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World Economics Association Newsletter

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Paul Krugman—Mistaking the Map for the Territory

By Lars Syll

Paul Krugman has — together with Robin Wells — written an economics textbook that is used all over the world. As all the rest of mainstream economics textbooks, it stresses from the first pages the importance of supplying the student with a systematic way of thinking through economic problems with the help of *simple models*.

Modeling is all about simplification …

A model is a simplified representation of reality that is used to better understand real-life situations …

The importance of models is that they allow economists to focus on the effects of only one change at a time …

For many purposes, the most effective form of economic modeling is the construction of 'thought experiments': simplified, hypothetical versions of real-life situations …

And these kind of rather vacuous 'simplicity' and 'understanding' statements get repeated — almost *ad nauseam* — over and over again in the book.

For someone genuinely interested in economic methodology and science theory it is definitely difficult to swallow Krugman's methodological stance, and especially his non-problematized acceptance of the need for *simple* models.

To Krugman modeling is a logical way to analytically isolate different variables/causes/mechanisms operating in an economic system. Simplifying a complex world makes it possible for him to 'tell a story' about the economy.

Is not the use of abstractions a legitimate tool of economics? No doubt — it is only that all abstractions are not equally correct. An abstraction consists of isolating a part of reality, not in making it disappear.

Emile Durkheim

What is missing in Krugman's model picture is an explanation of *how* and in *what way* his simplifications increase our understanding — and of *what*. If a model is good or bad is mostly *not* a question of simplicity, but rather if the assumptions on which it builds are valid and sound, or just something we choose, to make the model (mathematically) tractable.

Assumptions may make the *model* rigorous and consistent from a logical point of view, but that is of little avail if the consistency is bought at the price of not giving a truthful representation of the *real* economic system.

The model may not only be simple but *over*simplified, making it quite unuseful for explanations and predictions.

The theories economists typically put forth about how the whole economy works are too simplistic.

George Akerlof & Robert Shiller

Throughout his discussion of models, Krugman assumes that they 'allow economists to focus on the effects of only one change at a time.' This assumption is of paramount importance and really ought to be *much* more argued for — on both epistemological and ontological grounds — if at all being used.

Limiting model assumptions in economic science always have to be closely examined since if we are going to be able to show that the mechanisms or causes that we isolate and handle in our models are stable in the sense that they do not change when we 'export' them to our 'target systems,' we have to be able to show that they do not only hold under *ceteris paribus* conditions and *a fortiori* only are of limited value to our understanding, explanations or predictions of real economic systems.

The rather one-sided emphasis on usefulness and its concomitant instrumentalist justification cannot hide that neither Krugman, nor the legions of other mainstream economics textbooks authors, give supportive evidence for their considering it fruitful to believe in the possibility of analyzing complex and interrelated economic system 'one part at a time.' For although this atomistic hypothesis may have been useful in the natural sciences, it usually breaks down completely when applied to the social sciences. Dubious simplifying approximations do not take us one single iota closer to understanding or explaining open social and economic systems.

The kind of relations that Krugman and other mainstream economists establish with their 'thought experimental' modeling strategy are only relations about entities in models that presuppose causal mechanisms being atomistic and additive. When causal mechanisms operate in real world social target systems they only do it in ever-changing and unstable combinations where the whole is more than a mechanical sum of parts. If economic regularities obtain they do it (as a rule) only because we engineered them for that purpose. Outside man-made 'nomological machines' they are rare, or even non-existant. Unfortunately that also makes most of the mainstream modeling achievements rather useless.

All empirical sciences use simplifying or 'unrealistic' assumptions in their modeling activities. That is not the issue – *as long as the assumptions made are not unrealistic in the wrong way or for the wrong reasons*.

