denmark cannot always afford to disregard the Ministry of Finance's point of view, as the Ministry is the most important user of their ADAM. As one economist involved in the work on ADAM in Statistics Denmark states:

"*It is clear that they have an influence on the work program. There, they leave large marks of influence. The Ministry of Finance. They get something for their money, because they decide on the work program.*" (Economist 1, interview).

Another economist who worked in Statistics Denmark confirms that the Ministry of Finance has an influence on the ADAM work program and explains how the Ministry has an interest in using this influence:

"It has always been most convenient for the Ministry of Finance if it can get Statistics Denmark to take the responsibility. In that case, the Ministry's back is covered, and the Ministry can say that the model is based on science and developed by an independent institute." (Economist 2, interview).

5.2.3 Driving forces in stage 2

The analysis of stage 2 shows that both economists (proposition 1) and politicians (proposition 2) drove the introduction of the Keynesian neoclassical synthesis in the models. Economists have developed the models to be able to make reliable medium- and long-term forecasts and to analyze the supply-side of the economy. Politicians have also played an important role. Contrary to stage 1, several findings in stage 2 are in line with Christensen (2017), who argues that Danish politicians rather than economists have dominated the economic policy (in his study: tax policy). However, I find that politicians have used their positions to push neoclassical assumptions into the Ministry of Finance's model calculations on the effects of the governments' policies, which is contrary to Christensen, who argues that politicians' influence has resulted in a stronger focus on economic redistribution. However, as Christensen (2017) studies tax policy specifically, and I study the assumptions in the economic models, the conclusions are not incommensurable.

The political influence has been direct when Fogh Rasmussen insisted that economists include neoclassical theory in their calculations and indirect when Christophersen and Fogh Rasmussen voiced in the media their opinions on the models. These findings correspond with the findings of Asmussen (2007) who identify a paradigm shift from Keynesianism to neoclassical economics in the late 1980s initiated by politicians. Asmussen (2007) does not study how the variables in the model set-up changes, but mainly analyses policy decisions to reach his conclusions. Contrary to Asmussen, I study the model development and document, in a stylized way, how the variables and relationships in the model changes. These model changes are important, as the government uses the model to forecast the effects of its policies, and—as I show in paper 1—the model can be used to promote certain policies and set a political direction depending on the ideas that inform its variables and relationships.

Two additional findings stand out. First, the politicians who influenced the model set-up were trained economists who understood the economists' theories and methods. Second, the political push for influence coincided with Danish economists picking up neoclassical ideas about how to combat unemployment and improve competitiveness. An economic-political consensus on the Keynesian-neoclassical synthesis developed in the 1990s (Campbell and Pedersen, 2014, pp. 199–205), and the Social Democrats accepted this perspective when they governed in the 1990s.

5.3 Stage 3: The supply side dominates (2002-2015)

5.3.1 The context

Entering the 2000s, the three challenges of public debt, inflation, and unemployment were under control (Andersen *et al*., 2005, pp. 17-25). The financial crisis hit Denmark after 2008, but even though unemployment and public deficits rose significantly, in 2015 the public debt was still triple-A rated, and the net unemployment rate was less than 4 percent (Danmarks Statistik, 2020).

In the 1990s and after 2000, the EU became increasingly important for the Danish economy. The EU established rules regarding the public deficit limits in conjunction with the Maastricht Treaty. Following the financial crisis and tightened EMU rules, in 2012, the Danish Parliament adopted the "Budget Law," which implements the EU's "Fiscal Compact." It limits the yearly allowed deficit on the structural public balance to 0.5 percent of GDP (Finansministeriet, 2014, p. 315). The structural public balance expresses the public budget balance in a general equilibrium-situation. Thus, business cycles do not influence the structural public balance, but the labor supply strongly influences it. Strategies to increase labor supply benefiting the structural public balance and increasing competitiveness in spite of an ageing demography have thus become central in shifting government's economic plans (Regeringen, 2007, p. 9; Regeringen, 2012, pp. 10–14). The model development—as we shall see—reflects these priorities.

5.3.2 The model development

After 2000, the economists in the Ministry of Finance continued to develop the models with more accurate microdata and theory to evaluate the effect of different policies on labor supply and structural public balance (Economist 6, interview; Economist 7, interview). The background for this focus was the changing demographic and the aging population, according to an economist in the Ministry of Finance:

"*The discussion on the increasing number of elderly people is in essence a structural discussion (...) so, in relation to handling the age question, there has been a massive focus on what we can call fundamental structural conditions. It is a question of how many people work compared to how many people do not work. That has an effect on fiscal policy.*" (Economist 6, interview).

Another economist who worked in the Ministry in the 2000s and 2010s confirms the increased focus on the structural economic levels in the forecasts:

"Most often, when we make a reform and we talk about its effect, we talk about structural effects. When exactly it kicks in, one year plus or minus, is not the primary focus. The primary focus is what it means structurally, because that has an effect on the indicators we use to steer: the structural public balance and fiscal sustainability." (Economist 7, interview).

What both economists are referring to as "structural effects" is the labor supply. The focus is not on short-term fluctuations in the economy, but on a given reform's effect on the long-term structural labor supply: how many people work compared to the people that do not work. This again has an effect on public revenues and expenses, and thus, the public balance.

To forecast the effect of different policies on the labor supply, the Ministry of Finance began operating the "Law Model", which holds microdata on a range of different parameters (for example, income, age, housing, employment status) on a sample of 10 percent of the Danish population (Finansministeriet, 2003). Furthermore, the Ministry of Finance began using microdata on the population characteristics from the "DREAM" group to forecast the demographic development (Economist 8, interview). The Ministry of Finance used the new data to make increasingly detailed calculations on the effects on the labor supply of pension reforms, the development of the population's level of education, and the incentives to take up work (Finansministeriet, 2014).

Second, in 2002, the Ministry of Finance published its own calculation rules concerning how lower unemployment insurance compared to wages and lower marginal tax rates increase the incentives to work and thus the labor supply (Finansministeriet, 2002; 2012, pp. 18–19). As mentioned, the Ministry of Finance had used such assumptions on "dynamic effects" earlier but not consistently (Politician 2, interview). In the 2000s, the Ministry began using these calculation rules consistently to evaluate the economic effects of the government's policies. According to interview data from the Ministry of Finance, there were two reasons for publishing these calculation rules in 2002. One reason was that the Ministry of Finance now had better access to microdata as described above. The other reason was a wish to be at the forefront of the discussion "lurking" at the time, concerning whether and how to include dynamic effects in policy planning.

The new calculation rules came during the Liberal-Conservative government that began governing in 2001 and in which Fogh Rasmussen had become prime minister. As shown in stage 2, in his earlier function as tax minister, Fogh Rasmussen had argued for including dynamic effects in the economic models, and he continued to do so in the 1990s as a prominent opposition politician (Rasmussen, 1995). However, in the 2000s, Fogh had moved his party "Venstre" to a more center-leaning position, which, according to analysts, was part of a strategy of appealing to broader voter segments (Ib, 2004). Fogh Rasmussen was now against financing tax reforms with references to dynamic effects, and he argued that eventual tax cuts should not target top income groups but have a more socially-balanced profile. The Conservative Party, which was part of the coalition government, and parts of his own party, Venstre, disagreed. Contrary to Fogh Rasmussen, they supported including dynamic effects in the financing of tax reforms, and they wanted tax cuts for middle and top income groups (Cordsen, 2002).

The Ministry of Finance's calculation principle's on dynamic effects came about in this context and included calculation examples of policies that resembled Venstre's and the Conservative People's Party's respective tax policies (Mollerup and Larsen, 2003). The calculations showed that tax cuts for top income groups has a higher degree of self-financing that tax cuts for lower income groups (Finansministeriet, 2002, p. 281).

I have found no data indicating that politicians directly put pressure on the civil servants to publish the calculation principles. On the contrary, according to press articles, the calculations were unpopular in the Prime Minister's office, while other parts of the government might have appreciated the calculations (Olesen, 2002). However, we can understand the publication as the Ministry of Finance's response to an ongoing political debate on dynamic effects in the financing of tax reforms. The Ministry of Finance has consistently calculated the dynamic effects of the governments' tax reforms since 2002, and in some cases, the effects have contributed to financing parts of the reforms and to improving the structural public balance in the medium term plans (Finansministeriet, 2012, p. 9).

Third, the short term in the model set-up became shorter. The Ministry of Finance has adjusted ADAM, significantly increasing the speed toward general equilibrium. The Ministry did so by scaling up the price elasticities of foreign trade in ADAM (Finansministeriet 2014, pp. 233–238). This makes foreign trade react faster to price changes and business cycles, therefore, having a shorter period, while labor supply transforms faster into employment. The Ministry argues that the new tempo is more realistic and refers to the theory that agents have "rational/forward-looking expectations" (Finansministeriet 2014, pp. 216–225). This assumption entails that the agents in the model know the model dynamics and, therefore, adjust their behavior to the expected changes in the economy fast. My interview data from the Ministry of Finance's economists confirms that the economists have taken the initiative to make these adjustments to ADAM as they consider it very slow compared to more "modern" economic models.[7]

[7] Economists from the Ministry of Finance that I have interviewed express this view (economist 7, interview; economist 8, interview).

