This paper explains how short- and medium-term macroeconomic projections are undertaken within the Danish Ministry of Finance (DMF) by the use of an annual macroeconometric model, ADAM, together with a theoretical, structural general equilibrium model, DREAM.* DREAM** is used to calculate the structural public sector budget deficit, which by law is required never to exceed ½ percent of GDP. This legal restriction on fiscal policy gives the structural model (and the 'model-operators') a hitherto unseen political power. This 'institutional' status of DREAM causes a number of questions about democracy to be asked. First, why has an elected government accepted to surrender its legal right to undertake an active fiscal policy? Secondly, how can it be that DREAM – a neoliberal general equilibrium model without proper empirical tests and operated by anonymous civil servants – has been elevated to a position akin to a high court's? The paper demonstrates how this model set-up within the DMF reproduces reality poorly. Therefore, these models should rather be seen as social constructs predetermined be neoclassical/neoliberal economic theory, which has to be acknowledged as a democratic challenge.

Introduction

Economics is a science of thinking in terms of models joined to ***the art*** *of choosing models which are* ***relevant*** *to the contemporary world. It is compelled to be this, because, unlike the natural science, the material to which it is applied is, in too many respects, not homogeneous through time,* (Keynes (1937), s. 296-97.)

A prerequisite for research to become accepted as science is that results can be controlled by a systematic and reproducible procedure. In the social sciences, this requirement of scientific practice has been transferred uncritically into a use of intensive quantitative models. It is well- known that models are simplifications of reality making it easier to obtain new insights and subsequently to communicate this knowledge. Therefore, it is crucial that the models employed are valid with respect to obtaining relevant knowledge to provide answers to the questions raised. The use of explicit models over the past 50 years has become an established practice in macroeconomics. It would be the absolute exception if a macroeconomic analysis had not been undertaken employing a quantified model. It is simply a necessary precondition for systematic calculations which afterward can be, and should be, discussed qualitatively by taking underlying assumptions into consideration.

If macroeconomists were unified scientifically, and empirical methods and criteria for statistical significance were beyond discussion, then the only challenge left for external economists would be to assess whether their colleagues in the Ministry of Finance were good at doing their 'science'. But macroeconomics is not a unified science. It is like any other social science split up into different traditions and schools which then develop in different directions over time, and show no sign of converging. A fact which not least the current economic crisis has tangibly demonstrated – there are many theoretical explanations for why the crisis emerged and has been dragging on for so long, while empirical tests are weak and inconclusive.

The origins of quantitative macroeconomic models

In a macroeconomic perspective, it may be useful to recall how the father of macroeconomics, John Maynard Keynes (1883-1946), bound 'macroeconomics' and the use of models closely together; but he added that the art [for the talented economist] is to choose from among the many models, one which the economist finds most relevant for the analysis of the current socio-economic development. In Keynes's time one of the key theoretical issues was that none of the taught macroeconomic models could explain the persistent unemployment. Furthermore, the statistical tools to test various theories were in their infancy, so it was difficult to assess the macromodels' empirical validity. But the crisis of the 1930s came to constitute a sort of large-scale empirical experiment which demonstrated that the widely used theoretical general equilibrium model (Walras-model) could not explain the cause of the crisis, let alone devise ways of alleviating the crisis.
It was this – for a practical politician self-evident – conclusion that the American economic society suffered from a massive lack of purchasing power, which led Franklin D. Roosevelt to fire virtually all of the previous government's economists when he became president in March 1933. He did this without having a fully-fledged alternative model; but he did it out of conviction that the current approach based on the theory of general equilibrium had just pulled the US economy even deeper into crisis. For Roosevelt, it was obvious that unemployment – despite a significant drop in prices and wages – had continued to rise (Rauchway, 2008). On the other hand, Roosevelt's new team of economists was not working from scratch. They were – apart from being faced with concrete reality – also inspired by an

'open letter to the American President' written by Keynes in the early 1930s in which he criticized the conventional economic models for assuming full employment and a self-adjusting market economy. The models did not, in other words, have sufficient 'relevance' for economic policy planning during a deep employment crisis. In a landmark radio lecture in 1934 Keynes repeated his plea for macroeconomic theories to comply with reality: the suggested models must be able to explain important features of the existing socio-economic development.