Theories are difficult to directly confront with reality. Economists therefore build models of their theories. Those models are *representations* that are *directly* examined and manipulated to *indirectly* say something about the target systems. But models do not only face theory. They also have to look to the world. Being able to model a 'credible world' — Krugman's 'thought experiment'– a world that somehow could be considered real or *similar* to the real world, is not the same as investigating the real world. Even though all theories are false, since they simplify, they may still possibly serve our pursuit of truth. But then they cannot be unrealistic or false in *any* way. The falsehood or unrealisticness has to be *qualified*.

Some of the standard assumptions made in mainstream economic theory – on rationality, information handling and types of uncertainty – are not possible to make more realistic by 'de-idealization' or 'successive approximations' without altering the theory and its models fundamentally. And still there is not a single mentioning of this limitation in Krugman's textbook!

From a methodological perspective, Krugman's economics textbook — as are those of Mankiw *et consortes* — is a rather unimpressive attempt at legitimizing using fictitious idealizations for reasons more to do with model tractability than with a genuine interest of understanding and explaining features of real economies.

Krugman's textbook and its simplicity preaching shows that mainstream economics has become increasingly irrelevant to the understanding of the real world. The main reason for this irrelevance is the failure of mainstream economists to match their deductive-axiomatic methods with their subject.

It is — sad to say — a fact that within mainstream economics *internal* validity is everything and *external* validity nothing. Why anyone should be interested in that kind of theories and models — as long as mainstream economists do not come up with any export licenses for their theories and models to the real world in which we live — is beyond my imagination. Sure, the simplicity that axiomatics and analytical arguments bring to economics is attractive to most economists, but simplicity obviously has its perils. Although simplicity is great when solving models, it's quite another thing to assume that reality conforms to that tractability prerequisite.

Krugman's and other mainstream economists' textbooks are sad readings. Both theoretically and methodologically they are exponents of an ideology that seems to say that as long as theories and hypotheses are possible to transform into simple mathematical models, everything is just fine. As yours truly has tried to argue, there is actually no reason — other than pure hope — for believing this. The lack of methodological reflection in these books not only makes things *wrong*, but even worse, makes economics absolutely *irrelevant* when it comes to explaining and understanding real economies.

RWER Poll: The top ten economics books of the last 100 years

Subscribers to the *Real World Economic Review* were asked:

"What are the top ten economics books of the past 100 years?"

The poll was open for two weeks and over 3,000 economists voted. They could vote for up to ten of the books on the short list of 50 which had been compiled from the nominations submitted by Real-World Economics Review readers. People on average voted for five books. Here are the results.

			Votes
1	John Maynard Keynes	General Theory of Employment, Interest and Money (1936)	1,597
2	Karl Polanyi	The Great Transformation (1944)	1,027
3	Joseph A. Schumpeter	Capitalism, Socialism & Democracy (1942)	927
4	John Kenneth Galbraith	The Affluent Society (1958)	780
5	Hyman Minsky	Stabilizing an Unstable Economy (1986)	731
6	Thomas Piketty	Capital in the Twenty-First Century (2014)	687
7	Joan Robinson	The Accumulation of Capital (1956)	583
8	Michal Kalecki	Selected Essays on the Dynamics of the Capitalist Economy (1971)	582
9	Amartya Sen	Collective Choice and Social Welfare (1970)	580
10	Piero Sraffa	Production of Commodities by Means of Commodities (1960)	500

The Promise and Challenges of Incremental Rates

By Susan K. Schroeder

Over my career, thus far, I have argued for the synthesis of Hyman Minsky's Financial Instability Hypothesis (the 'FIH') with a modern variant of classical political economy. With this foundation, I believe, it possible to create more robust methods to detect cyclical patterns and country risk in a more systematic way.