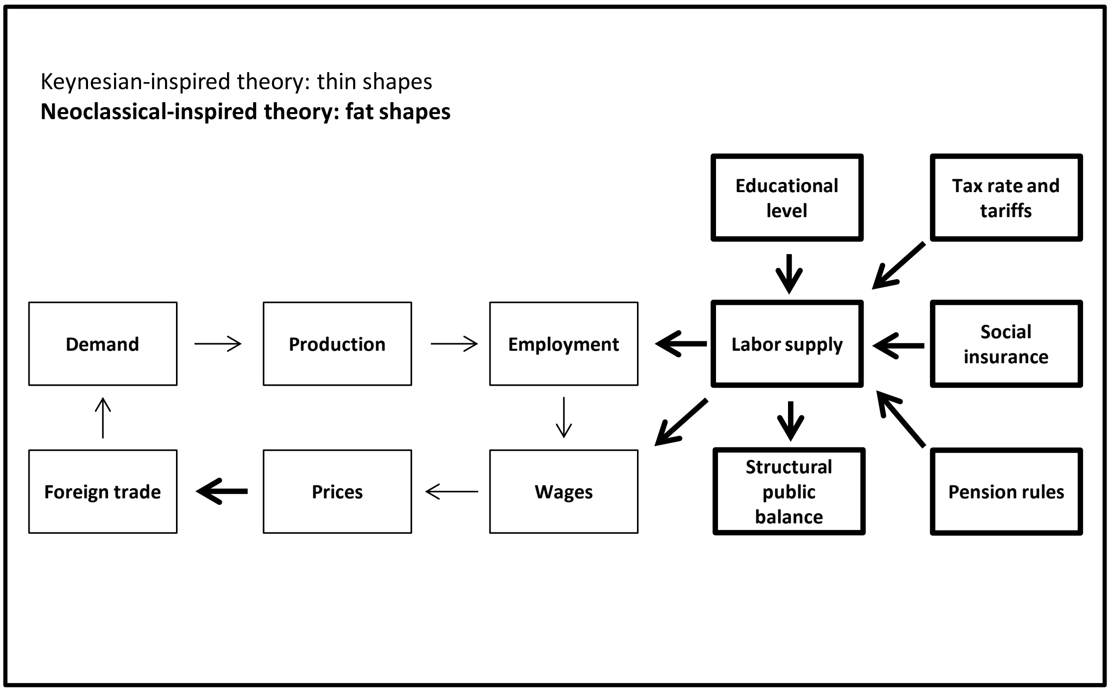

Figure 3. Central Keynesian and neoclassical elements in Danish models 2002-2015. Author's illustration.

<u>5.3.3 Driving forces in stage 3</u>

In the 2000s and 2010s, the Ministry of Finance economists were the main driving force in strengthening the supply-side of the economic models. When the government power changed from the liberals to the Social Democrats in 2011, the model set-up did not change. The Social Democrats continued to use the assumptions on the effect of cuts in taxes and unemployment insurance, which the economists in the Ministry of Finance had implemented in the models. The continued use of the assumptions sparked the public debate mentioned in Section 2 around the models.

An economist from the Ministry of Finance acknowledged the political criticism of the models but noted that the models "should be based on the work of professional economists rather than politics" (Economist 7, interview). I have found no evidence of direct involvement in the models from the politicians in stage 3, and as another economist who worked in the Ministry in the 2000's stated:

"*When it comes to the work on numbers, the politicians have not interfered with this. Strictly speaking, they could have done so. As finance minister, you could say: "You need to do the calculations this way". Nevertheless, in all the time I have been here—and it is still like that—the bureaucrats decide how to do the calculations. The politicians do not interfere.*" (Economist 6, interview).

Thus, the economists insist on keeping the politicians away from the models. In that sense, the models have become the domain of the economists who can use their expertise and knowledge to develop these. Thereby, the economists can hold power over the ideas in the models without interference from politicians. As I show in paper 1, this power over the ideas in the models entails an indirect power over policies, as the politicians use the models to plan policies and decide on the goals of the economic policy, as well as on the policy instruments to attain these goals.

However, the economists are also aware that the models need to be relevant for the government's policies (Economist 6, interview; Economist 3, interview). As one economist from the Ministry of Finance states:

"*If what you do as a civil servant is irrelevant, it is a waste of time, right? So of course, the politicians' influence lies in what they are interested in, what they work with, it becomes—in some kind of double exchange—a focus of the civil service.*" (Economist 6, interview).

We can understand the development of the calculation rules on cuts in taxes in 2002 from this perspective: When the new government began debating which kind of tax cuts it should carry out, the Ministry replied with calculation rules, taking into account different policy options. These calculation rules are still in place today. Thus, stage 3 gives support to both propositions 1 and 2.

6. Conclusions and discussion

I have investigated the development of the Danish governments' economic forecasting models to find out how and why they have changed over time from Keynesian models to a synthesis between Keynesian and neoclassical economics. I have investigated two propositions on the driving forces behind this development. The first asserted the economists in the state. The second asserted the government politicians. I have found evidence for both propositions.

The overall conclusion is that the economists, who use their expertise to develop the models to analyze the economic problems Denmark faced, have had the most influence. The economists developed the models in the 1970s with the motivation to provide better analysis of the economic policy and, in the first years, to strengthen their position towards the politicians who could not so easily ignore model calculations. This is in contrast to previous hand held calculations. In stage 1 (1975–1989), they took the initiative to introduce the Keynesian model ADAM in the government's forecasts, while in stage 2 (1989–2002), they incorporated neoclassical theory into the models, creating the synthesis. In stage 3 (2002–), they worked to strengthen the models' supply side by incorporating microdata to forecast the effects of tax cuts, pension reforms, and labor market reforms on labor supply and the structural public balance. These findings support the accounts that argue that state economists have gained an increasingly strong role in policy development since the 1970s (Campbell and Pedersen, 2014).

However, the analysis also shows that politicians have at times taken the lead in pushing for the incorporation of neoclassical theory (e.g., dynamic effects of tax cuts on labor supply), which fitted in well with their ideological policy preferences. Sometimes, this influence was direct and resulted in power struggles between politicians and economists (stage 2). In other cases, the influence was more indirect, when economists in the Ministry of Finance navigated after the signals that politicians gave in the media (stage 2 and 3). These findings underpin the account that points towards Danish politicians' relatively strong influence on economic reforms compared with other countries (Christensen, 2017).

On a more general level, the findings contribute to the literature on the ideational influence of professional economists versus politicians cited in section 3. Much of this literature on professionals (e.g., Fourcade, 2006; Seabrooke and Tsingou, 2014; Christensen, 2021) considers the influence of ideas as a somewhat one-way process in which professionals develop ideas and push these into political processes. These studies downplay what happens when the expert ideas meet the political arena in a government. In contrast, I have shown how the process can get messy, as professional economists and politicians struggle both want to influence which ideas should be incorporated into the government's economic model. My analysis shows that the politicians' influence on the economic models has been the exception rather than the rule, but the influence has nevertheless been important in driving a paradigm shift in the ideas embodied in the models.

The development of the ideas in the models in stage 1 and 3 has been somewhat of a one-way process, where economists used their expertise to build models that could respond to the economic challenges of the day. However, in stage 2, politicians played a role by interacting with the economists in what Farrell and Quiggin (2017) calls as "two-way process". In this two-way process, both groups have power resources and the interaction between the two groups determines which ideas will dominate. While the economists work incrementally and develop the models according to the ideas that are already present in the policy making process (Keynesianism in stage 1 and neoclassical economics in stage 3), the politicians' influence was more ideological and resulted in a paradigm shift in stage 2. Thus, the development of Danish economic models has been one-way process for most of the time, but it is when politicians used their power to promote certain economists with certain economic ideas in the public debate, and to confront the Ministry's economists, a paradigm shift occurred. This finding challenges the one-way perspective of much of the professions literature.

The paradigm shift was a result of Danish economists looking for sophisticated ways of analyzing the long-run structures of the economy, and politicians using their power to push economic ideas that fitted better with their ideology. To initiate such a paradigm shift from Keynesianism to neoclassical economics, those politicians had to make alliances with parts of the economic community. Moreover, those politicians were a few key persons who have worked as either finance ministers or other economic ministers and have been economists by training. They knew economic theory and could take part in the technical discussions with the economists.

In sum, the Danish economic models' history shows that the models have a scientific and a political background, which are inseparable. What can be expected regarding the driving forces of governments' economic models in other Western countries? On the one hand, the Danish case is a "least likely" case of political influence on the models as the Danish bureaucracy, as described in section 2, is apolitical in the sense that ministers do not hire civil servants based on their political orientation. Thus, if we find political influence on the models in Denmark, we might expect it in other countries where ministers have more options for hiring their own civil servants. However, we should also be aware that the Danish knowledge regime, as described in section 3, is small and consensus oriented, which means that politicians and economists often know each via their educational background or via boards and commissions where they share ideas and influence each other. This interaction blurs the line between the ideas of professional economists and politicians in Denmark, and makes it tricky to determine the origins of the ideas promoted by the different actors. Thus, we need comparative research in countries with 1) more politicized bureaucracies, and 2) less consensus-oriented knowledge regimes to gain knowledge on the circumstances that influence the power balance between economists and politicians in driving the economic models.

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Paper 3: Conceptualizing the Fiscal Room for Maneuver: The Case of Denmark

Abstract: *This paper studies an apparent paradox: while Denmark's public debt has decreased significantly over the last decades, Danish policymakers act like they are under increasing pressure to implement supply-side reforms to decrease public debt. To explain this paradox, the paper expands the concept of "the fiscal room for maneuver", which scholars have used to describe the constraints on government's fiscal policy options imposed by either public debt levels or deficit and debt ceilings. Thus, I propose to include three elements in the concept: 1) the public debt level, 2) the budget rules specifying deficit and debt ceilings, and 3) the economic models that predict the effect of different policies on the public budget. I argue that these three elements combined define what the government can and cannot do in terms of fiscal policy. I then show how the Danish fiscal room for maneuver has developed from 1975 to 2015 with debt decreasing while budget rules and economic forecasting models becoming increasingly important. I argue that this development puts a supply-side pressure on the government's policies in spite of decreasing debt levels. Moreover, I argue that we need more research in the development of governments' fiscal room for maneuver to understand their policy choices.*

1. Introduction

During the sovereign debt crisis in Europe in the years after 2009, several EU member states were unable to refinance their public debt. These member states received bail out packages devised by the European Commission, the European Central Bank and the International Monetary Fund, collectively known as the "Troika", and the recipient governments. Among the member states that received such bailouts, specified in bilateral Memorandums of Understanding, from the Troika were Greece, Cypress, Ireland, Portugal and Spain. In return for the bailouts, these countries had to implement specific supply-side reforms that would improve the public budgets, such as increasing the pension age, reforming labor markets decreasing welfare expenditure, and reducing social benefits (Blyth, 2013; Streeck, 2014; 2016; Theodoropoulou, 2016).