In his masterpiece of 1936 Keynes therefore distinguishes sharply between:

1. *(Neo) classical economic theories*, whose indisputable basic assumption (axiom) is that market forces in an otherwise well-functioning macroeconomy ensure (re)creation of full employment equilibrium (and a stable growth) through wage reduction, even when the model is hit by an exogenous 'shock'. This model is constructed in such a way that external disturbances may cause temporary unemployment, but market adjustments will automatically pull the model back into full employment – sooner rather than later – always providing politicians do not intervene.
2. 2*. Realist economic theory* where the derived model is organized in such a way that the outcome of the analysis is not predetermined. It is left open whether the market economy will converge when it is shocked by an external and unpredictable event. According to Keynes, past experiences, especially during the Interwar period, did not provide a scrap of evidence for the macroeconomic system being self-adjusting.

These two macroeconomic schools are also represented in the current economic discourse in Denmark and abroad; but quite often both schools use the word 'Keynesian' to characterize themselves, leading to unnecessary confusion. It might well contribute to the misperception that disagreement among macroeconomists mainly relates to politics rather than to theory and methodology (see f. ex. Estrup et al., 2013).

Modern neoclassical macroeconomists describe themselves increasingly as 'new-Keynesians', although they go on using a general equilibrium model as their prototype and are basing their advice on the assumption that the macroeconomic system is self-adjusting, if only wage formation were sufficiently flexible. One of the terms reality-economists ('realists') use is the term 'heterodox Keynesian' or simply 'post-Keynesian', their

methodological approach being directly inspired by Keynes's *magnum opus: The General Theory of Employment, Interest and Money*. (This rather peculiar development that both schools claim to be 'Keynesian', although theoretical and methodological very different is also addressed in Estrup et.al, 2013).

Requirements for the models in practice: Relevance!

It is vital that the models employed are relevant for the chosen subject field (in this case: the current macroeconomic development). If not, the use of these models often becomes more misleading than instructive. It is not sufficient to construct a consistent macro-economic model and undertake calculations, if it does not at the same time reflect reality. But just how to figure this out exactly, when the necessary requirements to reflect reality are being fulfilled, is indeed difficult, and is rarely given explicit thought (Jespersen, 2009). Particular emphasis in the current economic debate is placed on the fact that we cannot do without the use of formal models. So (pretty well) any model is claimed to be better than no model at all! But this is a mistake, because if the model does not adequately represent/reflect the subject field to be analyzed, then the model selected – even if it is the only one that might exist in the field – must be quietly dropped. As Heine Andersen (2013) writes: "*Only if one knows [the right] causalities, can one know what works in practice. Then one can control and thus reach desired goals.*"

Otherwise advisers grope in the dark and will all too easily encourage politicians to make decisions on a misleading basis, which might lead to a worse result, as was the case in the early 1930s. Criteria for a model's validity can be divided into two categories: firstly, the requirements securing that the model replicates relevant causalities and is internally consistent; and secondly, the requirements securing an empirically appropriate quantification of parameters within the theoretical model. Neither the theoretical nor the empirical part of the model's layout can escape being characterized by a considerable amount of uncertainty (due to lack of knowledge). So even if the model is judged to be valid in accordance with the above-mentioned criteria, the uncertainties associated with setting up the model have to be clarified and presented when policy recommendations are submitted to the government. The validity of quantitative models must be assessed in all

three fields: 1. Does the overall theoretical structure reflect the macroeconomic landscape and the put causalities forward? 2. Are the parameters of the model anchored in reality by solid statistical tests? And, then, 3. To what extent, if at all, are uncertainties implied, when calculations are used in support of policy advice.

The model set-up used by the Danish Ministry of Finance

The Ministry of Finance (2014) states, that it is ADAM (*Aggregate Danish Annual* (Macroeconometric) *Model*), which is to be used to analyse the Danish economy. However, when reading working papers (and advertisements for vacancies) from the macroeconomic analysis group, it is apparent that working in the macro-group of the ministry also requires a thorough knowledge of the general equilibrium model DREAM (where data are 5-year averages). In practice, the Ministry of Finance combines the two models depending on the time horizon of the analysis. When projections are undertaken the calculations are based on an integrated mix of the two models, where the parameters of the annual, short term, model (ADAM) are adjusted in such a way that the output fits with the *a priori* assumed general equilibrium position of the Danish economy determined by the DREAM-model.