The linkage between this particular theory of value and the enhancement of the FIH, I have argued, is facilitated through the use of incremental rates. One in particular, the incremental rate of return on new investment, captures the relentless quest for profit by firms (nonfinancial and financial) and how they benefit from the maltreatment of workers and the environment in order to obtain it. The rate is defined as the change in profit relative to a unit of new investment (Shaikh 2016). Cast at the level of industries and the economy, it reflects changes in firms' conditions of production as they attempt to increase profit (reduce unit costs) through enhanced mechanization, at the expense of workers and working conditions, and pressure environmental protection. It acts as the benchmark against which the efficiency of a firm is compared with its industry's and with the economy. The strength of a firm's efficiency, in terms of unit cost of output, is a signal as to whether it needs to make adjustments to its productive process (to lower unit cost) or perhaps change industries. As such capital flows between firms within and between industries change and generate dynamics associated with instability . When firms change their individual conditions of production, they modify the range of conditions of the industries in which they operate. Thus, the benchmark against which each firm compares itself is always changing. Moreover, the industrial benchmarks are influenced by the strength of conditions of supply and demand and the entry and exist of firms. Underlying these changes within and between industries is a tendency for a falling rate of profit for the overall economy. Consequently, there is no natural tendency for a market economy to seek a state or path of stable growth, where bouts of instability could possibly occur. Rather, balance is a particular moment, a fluke, in the context of an inherently unstable economy. There are general tendencies where bouts of instability are more likely, than not, to occur. The frequency of bouts of instability depends on the resiliency of an economy and its financial system. (Interested readers are referred to chapter 3 of Schroeder (2015) for a more detailed explanation.)

I initially worked with this concept as a research assistant to Anwar Shaikh (New School for Social Research, New York) in his examination of the relationship between the corporate rate of return and the incremental rate. I have been applying various time series techniques to this rate in combination with others, as identified through a Minskian cash-flow framework, and have also applied the approach to countries such as Korea, Thailand, the United States, New Zealand and Australia. As I ready additional cases for a book manuscript on the relationship between country risk, financial fragility and business cycles, I am encouraged by the usefulness of this concept. Yet, there are both challenges and opportunities ahead.

What my synthesis suggests is that the strength of social safety nets, income distributions and industrial configurations matter - and why they matter. They matter for enhancing the resilience to crises of market economies, which are inherently unstable, and promoting the development of contexts in which people and the environment can thrive. Using the United States as my focus in recent work (Schroeder 2015, 2016), I found that as income distribution widened, reflecting a weakening social safety net, and the more pronounced the activities of the financial sector (includes banks) became, the American economy became increasingly fragile and dependent on financial, and largely unproductive, activities. The financial sector, essentially, has it foot on the throat of the American economy and generations of Americans. This is what my use of incremental rates , as knit between classical political economy and Minsky's FIH, is starting to reveal – what many of us have known all along – but from a different angle. The FIH gives a strong role for the interest rate in contributing to bouts of instability, but up to now it has lacked an explanation of the profit rate. The incremental rate facilitates the integration of the changes in the conditions of production with the debt dynamics of the FIH. In other words, the synthesis of the FIH with a modern variant of classical political economy enables a more complete understanding of Minskian debt dynamics.

However, each society is different in terms of its culture, political and legal apparatus, institutions and environment. What may be suited to the United States is not likely to be well-suited for other countries. The reversal of widening income distributions, the enhancement of social safety nets (perhaps implementation of a living wage), and revision of patterns of industrial configurations will need to be different and well-considered for how they support the societies. However, over the past 30-40 years, mainstream economics has lent itself to justifying weakening safety nets (through austerity programs), promoting implicit industrial policies (in which markets guide the development of industries according to profitability), increasing worker insecurity (by removing worker protections), and savaging the environment by weakening protections of it.

At the heart of mainstream economics is the vision that a capitalist market economy is inherently stable, and that imperfections and asymmetries are preventing the achievement of a state of balance or balanced growth path. My efforts are based upon a vision that a market economy is inherently unstable. There are no stable or

balanced paths, only periods in which relative stability might be attained. Thus, the promotion of resiliency to financial crisis and economic stability requires a different style of managing the economy and a different role for government. Rather than unleashing the power of markets, a government needs to protect society from the externalities free markets unleash. This is what the generations who experienced the Great Depression recognised. Dare we repeat the history that we are forgetting?