While these countries had to implement the specific reforms agreed, other EU member states also implemented supply-side reforms voluntarily in the aftermath of the financial crisis. A number of European governments have launched different supply-side reforms during the last decades.[26] We cannot explain all of these reforms by an urgent need to improve public budgets. In Denmark, a country which public debt before and after the financial crisis was well below the allowed EU limits (60 percent of GDP) and was triple A-rated (Danmarks Nationalbank, 2020, p. 2), policymakers have launched a number of supply-side reforms to improve the public budgets and increase economic growth. Both liberal-conservative and social democratic governments launched such reforms before and after the financial crisis. The reforms entail raising the pension age, reducing social benefits, and cutting marginal income taxes. Many of these reforms were implemented to prepare welfare states for aging populations, which implies that a smaller proportion of the active population supports a growing older population.

Danish policymakers have adopted reforms in 2006 and 2011 that gradually increase the retirement age to 67 years in 2022 and reduce the length of early retirement options from five to three (Petersen *et al*., 2014, pp. 997-1100). Moreover, from 2000 to 2020 Danish policymakers have reduced the unemployment insurance level compared to wages from 51 percent to 46 percent (Batchelor, 2018), and in 2010, policymakers reduced the duration of unemployment insurance from four to two years. In addition, from 2000 to 2020, policymakers have reduced the top income tax rate from 63.4 percent to 56.5 percent (Skatteministeriet, 2019), and the corporate tax rate from 32 percent to 22 percent (Cepos, 2019).[27] In the meantime, the Gini coefficient, which measures the level of income inequality, rose from 24.4 in 2000 to 29.1 in 2017 (Danmarks Statistik, ‘Statistikbanken’ table ‘ifor41’), and tax cuts contributed—among other factors—to this increased economic inequality (Andersen and Juul, 2017).

[26] Turrini et. al (2015) show that while EU member countries with lower GDP and, in critical economic situations, have carried out most supply-side reforms from 2000 to 2011, a large number of EU countries have carried out supply-side reforms in the fields of e.g., unemployment benefits, early retirement, labor taxation.

[27] While tax cuts do not improve public budgets, they do increase labor supply according to the model, thus increasing growth, and thereby, cost less on the public budgets than spending money in the public sector, as the increased labor supply transforms to employment, which again leads to increased tax revenue. I elaborate on this logic in section 4.

The public debt level in Denmark does not seem to explain the supply-side reforms. As figure 1 illustrates, Denmark has had a relatively low public debt since 2000, with a gross debt well below the Economic and Monetary Union (EMU) deficit limit of 60 percent of GDP, and most often, with a net debt of around zero.[28] This is the period when the previously-mentioned reforms appeared. In contrast, when Danish public debt was rising in the 1970s and 1980s, policymakers did not enact reforms to increase the pension age nor to decrease unemployment insurance (Asmussen, 2007).[29] In the 1970s and 1980s, the challenge of an ageing population was not imminent, but the public deficits and debt levels were unsustainable to the level where it threatened Denmark's autonomy. Thus, we need an explanation as to why politicians launch supply-side reforms today in contrast to the 1970s and 1980s where the public budgets were running off track.

[28] Gross debt is the general amount of debt the government has. Net debt subtracts financial assets the government holds from gross debt.

[29] Policymakers used other strategies, including Keynesian-inspired fiscal and monetary policies and income policies. In the 1980s, the conservative-liberal government adopted a fixed exchange rate as a part of their strategy to tackle inflation and budget deficits. However, supply-side fiscal reforms were not a part of the strategy at the time (Asmussen, 2007).

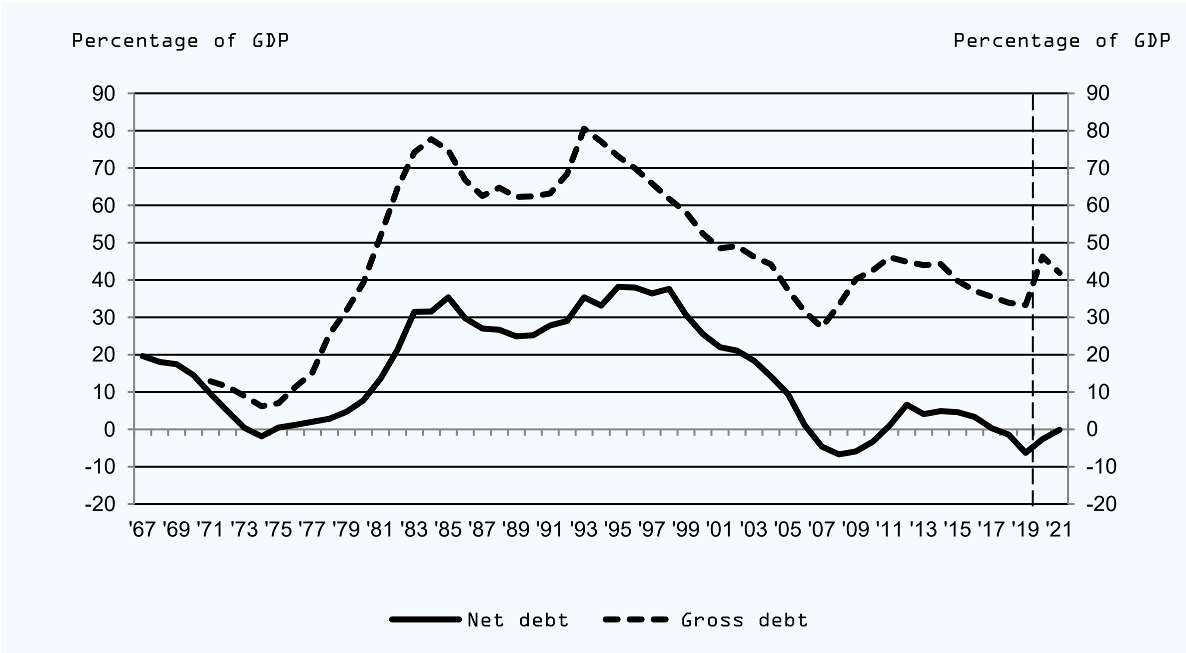


Figure 2. The development of Denmark's public debt level.[30]

Iversen and Soskice (2018) have presented another explanation of such supply-side reforms. The authors argue that that decisive voter segments of high skilled workers—and those aspiring to become part of this group—drive the reforms. These voter segments earn above average paychecks, and therefore want less economic redistribution. However, this explanation is problematic for Denmark. The most decisive voters in Denmark for the last two decades have been the low-skilled workers who swing between the Social Democrats and the Danish People's Party. These voters do not benefit from cuts to top income tax rates, but have benefitted from early retirement and unemployment insurance.[31]

At the parliamentary elections in 2001, the Danish People's Party got 12 percent of the votes, which meant that the party could swing the government power from the Social Democrats to a

[30] Source: gross debt from European Commission's AMECO database (https://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm). Net debt from Statistics Denmark ADAM database (https://www.dst.dk/da/Statistik/ADAM/Databanker).

[31] There have also been cuts in taxes for middle and low income groups, but overall, the tax cuts have increased inequality by cutting taxes for top income groups (Andersen and Juul, 2017).

new center-right government (Ringberg, 2019). After the Social Democrats' return to government from 2011 to 2015, the Danish People's Party won 21 percent of the votes in 2015, and swung the government power back to the center right (Goul Andersen and Shamshiri-Petersen, 2017; Møller Hansen and Stubager, 2017). In 2019, the Social Democrats came back into government once again by pulling voters from the Danish People's Party (Quass and Lindegaard, 2019).

To provide a better explanation for the supply-side policy pressure in Denmark, I argue that we should pay attention to "the fiscal room for maneuver". Scholars have used this concept to describe the constraints imposed on governments' fiscal policies by either debt or budget rules. I argue for expanding this concept to include both public debt, budget rules specifying deficit and debt limits, and the economic models that governments use to forecast the public budget to assess whether it stays within the deficit and debt limits. While scholars refer to the fiscal room for maneuver, they do not include the economic forecasting models in their analysis, even though such models are important in telling governments whether their policies might result in unsustainable public deficits in the future. Depending on the ideas providing the models' assumptions, the models will predict different prices of different policies for the public budget. When the models become institutionalized in the policymaking process, the power in the ideas (Carstensen and Schmidt, 2016) that are embodied in the models facilitates certain policies but complicates others.

Throughout my analysis, I show how the fiscal room for maneuver of Danish governments has gradually changed since the 1970s as debt has decreased, while the role of budget deficit and debt rules as well as economic models has increased. Although it is beyond the scope of the paper to provide a systematic explanation of the reforms referred to previously, I give examples of how the development of the fiscal room for maneuver can help explain the supply-side reforms of the latest decades.

The paper proceeds as follows: The next section outlines my analytical framework by elaborating my definition of the fiscal room for maneuver and my institutionalist approach to analyzing this. Section 3 presents the paper's methodological approach. I conduct a structured, focused analysis to tap into how the fiscal room for maneuver has altered, and I triangulate archival data and expert interviews with former top civil servants and finance ministers to ensure data reliability. Section 4 analyzes how the institutionalization of economic models and rules associated with the EMU since the 1970s have increasingly defined the fiscal room for maneuver, while public debt has gradually decreased. Section 5 concludes and reflects upon how our understanding of the fiscal room for maneuver can contribute to the debate on the relationship between democracy and capitalism.