A brief history of the Danish macro-model

1. **ADAM**

The history of the short term ADAM-model began in the late sixties with inspiration from among others Lawrence Klein's pioneering work, see Andersen (1975). At that time the mathematical construction (set of equations) was path-dependent (without a pre-set long run attractor i.e. general equilibrium solution), because the length of the projection period

was only planned to be 1-3 years. The initiative for the construction of a macroeconomic model for Denmark was taken by the Head of Office in Statistics Denmark, Erling Jørgensen, together with Professor Ellen Andersen from the University of Copenhagen. The model was institutionally anchored in Statistics Denmark to ensure that the modelling could be fairly independent of political considerations and have a reasonably stable financing. ADAM has since undergone a significant transformation from its humble beginnings back in the early 1970s.

Originally, ADAM had a theoretical starting point often characterized as a Keynesian economic model aimed at to describing the macroeconomic development in the following 1-3 years. The magnitude of the coefficients of the macro-behavioural equations were estimated empirically through ordinary least square regression analysis using national accounting data from the previous 20 years. It goes without saying that when long time series of data is used, there is a risk that structural changes had been occurring in the (Danish) economy. Thus, one should be aware that at best only significant trends may be detected by this statistical method in the form of so-called significant parameter values. Trends which may have been dominant in the past are not necessarily valid in the future. Taking the increasing globalization of goods and capital markets into consideration, it is inevitable that the economy will have changed in a number of fundamental respects. Therefore, it has become standardized practice that all parameters are regularly re-estimated by the ADAM research group in Statistics Denmark.

When Erling Jørgensen was appointed Permanent Secretary in the Ministry of Finance, he stipulated that forecasts made by ADAM should be a part of administrative practice within the Ministry. In the beginning the use of the model was limited to making an estimation of the impact of the public sector finance on the real sector activities, so-called ‘fiscal effects’. As something new a ‘multiplier effect’ known only from the Keynesian textbooks was to be quantified and used when economic policies were evaluated.

2. **DREAM**

The start of work on the DREAM (Danish Rational Economic Agent Model) took place in the 1980s, also in Statistics Denmark. The aim was to “build” a structural model for the Danish economy as a supplement to the short term macroeconometric model, ADAM. This work was inspired by new international trends in macroeconomics, not least represented by Robert

Lucas's rational expectation revolution. The idea here was to use a generalized micro and market economic theory, where the actors are assumed to know the future values of variables in the model with statistical certainty. This became known as an 'explicit micro-theoretical foundation' of the general equilibrium model with rational expectations primarily used for the analysis of long term structural development of the market economic system. These models are described as a long-term model 'in the sense that prices and wages in each period (5 years' averages) are assumed 'to adjust fully ensuring equilibrium in all markets – so-called general equilibrium' …' and unemployment during this period adapts to its structural level solely dependent on the degree of compensation between being unemployed or in work '…' because both households and firms have perfect foresight. They know, in other words, all future prices. ' (DREAM, 2014, p. 10, my translation) … 'GDP is production, which rises in the years when the labour force expands' (ibid. p.16) … 'It is noted that the estimate of fiscal sustainability is obtained by calculations using DREAM within a time horizon of more than a hundred years' (ibid. p. 33).

During the first several years of its existence the DREAM model led a relatively secluded life in Statistics Denmark, the neoclassical theory that 'labour supply creates its own demand for workers' (Say's Law) did not yet have a firm foothold in the Ministry of Finance. But this changed through the 2000s.The 'Welfare Commission' (2003-06) received a large grant to develop analytical tools to elucidate structural changes in the economy including the impact on the public finances in a 30-40-year perspective. For this purpose, DREAM was adopted by the Welfare Commission where Lars Haagen Pedersen was Chief of Secretariat. The Commission attached great importance to the theoretical relationship between social benefits, especially labour-related benefits, and on the other hand labour supply, because the view on Say's Law had swung nearly 180 degrees during this decade, where Say's Law became an indisputable foundation of DREAM (and dominated the macroeconomic teaching in the Department of Economics at Copenhagen and Aarhus Universities).

DREAM was subsequently placed in an administratively independent departmental unit. However, the model is used systematically and directly by the Economic Council for the calculation of public finance sustainability 50-100 years into the future. Furthermore, the DREAM-unit has a fixed allowance on the yearly government budget as payment for calculations of the consequences of structural changes of the composition and size of the Danish population. Close connections between the DREAM-unit, the Economic Council and

the Ministry of Finance and Denmark's Central Bank are secured by these institutions through membership of the board of DREAM.