Shifting to better economic and financial stability and social outcomes may be easier to achieve than one realizes. Rather than trying to achieve a stylized state of balance – unattainable (being based upon an unrealistic economic rationale) - it is about creating new approaches to policy and community support mechanisms to simply to improve, and continue to improve, our current situations. If the quest for unbridled profit is interfering with the social provisioning of goods and services adequate to support families, the working poor and elderly, for instance, then it's time to look for ways to do that without relying so heavily on the market mechanism. Sharing and time-sharing efforts hold promise for people to connect and swap items, surplus produce and time to attain what they need. These are challenges.

I realize that I do not work in a vacuum. There are people who are interested in the use of incremental rates, and Shaikh's incremental rate of return on investment, in particular, and who have used them for a variety of purposes in their research. I would love to learn about others' experiences. And, so I write this note to ask those who are interested to engage with me on your usage and findings regarding the incremental rates, with an eye towards organizing a conference (or two) and collaborative research projects, to please contact me. I look forward to hearing from you soon!

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Models and measurement in economics 2

By Merijn Knibbe

Comparing macro-models and macro-measurements: an overview of the differences between the National Accounts and the neoclassical Dynamic Stochastic General Equilibrium models.

[**This post benefitted from comments and tweets by Diane Coyle and Josh Mason**]

Introduction: the difference between (neoclassical) macro-models and macro statistics[1]

Neoclassical macroeconomics has, contrary to earlier macroeconomic paradigms, not succeeded in engendering a research program aimed at gathering and presenting macroeconomic data consistent with its macro DSGE (Dynamic Stochastic General Equilibrium) models. About these earlier paradigms: the Institutionalists had the National Bureau of Economic Research (NBER) with its business cycle and income studies and the Bureau of Labour Statistics (BLS) which calculated purchasing power (Rutherford 2011). Keynes redefined the national accounts to make them compatible with his theory (Mitra-Kahn, 2011). And in an earlier epoch the works of Adam Smith and Marshall also lead to changes in the kind of macro-statistics gathered by the government (Mitra-Kahn 2011). Neoclassical macro has no such thing. The famous Fitoussi-Sen-Stiglitz report, which aimed at a reformation of macro statistics away from 'Keynesian', aggregate expenditure oriented GDP and towards a more inclusive kind of statistical overview does mention the core variable of neoclassical macroeconomics, social utility (Fitoussi, Sen, Stiglitz 2009). But this is mere lip service and it advises to complement, and not to replace, the National Accounts and GDP with a whole dashboard of indicators about inequality and poverty and social inclusion and the like, which are for instance readily available from the Eurostat site. And it explicitly does not advise to design a single comprehensive estimate of intertemporal social utility. There are no neoclassical macro-statistics, none about utility and none about the all-important 'rational expectations'. This is consistent with the neoclassical macro research program. From the very beginning this program has been conceived as a program which aimed to prove that a Walrasian model (which explains the economy as a set of individual markets which necessarily tends to an intertemporal equilibrium with factors of production profitably employed) could explain the behaviour of *existing* macroeconomic statistics. As such it can be understood as an endeavour to counter the Keynesian and Institutional criticisms of neoclassical economics, not as a research program which aimed to estimate new data. Greg Mankiw, a leading proponent of neo-classical macroeconomics, is clear about this. In his famous textbook (7th edition) the chapter which introduces neoclassical macroeconomics starts with a William