2. Analytical framework: The fiscal room for maneuver

Scholars have analyzed governments' "fiscal room for maneuver" or "fiscal space", but they define it in different ways. In some studies, the concepts refer to the actual budget situations: either the public debt level (Benito *et al*., 2013; Reuter and Nerlich, 2015, pp. 4–6) or the surplus on public budgets that can be used for spending (Haffert and Mehrtens, 2014). [32] In other studies the concepts refer to budget rules specifying allowed public deficit and debt levels such as the EMU Stability and Growth Pact (SGP), allowing a public deficit of a maximum of 3 percent of GDP, and a public debt of a maximum of 60 percent of GDP (Creel *et al*., 2012; de La Porte and Heins, 2015, p. 11). In the following, I argue for expanding the concept of the fiscal room for maneuver to include 1) public debt, 2) budget rules specifying the allowed public deficit and debt limits, and 3) the economic models used to forecast the public balance. I argue that these three elements all entail fiscal policy limits and possibilities for governments.

First, public debt influences what governments can and cannot do in terms of fiscal policy. High public debt levels increase the interest that the government pays to its creditors, thereby exerting pressure on the yearly budgets. In some cases, as was seen in the European sovereign debt crisis, states with high debt lose financial credibility, resulting in rising interest rates to an extent where the government could default on its debt. In such cases, the creditors may put the state under administration and decide de facto on its economic policy as a precondition for new loans (Blyth, 2013; Streeck, 2016).[33] To reduce the debt, governments can run yearly budget surpluses

[32] The Danish Ministry of Finance uses the concept *det finanspolitiske råderum*—translated as "fiscal space" or the "fiscal room for maneuver"—to indicate the monetary amount that politicians can spend (e.g., on increased public expenditure or tax cuts) without creating a deficit on the structural public budget in the medium term (five to ten years) (Finansministeriet, 2020).

[33] For example, during the European sovereign debt crisis, Greece and Portugal signed two memorandums of understanding with the IMF and the EU outlining economic, labor market, and social reforms the countries committed to undertake as a condition for their bailouts (Theodoropoulou, 2016).

for a period by either cutting expenses or increasing revenue via taxes. Governments may also count on sufficiently high economic growth, which over a period will reduce the debt relative to the size of GDP.[34]

Second, budget rules specifying the allowed public deficit and debt levels—as well as the sanctions for exceeding these levels—represent constraints on the fiscal policy that the government can have. In recent decades, European governments and parliaments have installed an increasing number of budget rules that limit the allowed yearly deficits and overall debt levels of the state (Suenson *et al.*, 2016; Jensen and Davidsen, 2015; Krause, 2012). Some of these rules stem from the Economic and Monetary Union (EMU), which after the 2008 financial crisis, has increased surveillance and enforcement of member states' deficit and debt ceilings (de la Porte and Pochet, 2014). Scholars have argued that the EU's internal market has increased competition among member states leading them to carry out supply-side reforms that cut wages and social protection to increase competitiveness, while the EMU's budget rules limit options for having a fiscal policy that stimulates the demand-side of the economy (Martin, 2015; Jones, 2013; Rathgeb and Tassinari, 2020).

Third, the economic models that governments use to forecast the public budget influence the government's fiscal policy options. The governments use different economic models to forecast the effect of their fiscal policies on the yearly public deficits, and the models have different built-in assumptions of how the economy works (Mankiw, 2006). Thus, depending on the model's assumptions, it will predict different effects on the public budgets of e.g., tax cuts, public investments, and higher social benefits (Henriksen, 2013; Heimberger *et al.*, 2020). For example, the Danish government's economic models predict that cutting marginal income taxes leads to increased labor supply, leading to increased employment, which leads to increased tax revenues, which reduces the public deficit. Thus, to a certain extent, tax cuts are self-financing. The economic models do not foresee similar beneficial consequences for the public deficits if the government spends money on public welfare such as schools or healthcare

[34] Alternatively, governments might increase inflation to shrink the relative size of the debt. However, Eurozone countries—and countries that have pegged their currency to the Euro (e.g., Denmark)—no longer have the inflation option because they have delegated the monetary policy to the European Central Bank. For an elaborated discussion of public debt and strategies for tackling it, see Piketty (2014, pp. 123–135).

(Finansministeriet, 2012). Thus, the economic models allow the government to spend more money on tax cuts than on public welfare while staying within the EMU deficit and debt rules.

In the remainder of the paper, I refer to EMU rules and economic models collectively as budget rules, as they both express a framework of rules that the government cannot ignore when it plans the fiscal policy. The Danish budget rules' development has largely been a choice of Denmark rather than a choice made by an external party such as the EU. As Denmark is not a full Eurozone country, Danish policymakers could have deselected some EMU rules (e.g., the Fiscal Compact) had they wanted to. Moreover, no external party forced Danish governments to use the economic forecasting models that they use. However, once the budget rules are institutionalized, the government cannot disregard them easily.

I understand institutions as the formal and informal "rules of the game in a society" (North, 1990, p. 3). Economic models and EMU rules gradually become institutionalized when the government implements the models in its routines to make yearly forecasts of the economic development, assessing whether the policy lives up to the EMU rules. This institutionalization entails a power in the ideas that lies in the economic models and the EMU rules. It then becomes costly for the government to ignore the models' conclusions or have a policy that, according to the models, deviates from the EMU rules. If the government violates the EMU rules, especially the 3 per cent budget deficit limit, it can expect legal steps from the EU, i.e. an excessive deficit procedure is launched so that the country corrects its deficit. Sanctions can also be reputational. If the models show that the government's policy leads to increased public debt, the political opposition and experts might criticize the government, and voters might punish the government accordingly. Furthermore, the international credit rating institutions might downgrade the state's debt from the current AAA-rating, increasing the interest rate for government bonds. For these reasons, once such institutions have developed, they become increasingly difficult to change as more societal actors (e.g., bureaucrats, politicians, interest groups) invest time in developing, defending, and enforcing them (Pierson, 2000).

However, even though they are hard to abolish or change radically, budget rules do develop incrementally over the decades, through a process of gradual transformational change (Streeck and Thelen, 2005). Since Denmark joined the EU in 1973 and the Danish government soon after began using economic models, both the models and the EMU rules have changed gradually. Today they are very different compared to the 1970s. The aim of my analysis is to show how the budget rules, and thus the fiscal room for maneuver, has developed in Denmark from the 1970s until today.

One could rightly argue that the fiscal room for maneuver depends on more factors than the public debt and the budget rules governing the debt. For example, the Danish economy struggled with unemployment, inflation, and a negative trade balance for much of the 1970s and 1980s (Andersen *et al*., 2005, pp. 17–25). These factors influenced the priorities of the successive governments that sought to improve these balances via different policies (Asmussen, 2007). Moreover, in the postwar period until the 1970s, Denmark had neither high public debt nor strong budget rules, but other economic and political factors influenced what the government could and could not do in terms of economic policy. These factors included economic policy conditions for receiving Marshall Help, the scarcity of foreign currency to import goods, trade restrictions vis-à-vis the Soviet Union, and monetary management rules in the Bretton-Woods system (Lidegaard, 2003a, pp. 243; 282–286).

I do not analyze these factors, but I am aware that the government is never completely free to have the economic policy it wants. For two reasons, my analysis of the fiscal room for maneuver focuses on public debt and the budget rules that govern debt and deficits. The first is because these indicators are central to what the government can and cannot do, as previously argued. The second is because—as I will show—both Danish governments and the EU increasingly focus on public debt and deficits. Thus, the budget rules for limiting these have become increasingly important in recent decades.

3. Methodology and data

This paper analyzes Denmark as a case of a country in which public debt has decreased, and yet, policymakers carry out an increasing number of supply-side reforms to strengthen the public budgets. As we cannot explain these policies by referring to an urgent need to mitigate public debt, we need a better explanation (Flyvbjerg, 2006, pp. 224-228). Thus, I use the Danish case to illustrate the usefulness of the concept of the fiscal room for maneuver, which I have elaborated in section 2, to make sense of the reforms and provide a better explanation.

The paper uses the methods of structured, focused analysis (George and Bennett, 2005) to analyze how the Danish budget rules become institutionalized over five decades while public debt decreases. I seek to uncover the development of the parameters of the government's fiscal room for maneuver over time, and I evaluate to what extent it puts supply-side pressure on government economic policies. As table 1 (in section 4) indicates, I consider that budget rules are either weak, medium, or strong. I consider that public debt is either low or high. Moreover, I consider that the fiscal room for maneuver either does not exert supply-side pressure or does exert supply-side pressure, which can be either weak, medium, or strong.

To enhance measurement validity (Adcock and Collier, 2001), I explain how I define these categories. The budget rules are weak when there is no economic model that can forecast debt in the medium to long term, and in the absence of EMU rules for maximum overall public debt and yearly budget deficit limits. The budget rules are medium when there is an economic model for forecasting debt in the medium to long term and EMU rules for maximum debt and deficit limits, but which are not legally enforced. The budget rules are strong when there is an economic model for forecasting debt in the medium to long term and EMU rules for maximum debt and deficit limits, which are legally enforced. The public debt is low when below 60 percent of GDP (the SGP-limit) and high when above 60 percent of GDP.

Supply-side pressure exists but is weak when the economic model set-up occasionally—but not consistently—predicts that cutting taxes, cutting unemployment insurance, and raising the pension age will increase labor supply, and thus have a positive effect on public deficits and debt. The supply-side pressure is medium when these predictions appear consistently in the economic model set-up. The supply-side pressure is strong when such predictions appear consistently in the economic model set-up and are combined with legally enforced limits for public deficits and debt.