How the Ministry of Finance uses the model set-up (ADAM+DREAM):

1. **Short-term projection: *'The recovery is expected next year'***

For the very short-term economic assessments the Ministry of Finance uses the 'original' version of ADAM re-estimated and currently developed by Statistics Denmark based on the standard IS-LM model, though with an exogenous rate of interest and with the additional caveat that a number of ad hoc adjustments are occasionally suggested to take special circumstances into account (and to obtain specific outcomes, which is not always reported, but common practice). So, in the short run aggregate demand is without doubt the main driver of the economic development in the model. But to make the short term projection compatible with the medium term assumption of full (structural) employment is not a part of the original version of ADAM. Here, the economists within the Ministry of Finance have to 'invent' arguments for a much quicker labour market adjustment, especially in cases where the actual output gap is sizeable. Hence, in a prolonged recession it becomes even more likely that the short-term projection concludes that 'recovery will start next year'. Accordingly, each year since 2010 the Ministry of Finance has projected 'next year growth will resume by 1-2 percentage points; but such ad hoc adjustments have often proved themselves to be too optimistic (Jespersen, 2014). So, even in the short-term (1-3 years) projection, uncertainties of forecasts have been considerable, because of theoretically induced constrains on the model and due to ad hoc inspired adjustments – a non-realist practice. Hence, it has been revealed that the close linkage of ADAM and DREAM has caused severe methodological difficulties provoking the outcome of even short term assessment. It has supported the misplaced policy advice that 'spring is just around the corner'. Hence, the claim by the Ministry of Finance, that it is only ADAM, which is used for short term and longer term projections. Although it is claimed that ADAM is the only modelling framework used within the Ministry, it is a truth with modifications looking at the

many ad hoc modifications, and the requirement of compatibility with the outcome of DREAM. Hence, it is not from a scientific point of view the most likely outcome which is the outcome of short and long term projection, but rather a deliberate decision by the economists in the Ministry of Finance to convince the politicians that public sector budget balance is the best policy, because growth will resume next year and output gaps vanish by themselves within a reasonable short period. In that case the models and the customized modelling practice have seized power.

2. ***'How to speed-up economic recovery'*, according to the Ministry of Finance**

As mentioned above ADAM in its original form was constructed within Statistics Denmark to be used for short-term economic projections only, so the underlying theoretical model focused primarily on the development of aggregate demand. When the time horizon is extended beyond 1-3 years, the impact of changes in prices and wages increases and creates a feedback effect on the demand for goods and services. This is particularly true for the cost of labour, international competitiveness and its effects on imports and exports and thus on the balance of payments, employment and output. The impact of such price and wage changes is extended into an increasingly unknown future, and a model based on annual data can hardly be of use here, especially when there is an ambition to carry out assessments within a time horizon of five, ten and sometimes even twenty years. The margin of uncertainty is huge with regard to external phenomena and lack of knowledge of structural forms and changes of the macroeconomic system.

For good reasons the path-dependent version of ADAM which Statistics Denmark developed in the 1970s had – in its original form – a tendency to run 'off track' when the projections were extended beyond three years. Hence, these projections were difficult to give a meaningful interpretation, let alone be of any use for policy recommendation in a medium-term perspective. On the other hand, there was increasing demand from the political sphere for medium and long term projections, therefore the original path-dependent structure of ADAM had to be 'adjusted' to prevent the model to 'loose track' when used for longer run projection. Hence, a number of ad hoc adjustments were imposed on the overall structure of ADAM to keep the model on track. Later, it was decided by the scientific board of ADAM that the structure of the model should demonstrate long run stability and tend towards full structural (and general) equilibrium in the medium term. The parameters of the model were calibrated under these new implicit conditions that the output of the model should converge

– sooner or later – to general equilibrium. The adjustment mechanisms were the Phillips Curve and foreign trade. By this predetermined convergence procedure, the (in principle) unknowable future is made known! The only undetermined factor left for the econometricians to estimate was the speed of adjustment, i.e. the number of years it takes for the economy to adjust to full structural employment.