Bragg quote: "*The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them"* (Mankiw, 2012). These new ways are, when reading the chapter, clearly the ways described by the Walrasian market model (although another leading neoclassical economist, remarkably, starts to backtrack on this, eight years after the crisis: Blanchard 2016). When we consult the writings of one of the mayor institutionalists and head of the NBER, Wesley Mitchell, we see examples of 'new facts'. For instance, on the properties of business cycles and the findings of Keynes, based on the National Accounts as redefined by Keynes (the finding that government expenditure can lead to a lasting increase in employment and production.[2] Such findings, to this day, fruitfully influence our thinking about the macro-economy. But they are not complemented by new 'neoclassical' facts.[3] Consistent with this lack of interest in defining and finding new data the recent history of modern macroeconomics by De Vroey hardly mentions macroeconomic data gathering (the National Accounts!) but explains the development of macroeconomics as if this development is an almost purely theoretical endeavour (De Vroey, 2016).[4] Looking at it from the opposite angle: many sciences make use of often elaborate compendia which map chemical substances, psychological disorders, different kinds of rocks or, in the case of the National Accounts, concepts and definitions of economic variables in an exhaustive way (my favourite: the periodic table of chemistry/physics). There is no such thing for the main element of the neoclassical models: intertemporal social utility, nor even for its operationalization: intertemporal discounted consumption, nor for the proper measurement of rational expectations, 'natural' unemployment or the 'natural' rate of interest, or, for that matter, for all kinds of technicalities such as Calvo pricing or stochastic disturbances.

Problems connected to this research agenda increasingly led neoclassical macro-economists to ignore or change the very data which they set out to explain. Involuntary unemployment was ignored right away (Knibbe 2016), the neoclassical concept of capital which, as it does not recognize asset price inflation or unproduced capital such as subsoil natural gas, is at loggerheads with empirical estimates of capital. Likewise government investment and government production of goods and services were either misunderstood or misinterpreted and defined as 'wasteful' by definition (Stähler and Tomas 2011; Iwata 2012). Also, variables are sometimes used in a loose, non-rigorous way: in the models consumption is generally defined as the purchasing of goods and services but when it's convenient it is suddenly defined as the use of acquired goods and services (Jones 2009). This at first sight sounds quite understandable – there is a difference between a car and an icecream. But it is not consistent with the statistical definition and therewith the data of the National Accounts which the neoclassical models try to explain. Tellingly, the modellers tend to use detrended variables to 'calibrate' the models. This means that they use smoothed variables in a loose way (because these calibrations are not based on rigorous methods) to make up a set of parameters to get the models to work (Tovar 2008). Despite all these problems with data which were not consistent with the models, neoclassical modellers did not come up with independently measured variables which *were* consistent with their ideas about intertemporal social utility and expectations. On the other hand, the macroeconomic statisticians who estimate the macro-statistics, i.e. the National Accounts, have – as the variables have to be measured – elaborate definitions of the variables which are used, and these are spelled out in elaborate manuals and compendia. When you want to explain the behaviour of these variables with a model you should use the same definitions. There is a good deal of 'stock and flow consistent' as well as input-output modelling around, which is consistent with the National Accounts. But the same thing cannot be said for neoclassical macro. All measurement needs theory. But this is a theory without measurement.

This is remarkable! Alfred Marshall in the nineteenth century redefined and extended the concept of economics, in line with the marginalist thinking of his time, to include all private production and employment instead of only the agriculturally and industrially oriented activities emphasized by Adam Smith. His students went on to implement this new definition of the economy in the UK administration, including the statistical office (Mitra-Kahn, 2011). In the USA, where before WW II institutionalism was a dominant economic paradigm, the best students (and friends) of Thorstein Veblen, Wesley Mitchell and Isador Lubin, became the heads of organizations like the National Bureau of Economic Research (NBER) and the Bureau of Labour Statistics (BLS). They used their positions to discover new facts and to define and measure the economy along institutional lines, with a lot of attention to labour, income, the quantification of business cycles and purchasing power (Rutherford, 2011). Simon Kuznets was a student of Mitchell. And Morris Copeland, another self-declared institutionalist, engineered the Flow of Funds (for instance Copeland 1962, this article might well have been titled: 'How the USA paid for the war'). John Maynard Keynes himself supervised the introduction of new statistical concepts into the nascent national accounts in the UK *as well as* sidelining Simon Kuznets and his welfare oriented approach, in the USA, to enable measurements consistent with his