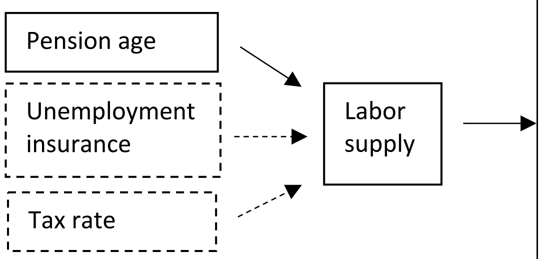
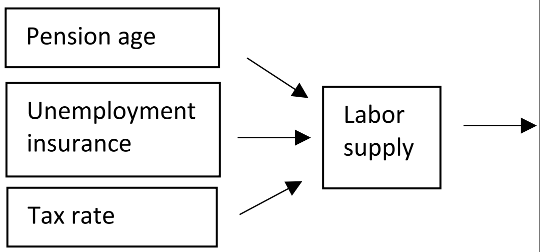
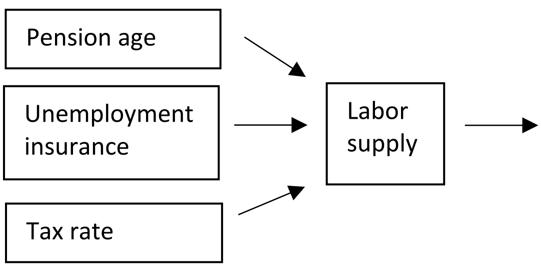
In this paper, I limit myself to analyzing the Danish Ministry of Finance's economic forecasting models rather than including the European Commission's economic forecasting models in the analysis. I have chosen to focus on the Danish Ministry of Finance's models, as the Danish government uses these models to plan the policy and make sure that the policy stays within the EMU deficit and debt limits (see the yearly "Convergence Program" e.g., Regeringen, 2011; 2012; 2013). The European Commission's models serve as a second opinion to the Ministry's models. An analysis of the European Commission's models and the interplay between thee and the Ministry of Finance's models is beyond the scope of the paper, but would be relevant for further analysis.

To increase reliability, I have triangulated achieve data and interview data sources to gain knowledge about the development of the budget rules and their institutionalization. The primary data source is documents from the archives of Statistics Denmark and the Ministry of Finance combined with official EU documents describing the EMU rules. Moreover, I have conducted a series of in-depth semi-structured elite interviews (Leech, 2002). The interviews are with the heads of the economic model departments in the Ministry of Finance and Statistics Denmark from the 1970s until 2015 (referenced: economist 1–8), and former finance ministers and party spokespersons on economic policy (referenced: politician 1–4), and with the Ministry of Finance former permanent secretary Anders Eldrup (referenced: Eldrup). Where I use interviews as the main empirical source to document an event, I ensure the empirical information is confirmed by more than one respondent and/or through other sources.

4. The analysis: How to disarm the politicians and save the economy

I account for the Danish case in three subsections. In each subsection, I analyze how the public debt and the budget rules develop. Moreover, I analyze the consequences for the fiscal room for maneuver and the market pressure it exerts on government policies.

My argument is that as debt has decreased since the 1980s and widened the fiscal room for maneuver, EMU deficit and debt rules combined with economic forecasting models have increased, and thus narrowed the fiscal room for maneuver. The economic models went from being short-term Keynesian models in the 1970s to gradually gaining more neoclassical variables and relationships, putting an emphasis on the supply-side and the long term. Moreover, governments gradually used the models for new purposes, such as evaluating government policy vis-à-vis the EMU rules since the 1990s. The budget rules have been successful, as they today prevent governments from running large public deficits, which was the case prior to the rules. Furthermore, they warn governments of policies that will lead to large deficits in the long term, as the models forecast the economy decades into the future. However, the EMU rules and the economic models are not politically neutral. They put increasing supply-side pressure on government policies, as tax cuts, cuts in unemployment insurance, and increases in the pension age have positive effects on the labor supply, which reduces the deficit and debt levels in the economic models. Table 1 sums up the analysis.

Table 1. Development of the fiscal room for maneuver[35]					
Year	**Budget rule 1: Macroeconomic model logic**	**Budget rule 2: EMU rules**	**Budget rules' legal basis**	**Gross public debt (% of GDP)**	**Fiscal room for maneuver**
1975	No model	No EMU rules	None	7.0	Weak rules Low debt No supply-side pressure
1985	Short- to medium-term model	No EMU rules	None	74.7	Weak rules High debt No supply-side pressure
1995		Public deficit must not exceed 3% of GDP, debt must not exceed 60% of GDP	Euro convergence criteria	73.1	Medium rules High debt Weak supply-side pressure
2005		Public deficit must not exceed 3% of GDP, debt must not exceed 60% of GDP	Stability and Growth Pact	37.4	Medium rules Low debt Medium supply-side pressure
2015		Public deficit must not exceed 3% of GDP, structural public deficit must not exceed 0.5% of GDP, debt must not exceed 60% of GDP	Stability and Growth Pact; Fiscal Compact; Budget law	39.8	Strong rules Low debt Strong supply-side pressure

[35] The analysis, section 4, elaborates and cites the empirical sources for the budget rules listed in Table 1. The source for the figures on gross public debt is the European Commission's AMECO database, https://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm.

4.1 The 1970s and 1980s: The derailing of the welfare state and the short term economic models

In the decades after World War II, Denmark had, like most OECD-countries, a period of high economic growth and high employment. In Denmark, the average yearly GDP-growth from 1959 to 1973 was 4.6 percent (Petersen *et al*., 2013 p. 18). Governments used the economic growth to expand the welfare state, while labor unions negotiated higher wages and better social rights. This meant better living conditions for the Danish population, but the welfare state also proved difficult to govern for the Danish governments.

Although the 1973 oil crisis led to higher overall prices in the society and lower economic growth, the Danish public sector continued to expand. Governments ran large yearly public budget deficits and accumulated debt to the point where it was questionable whether Denmark would be able to pay back its creditors (Andersen *et al*., 2005, pp. 19–25). In 1979, the social democratic minister of finance, Knud Heinesen, stated that Denmark was "heading for the abyss," meaning that Denmark's creditors would put Denmark under economic administration if the government did not change its economic policy (Heinesen, 2006, pp. 374–375; Economist 1, interview).

Entering the 1970s, the Ministry of Finance had a relatively weak position in the coordination of the government's policy and was not able to coordinate the expenses of the other ministries. It was the prime minister who approved and declined new ideas from the different ministers, and the Ministry of Finance could not effectively veto new expenses (Jensen, 2003). Furthermore, the Ministry of Finance had no economic forecasting models to analyze whether the policy was economically sound. Prime ministers, finance ministers, and top civil servants blamed each other for being incompetent and lacking a sufficient overview (Østergaard, 2007, pp.197–205; Lidegaard, 2003b, pp. 487–488).

The permanent secretary of the Ministry of Finance, Erik Ib Schmidt, wrote in his diaries about how he warned the prime minister, Jens Otto Krag, numerous times, and how the prime minister reacted by manipulating the calculations and presenting a misleading budget to the Parliament:

"[The prime minister] sticks to his position: The budget proposal must be presented in such a way that expenses do not exceed revenue (...) This effectively meant that the budget proposal did

not really constitute a budget but rather a misguidance of Parliament (…) [the prime minister] said with a compassionate smile that he very well understood how it must be unsatisfactory for the civil servants who work on the budget proposal, but that it was necessary temporarily to follow this line." (Schmidt, 1993, p. 397).

According to the later permanent secretary of the Ministry of Finance, Anders Eldrup, these frustrations led to the search for forecasts that had a higher authority than any one man's guess (Eldrup, interview). In 1975, the Ministry of Finance began using the economic model ADAM (Annual Danish Aggregate Model) for short term forecasts (Andersen, 1991). ADAM was Keynesian-inspired in the sense that the general demand in the economy drove the employment and economic growth in the model (Danmarks Statistik, 1979; Jespersen, 1991).

In the late 1970s, the civil servants began using ADAM to analyze the short-term consequences of different government policies, and in the mid-1980s, they began using ADAM to make midterm (five years) forecasts of the economic development (Finansministeriet, 1980; 1984). Even though parts of the bureaucracy remained skeptical toward using economic models in the 1970s, ADAM slowly became an institution in the government's economic policy (economist 1, interview; economist 3 interview)

According to civil servants, the institutionalization of ADAM in the work routines of the Ministry of Finance paved the way for a new culture in the central administration (Economist 1, interview; Eldrup, interview). After the introduction of ADAM, civil servants and politicians could no longer manipulate numbers or talk down problems as easily as before. Anders Eldrup, who worked in the Ministry of Finance at the time and later became permanent secretary of the Ministry, argues that it is easier to challenge or manipulate calculations performed by man than calculations performed by an economic model. The model grants the numbers a higher authority, because few politicians have the technical expertise to understand the model, which holds hundreds and sometimes thousands of equations. Eldrup sums up the development:

"You could say that it was a big change in power. It is clear that the politicians became weaker. They had to accept the numbers that the models showed. And the civil servants became more powerful. Prime ministers and finance ministers could no longer just manipulate the numbers. The civil servants were in charge now." (Eldrup, Interview).

Governments now had to play by certain rules outlined by the models. This, however, meant that the politicians and civil servants sought to influence the logic and assumptions of the models via different methods hereunder to put pressure on Statistics Denmark, which develops ADAM (Economist 1, interview; Economist 2, interview; Economist 3, interview). Thus, there were still ways for ministers to influence the models via the civil servants in the Ministry of Finance. However, this is a different and more indirect influence, compared to when the prime minister manipulated calculations in the 1960s by ordering the civil servants to change the conclusions of their handheld forecasts.

4.1.1 The fiscal room of maneuver: Rising debt and weak budget rules

Entering the 1970s, the fiscal room of maneuver was wide in that Denmark had low public debt and weak budget rules: no economic models and no EMU rules for allowed deficits. However, during the 1970s and 1980s, the Danish state built up a large debt, which narrowed the room for maneuver. In this process, the bureaucracy started institutionalizing budget rules in the form of the economic model ADAM. However, the budget rules remained weak throughout the 1980s, as the model could not forecast the deficits and debt in the long term, and the EMU did not yet exist.

4.2 The 1990s and 2000s: the medium term models and the EMU

From the late 1980s and in the 1990s, the economic models developed as new supply-side variables and relationships developed on top of the Keynesian ones. Both economists in the bureaucracy, who wanted more accurate models that could make longer forecasts, and liberal politicians, who saw an ideological advantage in the neoclassical theory, drove these institutional changes (see paper 2).

An important change in the Ministry's model set-up was that ADAM went from being a Keynesian model to representing the "synthesis between Keynesian and neoclassical theory" (Danmarks Statistik, 2013, p. 7). This means that while the general demand in the economy drives the economic activity in the model in the short term, the economic activity in the medium and long term converges toward a general equilibrium determined by the supply-side in the economy (Danmarks Statistik, 1996; Economist 4, interview). Thus, in the long term, the labor supply and not the general demand determines employment, and furthermore, heavily influences the forecasted public deficit and debt levels.