This 'equilibrium' version of ADAM which was re-constructed by Statistics Denmark to correspond to the new theoretical framework, came out with a rather sluggish adjustment to full employment. Depending on the kind of exogenous shock, it would take approximately 15-20 years before full structural employment would be achieved according to the empirical findings on historical data. This adjustment period was much too slow for the Ministry of Finance which nourished an ambition to combine ADAM with DREAM. Furthermore, the Ministry found it difficult to convince the politicians that expansionary policies would be 'unnecessary, if excess unemployment would continue to persist for more than 15 years. To maintain a focus on 'too little labour supply' and labour market structural reforms as an important policy option even during the crisis, the speed of adjustment to full employment within the model had to be increased considerably. Hence, the Ministry of Finance made adjustments to the parameters of ADAM on its own initiative (and judgment), referring *inter alia* to practices in international institutions and empirical results from other countries, imposed them on the ADAM model used for policy evaluation within a medium-term perspective (so-called 2020-plan).

Accordingly, the Ministry of Finance medium-term model version (FM-ADAM) differed in several key respects from ADAM delivered by Statistics Denmark (SD-ADAM). The standard assumption in FM-ADAM has now become that market forces are sufficiently strong to restore equilibrium in the labour market in a short timeframe (often five years). When the government's 2020-plan was presented in 2012, it was taken for granted that the excess unemployment (the 'output gap') would have disappeared not later than 2017. This automatic cyclical recovery process would by itself increase employment by 80.000 people (*Regeringen* (the government), 2012, p. 24). Furthermore, the reinforced 'drivers' were increased export (and import) price elasticities, which imply a more expansionary effect from any wage moderation. In fact, these elasticities were doubled compared to the empirically estimated elasticities within the SD-ADAM (see ADAM, 2012). In addition, the Ministry made an *ad hoc* judgment that 'consumption and investment ratios (as a share of

GDP) will gradually increase and approach the [defined by the Ministry of Finance] 'normal' (i.e. higher) level after investment has remained low and private savings high since 2008 ', (FM-memo, p. 22), which is assumed to be supported by ' interest rates in the leading countries [being] extraordinarily low '(ibid. p. 23).

The bottom line is that the Ministry of Finance had an agenda of adjusting the model set-up in such a way that it could generate a scenario for the medium term period (leading up to 2020), where the calculation undertaken by the FM-ADAM could legitimate the policy conclusion that there would be a shortage of labour by 2020.

Theory Box: What does economic theory say about 'automatic' economic recovery after a recession?

As mentioned in the introduction, there has been a theoretical conflict in macroeconomic theory for more than 80 years about whether an otherwise well-functioning market economy has an inherent and automatic tendency toward a medium-term equilibrium primarily characterized by 'full structural employment'. A widespread neoclassical textbook like for instance Mankiw (2016) is based on such an assumption. Within this context it is only a matter of the degree of wage flexibility which determines the length of the time of adjustment. If wages are fully flexible, the macroeconomic model is assumed to be in persistent general equilibrium. In any case, the conclusion of Mankiw's textbook *Macroeconomics* -is that the output of the theoretical model will fluctuate around a point of equilibrium defined *a priori* by the model-builders.

In this theoretical perspective it does look like a contradiction in terms that Mankiw characterizes himself as a 'new Keynesian' macroeconomist. The reason is that a somewhat sluggish wage adjustment process will leave room for temporary (short term) demand management policy to speed-up the adjustment to full employment when the output gap – for external reasons – is considerably large. Mankiw, and many other self-claimed new Keynesian economists, defines himself in opposition to the Lucas's School of new classical

macroeconomists who assume the macroeconomic system is in a persistent equilibrium.

In opposition to new-classical and neo-Keynesian theorists we find the 'Realists' (often named heterodox economists) who question the existence of an automatic adjustment to a well-defined and predetermined general equilibrium of a macroeconomic system. This view is based on a critical realist approach to macroeconomics where the inescapable uncertainty is one of the major arguments for not accepting a self-adjusting model framework. Any specific macroeconomic development depends on the historical context; see for example, Lavoie, 2006. In particular, there is considerable uncertainty with regard to how households and firms react when a crisis occurs. In such cases the trend and the business cycle can hardly be separated, and the structure of the labour market represented by the Phillips Curve can easily become fluid – contrary to the assumption in the ADAM-DREAM set-up. The labour market in all countries has indeed shown a lot of instability in the post-war period (Forder, 2014). Furthermore, a reduced real wage level has a largely unpredictable effect on private consumption, private investment, housing prices, and foreign trade, so factors such as floating expectations (different from 'rational expectations) and changed income distribution may play their part in explaining unemployment in Europe which has lingered above normal for decades.