emphasis on total expenditure, total income and total production including government production and expenditure (Keynes 1940). In the UK he even managed to establish a new government statistical office (the present Office for National Statistics or ONS) to do this (Mitra-Kahn 2011). That was next to a Herculean bureaucratic feat, science as science should be. Theory and measurement moved in tandem and the fingerprints of the institutional economists as well as John Maynard Keynes are all over our economic statistics, from the dating of business cycles to the concept of consumer price inflation, while Keynes emphasized *aggregate* monetary expenditure, including government expenditure and set out to define and measure this. It is important to spell out why he did this. His clear aims were to assure at the same time a maximum war effort, limited inflation (war time inflation would, in his view, lead to arbitrary and in all probability unjust changes in the distribution of consumption which, as an aggregate, would necessarily decline) and a just distribution of (lower) consumption in the sense that especially people in the low income brackets had to be protected. Keynes was well aware that, to be able to do this (and common opinion seems to be that things worked out much better than during WW I), the British needed much better information on expenditure than hitherto available. It is important to note that Keynes *did not* understand aggregate expenditure and production as monolithic entities – to the contrary!

When it turned out that the monetary concepts used by Keynes were not compatible with the Walrasian model – which is fundamentally about non-monetary 'utility' - the neoclassical economists should either have ditched their model or have tried to directly estimate variables consistent with this model, such as the natural rate of interest or rational expectations or, indeed, social utility, which figure so prominently in their ideas. This is not what happened.

So, the once intimate connection between macro-statisticians and macro-modellers has been lost (see also Bos 2013, Bos 2003). On the one hand we are left with the modern National Accounts which still aim to gauge the (different aspects) of 'Keynesian' aggregate *monetary* spending (including, in a very Keynesian way, spending financed by net credit and borrowing, including trade credits), which are routinely gathered in almost all countries. On the other hand there are models which seem to use the same variables but which attach a different theoretical meaning to these variables – while the basic variable is *non*-monetary, i.e. 'intertemporal social utility'. This rift between the National Accounts and macroeconomic DSGE models is of course not a good thing. An example: the broad national accounts nowadays also include estimates of household and company borrowing and lending, including trade credits, as well as monetary statistics and labour market statistics. Before and after 2008 we (or at least the macro-statisticians) knew who was borrowing and lending and where debt levels were heading, but this was not incorporated into the models, at least not the neoclassical ones. - The ideas of an economist like Richard Koo (2012) about 'balance sheet recessions', which were not based on DSGE modelling, did take these data seriously. More regard for the empirical findings of economic statisticians might *before* 2008 have led to a considerations of their drawbacks, the recent remarks of a neoclassical modeller like Olivier Blanchard about these models (including his wish to ditch ideas about these models such those put forward by Mankiw in his textbook) are in fact an eloquent testimony of the danger to rely on restricted models (Blanchard 2016). If I am right, this means that an investigation of the disconnect between neoclassical macro-models and National Accounts macro-statistics is warranted.

An overview

The overview **below/overleaf** is based upon the literature in the list but the elements of the overview are not separately annotated. A separate article will spell this out (a draft is available from the author on request).

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The National Accounts and the neoclassical DSGE models: a comparison