From the late 1980s and in the 1990s, the Ministry of Finance began analyzing how different policies would influence the labor supply, and thus influence the employment in the medium and long term. The Ministry used three central assumptions on labor supply. First, a higher the pension age leads to increased labor supply. Second, the lower the marginal tax level, the higher the work incentive and thus, the higher the labor supply. Third, the lower the level of unemployment insurance compared to wages, the better the work incentives, and the higher labor supply (Finansministeriet, 2012). The relationships between tax cut, cuts in unemployment insurance and the labor supply appeared occasionally in the Ministry's evaluation of government policies in the late 1980s and 1990s (Regeringen, 1993; Finansministeriet, 1989; Politcian 1, interview; economist 5, interview). However, in the 2000s these relationships became part of the standard model set-up (Finansministeriet, 2002). Thus, the Ministry's economic model set-up now comprised both ADAM and other different models using microdata from households to calculate the effects of incentives on the labor supply (Finansministeriet, 2012).

In parallel with the model development, the Ministry of Finance gained more organizational power. In the 1990s, The Ministry of Finance became a power center in Danish politics with the organizational capacity to put its economic model set-up at the center of the political decisions (Jensen, 2003; 2008; Fuglsang and Jensen, 2010). The Ministry had used ADAM to make medium term forecasts already in the 1980s (Economist 5, interview), and in the 1990s the Ministry began publishing official medium term plans taking into account the government's policy's influence on the economy (Economist 6, interview). The first one came in 1997 and forecasted key economic indicators such as the public debt toward 2005 (Regeringen, 1997, p. 13). Later followed plans for 2010, 2015, 2020 and 2025 (Economist 6, interview). This use of the model set-up meant that governments had to consider the medium and long-term consequences of their policy for public deficits and debt. Contrary to earlier on, these consequences were now visible in the forecasts.

While the development of the economic models took place in Denmark, an international development of budget rules concerning deficit and debt limits took speed in the 1990s. These rules originated from the EU. In 1973 Denmark had become member of the European Economic Community, which in 1992 with the Maastricht-treaty became the EU. Denmark rejected the Maastricht-treaty by a referendum in 1992, but accepted the treaty in a modified version the year after with a number of derogations; hereunder, that Denmark would not join the Euro. Denmark had from 1986 pegged its currency, the *Krone*, to the German *Deutche Mark*, and from 1999 Denmark pegged the *Krone* to the *Euro*. The effect is that Denmark does not have an independent monetary policy, but that Denmark's Central Bank adjusts the supply of currency to follow the exchange rate of the Euro with a margin.

The Maastricht-treaty introduced the Economic and Monetary Union (EMU) and the Convergence Criteria according to which member states cannot have a public budget deficit of more than 3 percent of GDP and a public debt of more than 60 percent of GDP. In 1997, the EU-member states adopted the Stability and Growth Pact (SGP), which introduced a system of fiscal monitoring by the European Commission and the Council of Ministers, who issues yearly recommendations to ensure that member states stay within the Convergence Criteria. If Eurozone member states break the criteria by exceeding the deficit or debt limits, the European Commission can launch an Excessive Deficit Procedure, and ultimately introduce economic sanctions against the relevant member state. As Denmark is not an Eurozone state, the European Council can launch an Excessive Deficit Procedure against Denmark but the Council cannot fine Denmark (de la Porte and Natali, 2014, p. 737).

The Ministry of Finance used the economic model set-up to forecast whether the economic policy was compatible with the SGP. For example, in 2010, after the financial crisis, the European Commission launched an Excessive Deficit Procedure (EDP) against Denmark as the public deficit was forecasted to exceed the 3 percent (de la Porte and Natali, 2014, pp. 739-742). The government used the economic models to show how their response in terms of reducing the unemployment insurance length and increasing the retirement age would increase the labor supply, and thus enhance the public budget to comply with the SGP (Regeringen, 2011, p. 6.; 2012, p. 5). The Parliament adopted these reforms (also referred to in the introduction of the paper). The reform of unemployment insurance was related directly to the crisis (in "Genopretningspakken"), while the reform of pensions had been planned, but was accelerated due to Denmark being under EDP (de la Porte and Natali, 2014).

Thus, the logic of the economic model set-up becomes a set of rules that governments have to play by to comply with the SGP. These rules change when the model set-up changes from being short-term Keynesian to constituting a synthesis between Keynesian and neoclassical theory in which economic incentives play a large role for labor supply and public budgets.

4.2.1 The fiscal room for maneuver: medium budget rules and supply-side pressure

As public debt decreased in the 1990s and 2000s, widening the fiscal room for maneuver, the budget rules became significantly stronger, narrowing the fiscal room for maneuver. Governments used their medium-term model set-up to measure their policies against EMU rules according to which public deficits cannot exceed 3 percent of GDP, and public debt cannot exceed 60 percent of GDP. Compared to the 1970s, where governments could manipulate economic forecasts and run large public deficits, governments had now restricted their options to do either. In this process, supply-side pressure on government policies grew as rules in the economic model set-up—particularly from the 2000s—predicted that tax cuts, cuts in unemployment insurance, and higher pension age would increase the labor supply, which reduces public deficits and debt.

4.3 The 2010s: The Budget Law and the strong supply pressure

After the financial and fiscal crisis of 2008, the EU intensified the monitoring and enforcement of the SGP in a yearly cycle known as the European Semester, and via six legislative acts known as the Six Pack. These rules are built on top of the original SGP-rules and strengthen them (de la Porte and Heins, 2016, pp. 15-42). The European Semester commences every year in November-December when the Commission launches the Annual Growth Survey, which assesses the EU's economic situation. During the first half of the coming year (the semester), the Commission publishes country-specific analyses of macroeconomic imbalances[36] to which the member states respond with Convergence/Stability programs and Reform programs. These programs specify the economic reforms that the member states will undertake to remedy possible macroeconomic imbalances and correct possible excessive public deficits. The Commission evaluates the programs, and the member states then have the second half of the year to implement the Commission's recommendations (European Council, 2018).

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[36] The Commission more broadly monitors the member states' economies via the "Macroeconomic imbalance procedure" (MIP). In relation to MIP, the Commission has a scoreboard of 14 indicators, complemented by 24 auxiliary indicators, by which it measures the development in, for example, private sector credit flow. If Member States do not follow the Commission's recommendations in relation to the MIP, this can lead to an excessive imbalance procedure, which in the end, can lead to sanctions (de la Porte and Heins, 2015).

With the six-pack, member states now must limit their deficit on the structural public budget to a maximum 0.5 percent of GDP. The structural budget is a calculation of the public budget in a business cycle neutral situation. Member states with a public debt well below the 60 percent can, however, have a deficit on the structural public budget of up to 1 percent.

Besides the European semester and the six-pack, the EU also launched the Fiscal Compact in 2012. While Denmark, as an EU member, has to accept the European Semester and the Six Pack, this is not the case for the Fiscal Compact. This is an intergovernmental treaty between the Eurozone states and other EU member states who wish to join. However, Denmark chose to join the Fiscal Compact. Members of the Fiscal Compact agree to implement the six-pack deficit limits on national legislation's structural budgets. Denmark did this by adopting the Budget Law in 2012.

The Budget Law entails that every fourth year, the Danish Parliament adopts a ceiling for how much the state and the municipalities can spend. If the municipalities or the state breaches the ceiling, they are legally obliged to decrease spending the following year. The Budget Law makes it illegal for the Danish Parliament to adopt an economic policy that leads to a deficit on the structural budget of more than 0.5 percent of GDP. The Budget Law is thus an over-implementation of the Fiscal Compact, which allows member states with a debt below 60 percent to run yearly deficits of 1 percent (Rosted and Sørensen, 2018, p. 72; De Økonomiske Råd, 2017, p. 103). The Budget Law's strict interpretation of the Fiscal Compact is a choice of the Danish Government and Parliament (Suenson *et al*., 2016).

As an institution, the Budget Law builds on top of the economic models and gives them legal power (Jespersen, 2015). According to Bjarne Corydon, who as minister of finance proposed and implemented the Budget Law, it represents a fundamental shift in the direction of stronger budget rules. Now, contrary to earlier, politicians cannot ignore forecasts that show big deficits on the structural public budget: "*The Budget Law is my 'baby', and among the things I have been most proud to introduce. Before the Budget Law, there was no control over how much money the public sector spent*" (Corydon cited in Boye, 2019).

The Budget Law has increased the importance of the structural public budget as an economic indicator, and the Ministry of Finance uses the economic model set-up to forecast its value in the short and long term. After the financial crisis, the short-term forecasts showed that the structural public deficit came close to breaching the Budget Law (Regeringen, 2013, p. 29; 2015, p. 31).

Moreover, the long-term forecasts toward 2060 showed that, as the Danish population ages, the structural public deficit might exceed the Budget Law limits from 2030 to 2050 (Regeringen, 2016, p. 15). To correct these deficits, policymakers can decrease public spending or increase labor supply, the last of which they have done during the last decade by raising the retirement age and reducing unemployment insurance (see introduction of this paper). Alternatively, policymakers can raise taxes, but increased income taxes will, according to the economic model set-up, reduce labor supply, and thus offset part of the positive effect for the structural public budget (Finansministeriet, 2012).