'Supply (of labour) creates its own demand' in ADAM?

The dispute between DS-ADAM and FM-ADAM is not that the model is theoretically constructed in such a way that full structural employment will be achieved sooner or later. It is only the time it takes that deviates the economists. In this respect the economists have all yielded to the new Keynesian orthodoxy; but the economists of the ministry of finance do not want to create too much room of manoeuvre for the politician to undertake discretionary policies. A more speedy adjustment to full employment will weaken the arguments in favour of expansionary policies.

Hence, step one was, as described in the box above, to establish arguments in favour of a more speedy labour market adjustment than historical numbers could justify. Step two of the supply side strategy was to render it likely that labour supply would respond to labour market reforms. Once again the economists of DS and FM were in disagreement. The economists in DS use annual macro-data in their empirical tests. After thorough

investigation they had to give up finding statistically significant impact from changes in income tax and/or social benefit to the labour supply.

The economists in ministry of finance turned their attention to a number of microeconomic research studies to find empirical support for the theoretical claim that labour supply does respond to changes in social benefits and marginal tax rates. The theory is purely neoclassical, where households and businesses are assumed to be individually optimizing and having rational expectations, i.e. the future is known with (model-related) certainty. These studies do suffer from a methodological weakness, because they are partial in several respects. Firstly, they do not correct for the demand effect. For instance, when taxes are reduced, demand for goods and services are increased and more jobs and employment are created. This has by itself a positive impact on labour supply, which might or might not be supported by lower marginal taxes – a controlled experiment is needed. Another methodological weakness is segmented labour supply analyses. When early retirement schemes were (partly) scraped more elderly people stayed at the labour market – they had no alternative income; but one could not conclude that this increased labour market participation for one group of people also implies an increased overall number of employed people. More youth unemployment could have been the outcome. A partial/microeconomic analysis can never be a satisfactory empirical test at the macro level. The risk of committing a fallacy of composition is overhanging, see, Jespersen (2009), chapter 7Anyhow, at this rather weak statistic basis the Ministry of Finance did conclude that the supply of labour has an elasticity of 0,1 with regard to a change in real disposable income. Hence within FM-ADAM, a reduced marginal tax rate and/or lower labour market related social benefits have a number of significant positive effects manifesting themselves quite quickly (within 3-5 years): increased employment, higher GDP, improved balance of payments and last, but not least, an improved public sector budget.

Apparently scaling down the welfare state, especially the social benefits, turns out to be a (macroeconomic) win-win-win strategy within the FM-ADAM: rough calculations by the Ministry demonstrate that each time the labour supply is increased by 10,000 people by lowering social benefits, the Public Sector Budget will improve by 3 billion Danish crowns. On the other hand, one unavoidable consequence, even within the FM-model, is increased inequality and a growing number of poor people – of course depending on the kind of benefit reduction; but there are no feed-back effects from changed income distribution. They are

only consequences.

Furthermore, to accelerate the adjustment between supply of labour and employment the Ministry of Finance have introduced a new definition of 'unchanged fiscal policy'. The new, redefined meaning of 'unchanged fiscal policy' is now an unchanged 'structural public sector budget' – previously the definition related to an unchanged structural fiscal policy. This change of definition could be interpreted as no more than an insignificant change of wording, but this is not the case. An 'unchanged structural budget' calls for deliberate budget decisions when *structural* labour market policies are undertaken. To keep the 'structural budget' unchanged within the model the economists making the calculations must decide what kind of 'discretionary fiscal policy' should be introduced – e.g. choose between changed public expenditures, changed tax or benefit. These changes, however, are pure politics! Hence, in the above case of increased labour supply of 10,000 persons the Ministry of Finance has to decide on 'how to use the improved structural budget of 3 bill. DKr'.

This new definition of 'neutral fiscal policy' would previously have been called an 'expansionary fiscal policy', but combined with a 'structural labour market reform' the argument is reversed. Now structural reforms have become part of fiscal policies and therefore to neutralize this effect, civil servants suggest discretionary fiscal policy. I can well understand it if the reader feels like 'Alice in Wonderland', where up is down: civil servants making policy proposals to obtain a specific macroeconomic outcome! So,. 'supply creates its own demand' within the model only if the fiscal policy is adjusted in such a way that aggregate demand is contributing significantly to the increased number of jobs! The essence of the changed policy definition is, in fact, a conventional demand management policy, which of course has an expansionary effect hereby ensuring that 'an increased supply of labour creates its own demand for labour'.

I think that the above discussion of the procedures within the Ministry of Finance, documented in FM (2012) demonstrates that even within the adjusted ADAM model, the empirical support for the theoretical assumption behind the theory of 'supply creates its own demand' is so weak that it makes it relevant to ask the question: Is it valid practice to change fundamental policy definitions and empirically estimated parameters to support a specific and predetermined outcome?

When Politicians hand over power to the Treasury and its Model

The Public Sector **Budget Act** was adopted almost unanimously by the Danish parliament in 2012 as a follow-up on the EU-proposed and defined Fiscal Compact. The main content of this Act is a ban on structural budget deficits within the public sector at all times. At the most the public sector is allowed to run a deficit of ½ percentage (of GDP), which is next-to-nothing compared to the structural imbalances which have emerged in the private sector during the crisis.

The passing of this Budget Act has made the model within the Ministry of Finance indispensable, because the structural budget cannot be observed and cannot be objectively measured by Statistics Denmark. It has to be calculated using a macroeconomic model. The government has consequently made itself dependent on the outcome of the FM-ADAM model of the civil servants preparing the calculations, and the underlying assumptions of the model. As discussed above the civil servants have changed very important parameters, change the definition of 'neutral fiscal policy' and decide on the size and changes of 'structural employment' and presented to the public as well documented scientific results. If, for instance, labour supply is judged by the Ministry to increase by ½ pct. they have also to decide on how to spend approximately 5 billion Dkr. public money to secure that jobs are present within the medium term perspective.

So, the Budget Act has made the government a hostage of the outcome of FM-ADAM, which is run by a rather small circle of civil servants who make the decisions about parameters, definitions of fiscal policy, and exogenous variables (like structural employment, expansion of foreign markets, rate of interest etc.). To put it mildly, the Ministry of Finance has become the high court for the evaluation of all suggested policies. This obvious democratic deficit related to this enhanced power of the Ministry of Finance was to some extent recognized when the Budget Act was written. Therefore, the Council of Economic Advisors (DØR) was given the task of keeping an eye on the outcome of the FM-ADAM calculations and on the chosen parameters, exogenous variables etc. The Council is to write an annual

report on its findings and to make a statement on the Public Sector Budget for presentation to Parliament in December for the coming year. Of course, it is a fine thing that an institution (DØR) is in principle independent of the government and the public administration. Being outside *Slotsholmen* (the Danish Whitehall) it has a legal commitment and right to make an annual assessment of the quality of the calculations implicit in the Budget Act. But one may wonder how independent such an evaluation report will be in practice taking into consideration that DØR uses macroeconomic models quite similar to FM-ADAM and DREAM.

Final paradox: Why have politicians voluntarily surrendered so much power to the civil servants and their model?

Finally, one has to ask himself, who is in charge of macroeconomic policy in the state of Denmark? How can it be that the government has refrained from defining their own policies and left important initiatives to the Ministry of Finance and external committees of experts instead of defining and pursuing their own macroeconomic policy?

Because, this is the case in practice after the Budget Act has passed Parliament: governments preclude themselves from pursuing a fiscal policy that can contribute decisively to ensure better macroeconomic balance and income distribution in accordance with changed political preferences. The focus of the Budget Act is concentrated exclusively on balancing the public sector finances i.e. welfare state policies, as if this budget could be considered independently of the economy in general. The specific focus on the public sector budget was originally established with the EU Stability Pact (adopted in 1996) and later, when the economic crisis was unfolding, supplemented by the Fiscal Compact (adopted in 2012). These policy demands have made Europe the victim of persistent stagnation – because Denmark is not a special case. There are no inherent self-adjusting mechanisms within the private sector in Europe. Without any support from fiscal policy the European economy is in dire need of internal demand, for which not even the expansionary policy of the European Central Bank can compensate.