Moreover, the Ministry of Finance uses the model set-up to define the price on the structural public budget of new policy initiatives negotiated in the yearly Finance Act. During the negotiations, the Ministry of Finance calculates the price of each initiative for the structural public budget (Economist 7, interview). The political parties have to accept the model's price estimations if they want to be part of the negotiations (Politician 2, interview; Politician 3, interview; Politician 4, interview). The different parties will have different proposals for what to prioritize in the negotiations, be that childcare or tax cuts. Cutting marginal taxes increases labor supply, and thus costs relatively less on the structural public budget than spending money on improving welfare. This is especially relevant for top income groups. If the government spends 100 *kroner* on cutting top income tax or cutting corporate taxes, the cost on the structural budget is respectively 69 *kroner* and 58 *kroner* (Finansministeriet, 2017, p. 3). If the government spends 100 *kroner* on welfare such as childcare, elderly care, or education, the cost on the structural public budget is 100 *kroner*.[37] As Denmark is characterized by a comprehensive welfare state with relatively large expenses to childcare, education and elderly care, it is clear that politicians do not blindly follow the model (Interview, economist 5). However, the model price calculations can explain why tax cuts have become more attractive to politicians in recent decades, as the price for the public budget is relatively low.

[37] It should be noted that my interviews with economists in the Ministry of Finance show that even though the model set-up does not foresee the positive effects on labor supply of the welfare state, the economists are aware that such effects exist. For example, having a well-financed public primary school means that more parents can work rather than taking time off to educate their children themselves (interview, economist 5).

4.3.1 The fiscal room for maneuver: Strong budget rules and strong supply-side pressure

Although public debt increased after the financial crisis, the debt remained low during the 2010s. However, budget rules became strong as the Budget Law provides a legal superstructure on top of the long-term economic models. In the beginning of the 1970s, there were neither EMU deficit rules nor models to forecast debt levels. Today, powerful institutions in terms of economic models and EMU rules shape the fiscal room for maneuver. Governments measure their policies using long-term economic models to assess possible violations of the Budget Law decades ahead. Supply-side pressure on government policies has become strong, as the economic model set-up's supply-side logic is now legally enforceable.

5. Conclusion and discussion: A story of self-imposed constraint

This paper started by considering the paradox that while Denmark's public debt has decreased in recent decades, Danish policymakers act as if they are under increasing pressure to implement supply-side reforms. To make sense of this paradox, I have argued that we need to analyze the institutions around the government's decision-making process more carefully to understand the government's economic policies. For this purpose, I refer to the concept of the fiscal room for maneuver, which scholars have used to direct attention towards public debt or budget rules laying out allowed public deficit and debt levels. I argue for expanding the concept to include both public debt, budget rules in terms of deficit and debt limits, as well as the economic models that governments use to forecast the public balance, as these three elements all influence the government's fiscal options.

I have shown how successive Danish governments' fiscal room for maneuver has gradually changed since the 1970s, as public debt has decreased while budget rules—in the form of economic forecasting models and EMU rules for deficit and debt limits—have increased. In the 1970s, governments could run big public deficits and ignore warnings of unsound economic policy since there were no reliable economic forecasts or EMU rules on which the political opposition or experts could base their criticism. The contrast between that situation and today is striking. Today, the EMU criteria and requirements are integrated with the Ministry of Finance's economic models. The Ministry routinely uses economic models to assess whether the economic policy stays within the EMU rules and their Danish implementation: The Budget Law. If the forecasts predict that the structural public deficits will be excessive in the short or long term, the governments must change course to prevent breaking the Budget Law.

Although presented as neutral, the budget rules are not politically neutral. While through installing the rules, Danish policymakers have constrained themselves to avoid building up debt, which will put their fiscal policy under pressure, they have done so by committing to a set of rules, which themselves place increasing supply-side pressure on their policies. In the economic models, the instruments to increase labor supply and thus bring down public debt are increased pension age and cuts in unemployment insurance, while tax cuts cost less on the structural public budget than public expenditure on welfare. Thus, the budget rules promote a supply-side policy of less economic redistribution and less state intervention in the free market. Once such rules are institutionalized in the policy making process, every government notwithstanding its political orientation, has to conform to the rules.

The Danish case represents a story of how policymakers voluntarily constrains themselves to avoid building up excessive debt, and thereby losing autonomy to international creditors. In this sense, the Danish case has a contribution to the ongoing debate on the relationship between democracy and capitalism in the age of globalization. Streeck (2014; 2016) has argued that globalized capitalism has derailed democracy. In his account, governments have effectively lost the ability to collect taxes from highly mobile capital and, therefore, become indebted. As the debt piles up, international creditors (e.g., capital funds, pension funds, and banks) gain significant influence on governments' economic policies. According to Streeck, if a government does not demonstrate a willingness to service its debt by slashing welfare expenditure, the creditors may lose confidence in the government and stop buying its bonds, which would cause bond interest rates to rise (Streeck, 2014, pp. 80–83).

In contrast, Iversen and Soskice (2019) argue that democracy is still in charge of capitalism as multinational companies in the knowledge economy are more than ever dependent on skilled workers who are geographically locked. Therefore, the international capital is not as footloose as Streeck argues, and international capital cannot dictate democratically elected governments to have supply-side policies against their will. Instead, Iversen and Soskice argue that decisive voter segments of skilled workers want less economic redistribution, and thus drive government policies of liberalization across countries (Iversen and Soskice, 2019).

Is it capitalism or democracy that exert supply-side pressure on the government's policies in Denmark? In the introduction of this paper, I have argued that neither public debt nor decisive voter segments alone can satisfyingly explain the supply-side reforms in Denmark during the latest decades. However, the Danish case does show how the forces of democracy and capitalism struggle in a small European economy. Denmark shows how democracies can follow survival strategies by committing to strict budget rules, and thus avoid the situation described by Streeck (2016) in which the financial sector dictates the policies. Instead, Denmark has exploited the mechanisms of the international financial sector. Using budget rules, Denmark has brought down public deficits and achieved triple A-ratings on its public debt, thus attracting international capital and keeping interest rates on public debt low. This strategy has a price tag. While the decision to install budget rules has been democratic—and democracy is therefore still in charge of capitalism as argued by Iversen and Soskice (2018)—the budget rules narrow down the fiscal room for maneuver by decreasing policy options available to policymakers. In Denmark, policymakers sometimes refer to the "policy of necessity" (*nødvendighedens politik*) when they talk about the supply-side policies that, according to the economic model, will increase labor supply (Steen, 2013). Thus, one could say that democracy has constrained democracy to save democracy from capitalism.

A question for further research is to which degree the fiscal room for maneuver varies across governments in different countries when it comes to public debt levels and the logic in the budget rules they apply, and how this influences their policies. I conclude that we need more comparative research into governments' fiscal room for maneuver to gain a better understanding of differences and similarities between their policy choices.

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Appendixes

Appendix 1: Development of ADAM variables and equations **(Source: Statistics Denmark's ADAM descriptions)**					
Version of ADAM	**Consumption function**	**Wage function**	**Export function**	**Financial model**	**Number of variables and development of key variables**
1979	Consumption is a function of income	Wage level is exogenous	The model does not have an estimated export price elasticity determining the strength between price and export.	No. Interest rate exogenously determined.	317 endogenous variables. X exogenous variables.
1984	Consumption is a function of income	Wage level is exogenous	The model does not have an estimated export price elasticity determining the strength between price and export.	No. Interest rate exogenously determined.	662 endogenous variables 941 exogenous variables.
1987	Consumption is a function of income and wealth	Wage level is exogenous	The model does not have an estimated export price elasticity determining the strength between price and export.	Yes. Interest rate endogenously determined.	927 endogenous variables 1,227 exogenous variables.
1991	Consumption is a function of income and wealth	Wage level is endogenous (from 1989) (the wage development in the long term is dependent on the BFI deflator and the productivity by an elasticity of 1, while the unemployment percentage and the replacement ratio influences the wage negatively and positively, respectively)	The model does not have an estimated export price elasticity determining the strength between price and export.	Yes. Interest rate endogenously determined.	947 endogenous variables 1,434 exogenous variables
1995	Consumption is a function of	Wage level is endogenous (the wage development in the long term is dependent	The model has an estimated export price elasticity determining the	Yes. Interest rate	1,409 endogenous variables

	income and wealth	on the BFI deflator and the productivity by an elasticity of 1, while the unemployment percentage and the replacement ratio influence the wage negatively and positively, respectively)	strength between price and export.	endogenously determined.	2,334 exogenous variables
2012	Consumption is a function of income and wealth	Wage level is endogenous (Wage development dependent on the development of the price of goods and the deviation of unemployment from structural unemployment)	The model has an estimated export price elasticity determining the strength between price and export.	No. Interest rate exogenously determined.	2,500 endogenous variables 1,000 exogenous variables

Appendix 2: Ministry of Finance's microeconomic assumptions **(Source: The Danish Ministry of Finance)**					
Calculation Principle	**Method**	**Year introduced**	**Academic justification**	**Content**	**Source**
Assumption on dynamic effects of marginal tax	Assumption calculated via the law model and result on supply of labor inserted in ADAM	2002	Frederiksen, Graversen, and Smith: "Overtime Work, Dual Job Holding, and Taxation", 2001	Dynamic effects on supply of labor. Average substitution elasticity: 0.1. Average income elasticity: - 0.03.	Regneprincipper og modelanvendelse i Finansministeriet, pp. 18–19, 2012 Fordeling og incitamenter, pp.271–320, 2002.
Assumption on dynamic effects of replacement ratio	Assumption calculated via the law model and result on supply of labor inserted in ADAM	2002	S. Scarpetta: Assessing the Role of Labor Market Policies and Institutional Settings on Unemployment: A Cross-country Study", OECD, 1996; R. Jackman, R. Layard and S. Nickell: "Structural Aspects of OECD Unemployment", paper for OECD-conference, 1996; Statistics Denmark, e.g.	Dynamic effects on supply of labor. (availability effect – "ledighedseffekt") Average elasticity: 0.07. (a reduction in replacement ratio of 10% will reduce unemployment by 0.7%)	Regneprincipper og modelanvendelse i Finansministeriet, pp. 18–19, 2012 Fordeling og incitamenter, pp.271–320, 2002.
Assumption on dynamic effects of education	DREAM group extrapolates degree of education for different generations. The Ministry of Finance inserts resulting productivity gains in ADAM.	<u>Supply of labor effects</u>: 2006 <u>Productivity effects:</u> 2014	<u>Supply of labor effects:</u> Own calculations. <u>Productivity effects:</u> Regression equation inspired from Mincer: "Human Capital Earnings Function", 2014. <u>Data:</u> from Statistics Denmark, sample of 33 percent of population.	<u>Supply of labor effects:</u> The effect of education on the supply of labor is negative in the short to medium term because people study instead of work. In the long term, the effect is almost neutral as education leads to higher participation on labor market.	Finansredegørelse 2014, pp. 241–292.