This finding leads incontrovertibly to the question: Why did the European heads of state and governments accept such rigid public sector budget rules? These rules not only prevent the politicians from undertaking a stabilizing fiscal policy; but in addition the budget rules have

forced politicians to make significant public savings in a situation where in most countries unemployment was at the highest level ever in the entire post-war period. Could this paradox be explained by the fact that the Ministries of Finance all over Europe and the EU-Commission for that matter are all being guided by macroeconomic models which are basically constructed with similar equilibrating and self-adjusting principles as described in Mankiw's textbook and then employed by the Danish Ministry of Finance, for instance? These models are pre-programmed to exhibit a self-regulating business cycle, and build on the axiom of 'supply of labour creates its own demand'. If this answer is correct, it leaves another question unanswered: how can it be that these neoclassical models – notoriously unable to explain the origin of the crisis, the length and severity of the recession and the consequences of austerity policies – still dominate the teaching of economics at most universities? And finally, when it is understood that macroeconomics is not a 'one size fits all science', it is remarkable that socialist-led governments accept being restricted by unrealistic neoclassical general equilibrium models in the middle of a deep unemployment and growth crisis.

The similarities between the early 1930s and the present situation are striking. So do not say that history does not repeat itself. Politicians have once again written themselves off from conducting an active economic policy by accepting the euro standard, the unrestrained mobility of financial capital, and a balanced public budget. And even worse, why does the political system not learn from history?

* Research director Peter Stephensen of the Danish research institution DREAM requested the following correction to be issued: The basic premise of Jesper Jespersen, i.e. 'DREAM is used to calculate the structural public sector budget deficit' by the Danish Ministry of Finance, is not correct. The Ministry of Finance uses a Kalman-approach to calculate structural levels (here in Danish). DREAM is a semi-governmental research institution. The purpose of the model is to make it possible for others than the civil servants of the Ministry of Finance to do analysis on fiscal sustainability.'

** The paper's author requested the following rejoinder to be inserted: 'Peter Stephensen is simply not right when he claims that the DREAM-model is not used by the Danish Ministry of Finance, see for instance here and here. Therefore, I think his comment is misleading.'

References

ADAM (2012): *ADAM – en model af dansk økonomi* (Dan Knudsen chief ed.), Copenhagen: Danmarks Statistik.

Andersen, Heine (2013): ”Samfundsvidenskaber: politiske holdninger og ytringsfrihed”, 17 May 2013, Sociologisk Institut.

DREAM (2014): *Langsigtet økonomisk fremskrivning 2014*, http://www.dreammodel.dk/pdf/Langsigtet_fremskrivning_2014.pdf

Estrup. H., P. Nielsen & J. Jespersen (2013; 2nd ed.): *Den økonomiske teorihistorie – en kort introduktion,* Copenhagen: Djøf Forlag.

Finansministeriet (2012): *Regneprincipper og modelanvendelse i Finansministeriet*, www.fm.dk

Forder, J. (2014): *Macroeconomics and the Phillips Curve Myth,* Oxford: Oxford University Press.

Jespersen, J. (2009): *Macroeconomic Methodology: A post-Keynesian Perspective*, Cheltenham: Edward Elgar.

Keynes, J. M. (1936): *The General Theory of Employment, Interest and Money*, London: Macmillan.

Keynes, J. M. (1937): *Collected Writings of John Maynard Keynes*, vol. XIV – The General Theory and after, Part II: Defense and Development, Cambridge: Cambridge University Press (1973).

Lavoie, Marc, (2006): *Introduction to Post-Keynesian Economics*, Basingstoke: Palgrave/Macmillan.

Mankiw, N. Gregory (2016); 8th ed.: *Macroeconomics*, New York: Worth Publishers.

Morgan, Mary S. (2014): *The World in the Model: How Economists Work and Think*, Cambridge University Press.

Rauchway, Eric (2008): *The Great Depression & the New Deal*, Oxford: Oxford University Press.

Regeringen (2012): ”Danmark i arbejde – udfordringer for dansk økonomi mod 2020”, May 2012, Copenhagen: Finansministeriet

Økonomiske Råd, De (2012): *Jubilæumsskrift: 1962 – 2012*, København: Eget forlag.

Økonomiske Råd, De (2015): Offentlige finanser>>Danske rammer, http://www.dors.dk/offentlige-finanser/finanspolitiske-rammer/danske-rammer