				Effect on public finances: negative in the short term. Almost neutral in the long term. Productivity effects: Productivity gains from basic school to professional education (12.1%), from professional education to short/medium length higher education (21.1%), and from short/medium length higher education to long length higher education (15.6–17.7%).	
Adjustment of export elasticity	The export elasticity is changed directly in ADAM	2014 (It is described in the Financial Account from 2014 but have been used years prior to this publication)	DREAM model as well as several studies that uses panel data and rational expectations assumptions: Blanchard, O.J. and Quah D, "The dynamic effects of aggregate demand and supply disturbances", 1989; Erkel-Rousse Mirza, Import Price Elasticities: Reconsidering the Evidence, 2002; e.g.	Export elasticity is changed from -2 to -5 (this corresponds with the export elasticity assumed in the DREAM model)	Regneprincipper og modelanvendelse i Finansministeriet, p. 31-39, 2012 Finansredegørelse 2014, p. 216-225; 233-238.

<table>
<tr><td colspan="2">Appendix 3: Main documents/publications analyzed</td></tr>
<tr><td>Statistics Denmark</td><td>Ministry of Finance</td></tr>
<tr><td>”En model for Danmark 1949-1965”, Københavns Universitets Økonomiske Institut, Studier 21. 1975.

”ADAM, September 1979 – en oversigt”, Modelgruppen, Danmarks Statistik. October 1979.

”ADAM, marts 1984 – en oversigt”, Modelgruppen, Danmarks Statistik. August 1984.

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”ADAM – En model af dansk økonomi. Oktober 1991”, Danmarks Statistik. March 1993.

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”ADAM – En model af dansk økonomi”, Temapublikation 2012:1. Danmarks Statistik. March 2012.</td><td>”Finansredegørelse” (1978-1982; 1984-2002; 2004; 2014)

”Fordeling og incitamenter”, 2002.

”Regneprincipper og modelanvendelse i Finansministeriet”, 2012.

”Regneprincipper og modelanvendelse – dynamiske effekter af offentligt forbrug og offentlige investeringer”, 2018

”Finansministeriets metode til beregning af strukturel saldo”, 2012, 2014.

Answers to various parliamentary questions concerning economic models and calculation principles (appear in references where relevant)

Medium term plans: 2005, 2010, 2015, 2020, and 2025.

“Dansk økonomi i 1990’erne – Planens baggrund og konsekvenser”, 1989

”Budgetdepartementets Adam-fremskrivninger”, 1989.</td></tr>
<tr><td colspan="2">Other central documents:

Nationaløkonomisk tidsskrift 1998 + 1990
Arbejderbevægelsesens erhvervsråd: ”Modelbrug og –misbrug”, 1989.</td></tr>
</table>

Appendix 4: Interviews conducted and analyzed

Ministers of Finance

Henning Dyremose, minister of finance, Conservative Peoples' Party (1989-1993). Interviewed 28.05.2018.

Mogens Lykketoft, minister of finance, Social Democrats (1993-2000). Interviewed 15.12.2016.

Civil servants in Ministry of Finance

Per Callesen, civil servant in the Ministry of Finance (1986–2003) and here deputy permanent secretary with responsibility for macroeconomic policy (1993–2003). Interviewed 03.07.2017.

Anders Eldrup, civil servant in the Ministry of Finance (1973-2001) and here permanent secretary (1993–2001). Interviewed 24.01.2017.

Jakob Hald, employed in ADAM group (1992-1993), civil servant in the Ministry of Finance and Ministry of Economy (1993–2011), hereunder deputy permanent secretary with responsibility for macroeconomic policy (2003–2011).

Mads Kieler, civil servant in the Ministry of Finance (2004–) and here deputy permanent secretary (2015–) and co-responsible for model work in the Ministry of Finance. Interviewed 16.01.2017.

Jørgen Rosted, civil servant in the Ministry of Finance (1976–1993) and deputy permanent secretary with responsibility for model work in the Ministry of Finance, former permanent secretary in the Ministry for Economic and Business Affairs (1993–2001). Interviewed 04.01.2017 and 24.02.2017.

Head of the ADAM group, Statistics Denmark

Poul Uffe Dam, employed in the ADAM group (1970–1996), hereunder consultant with overall responsibility for model development (1982–1987) and head of unit for ADAM-group (1987–1996). Interviewed 26.06.2017.

Jes Asger Olsen, head of unit for the ADAM-group (1996-). Interviewed 12.01.2017.

Spokespersons from political parties

Pelle Dragsted, member of Danish Parliament (2015–2019) and spokesperson on budgetary affairs, representing the Red-Green Alliance (Enhedslisten). Interviewed 16.08.2017.

Lisbeth Bech Poulsen, member of Danish Parliament since 2011 and spokesperson on budgetary affairs, representing the Socialists People's Party. Interviewed 31.01.2018.

Josephine Fock, member of the Danish Parliament (2015–2019) and spokesperson on budgetary affairs, representing the party The Alternative. Interviewed 20.06.2018.

Joachim B. Olsen, member of the Danish Parliament (2011–2019) and spokesperson on budgetary affairs, representing the part of the Liberal Alliance. Interviewed 25.05.2018.

Resource persons

Ellen Andersen, professor in "National Economy" at Copenhagen University (1973–2007). Original developer of ADAM. Interviewed 27.01.2017.

Lars Andersen, Economist in the ADAM group (1982–1986), economists in The Economic Council of the Labor movement (1986–), director since 1994. Interviewed 17.11.2017.

Note: I have gained knowledge and insight into the research question from the interviews listed here. That does not mean that all respondents agree with my analysis, which is mine and mine alone. Thus, all possible errors and misconceptions of course remain mine.

Appendix 5: Interview guide for interviews with economists

Introductory remarks

I write a PhD project at Copenhagen Business School in cooperation with the think tank Cevea among others.

You have/had the responsibility of running and developing the economic models and planning the economic analyses in the Ministry of Finance/Statistics Denmark. I would like to ask you some questions about the development of the economic models and the background for this development. You can just answer the questions to the extent that you feel you have knowledge about the answers.

When I talk about economic models, I refer to ADAM, to DREAM, to the Law Model, and to the economic calculations principles and assumptions that the Ministry of Finance/Statistics Denmark uses in relation to the models and for planning the economic policy.

Question concerning the respondent's CV

Can you tell me about the development of your career in broad terms?

Questions concerning the use of the economic models and the organization around them:

When does the Ministry of Finance use economic models? Is there a yearly routine specifying to which analyses and under which circumstances you use the models? And what is the purpose of using them?

Has this changed while you have worked with the models?

Which economic models (ADAM, DREAM, the Law Model) do you use for which purpose? Has this changed?

How are you organized? Which Ministries do which calculations?

Questions concerning historical developments inside the models:

While you have worked in the Ministry of Finance/Statistics Denmark, what are the most important changes in the economic models?

When do you begin to use "dynamic effects" of taxes in your calculations as described in the publication "Distribution and incentives" [Fordeling og incitamenter] from 2002?

When do you begin to assume that the level of the "replacement ratio" has an effect on employment as described in the publication "Distribution and incentives" [Fordeling og incitamenter] from 2002?

Have you discussed the "export elasticity" while you have worked with the models?

When did General Equilibrium Models like DREAM begin to play a role?

Concerning the calculation rules on education and productivity, do you here forecast the effects on productivity of only the education objectives or do you also take into account the financial sums the government spends on education?

When did you begin forecasting the structural levels of the economy?

When did you begin forecasting the structural public balance?

Is it fair to say that since 2000, the following four changes have been of particular importance in the economic models: dynamic effects of tax levels, the effect of the replacement ratio for employment, the changes in the export elasticity, and the effects of education?

Questions on the overall explanation for model changes and the context around these:

When do the models change? And for which reasons?

Who is involved when the models develop and change (Civil servants, politicians, experts, others?)

Is it your impression that there is agreement in the Danish economic community around the way in which the models are constructed and work?

Has the consensus on the models grown or decreased since their introduction?

Has the public debate on the models grown or decreased since their introduction?

Any other things you would like to tell me concerning the models, their development, or their use?

Appendix 6: Interview guide for interviews with politicians

I write a PhD project at Copenhagen Business School in cooperation with the think tank Cevea among others.

I am trying to find out how the Ministry of Finance's economic models have developed but also which role they play in the political process. I would like to ask you about your experience and opinion on that. Of course, just answer the question you feel you have knowledge about and do add if you think my questions do not cover all relevant aspects.

Introductory questions

Can you tell me about your background and position in Danish politics?

When have you in your work had contact with the Ministry of Finance's economic models and methods?

You have publicly stated your opinion on the economic models. Why do you think they are worth spending time on? Why are they important?

Can you summarize your most essential point about the models as they look today?

Does your opinion on the models mainly concern the way the models are used or the way the models are constructed?

Question on the use and effects of economic models

When are economic models and calculations rules used in the political process?

What role do the economic models play in your work? Can you give examples?

What role do the models play for the economic policy adopted by the Parliament and carried out by the Government? For the economic agenda, the yearly Finance Act, the policy proposals?

Questions concerning the critique of the economic models

What does your critique—if you have any—of the models consist of?

Would you like to change the models? If so, how?

Do you think it is right that the politicians influence the models? Alternatively, should the civil servants run the models independently of politicians?

Do you try to influence the models? If so, how?

Has the critique of the models led to any changes of the models?

Does your political party use the models (even though you might disagree with the models)? Why?

Questions concerning specific cases

Depending on the politician and their specific knowledge, I have asked question concerning different political negotiations and policy proposals where the models played a role to find examples and cases of how the models are used in the political process.

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