	National accounts	DSGE models
Basic model	The circular flow of various **monetary** streams of total income (wages, profits), total expenditure (investments, consumption) and total production, powered by myriads of transactions made by millions of households and businesses as well as by the government. The future physical and monetary return on investments is **unknown**.	One or two representative households which optimize **non-monetary** social utility by making a choice between consumption and investments now and in the future, taking account of a kind of internal discount rate and a **known** growth rate of production.
Production boundary.	All monetary production of new goods and services, including crime, black markets and non-market government production as well as production by 'NPISH' (churches, unions, sports clubs etc.). There is however a major imputation for the assumed value of rent of owner occupied houses (non-monetary production valued at a monetary market price). Except for these houses**, use** of consumer durables is not counted as consumption. Non-monetary external costs are not counted, items like 'consumer surplus' are not relevant.	Market production minus production of banks minus public goods and services; non-monetary banks (i.e. banks which do not have a licence to create money) are increasingly incorporated into the models. Consumption is generally taken to be the purchasing of goods and services. If convenient, it is defined as the use of goods. Production of goods and services by the government is defined as a cost. Production of NPISH is neglected.
Definition of variables	The national accounts (and the related Flow of Funds data and monetary and labour statistics) have internationally recognized official compendia which conceptualize and define the variables as coherently and consistently as possible.	There are, to my knowledge, not yet any formal compendia which describe and define the variables in the DSGE models (like the sector households: are hospitals part of this? Jails? NPISH organizations? It is not clear).
Relation to welfare or prosperity	The model is monetary and has NO direct relation to prosperity. The 'volume' of total production (real GDP) is often taken to be a metric of the level and growth of prosperity, partly for its own sake and partly because it is often closely related to (un)employment. The composition of consumption, investments and the like can also be gauged but is, surprisingly, much less used to measure prosperity though Eurostat takes a shot at this with 'Actual Individual Consumption'.	The sum of present and (discounted) future 'Social utility' is taken to be a metric of prosperity 'par excellence' and society is assumed to optimize this, given constraints. NO clear definition of utility is given and no independent estimates of utility and the discount rate are provided. For example: there are a few DSGE models which do incorporate government production of goods and services (roads, education) into 'utility' but no clear guidelines exists.
Nature of the model in relation to economic 'schools'	Partly classical (the definition of capital including nonproducible capital), partly (old)-Keynesian (the emphasis on total monetary expenditure, regardless of: the ultimate goal of expenditure; the possibility of involuntary unemployment, the role of credit), partly institutional (the detailed sub-sectors, the importance of income and income inequality, the inclusion of NPISH, the treatment of the government and the pervasive role of lending and credit).	Neoclassical. Markets are supposed to lead to optimal outcomes in the medium run and the government and the central banks are supposed to optimize the working of markets. The 'representative consumer', 'social utility' and the homogenous character of capital are quintessential neoclassical concepts.
Market clearing required?	No.	Medium run market clearing and return to 'equilibrium' takes place by assumption.

	National accounts	DSGE models
Nature of the goods and services	Heterogenous and changing, relative prices and quantities change over time which leads to changing sectoral structure of the economy (and the stock of capital). This includes the paradox that a sector which experiences a fast increase of output but with even faster declining output prices will decline as a share of the total economy.	Homogenous, intertemporal relative prices and quantities are set; in a sense the rational expectations about probabilities of *future* events influence today's structure of prices and production.
Basic coordination principle	Accounting relations caused by monetary transactions, including debts and credits. All monetary transactions lead to offsetting changes in accounts for at least two agents (my new liability is your new financial asset). Markets, the government, NPISH and household transactions power such transactions, the National Accounts often (changes in) net positions, not gross flows.	Market transactions including expected future transactions, ex-ante market clearing assumed.
Structure of production	Detailed sectoral and subsectoral subdivisions including of financial companies, government production and NPISH. The central bank is the only organization with an own sub-subsector, monetary banks are modelled as a kind of subsidiaries of the central bank.	No or very limited sub-sectoral subdivision, sectoral division excludes Monetary banks but includes central bank (which therefore implicitly also consists of the monetary banks).
Basic actors	Households, firms, government, external sector, financial institutions	Households, central bank
Basic method of estimation	Aggregation of micro data, continous source of criticism. Care is taken to make historically and internationally consistent estimates. Especially new products and changing relative prices make this complicated.	There is NO aggregation of micro data on utility or expectations. Use of often detrended macro data to calibrate main variables, calibration means that researchers have some degrees of freedom to use parameters which differ from the detrended data.
Linkages to other models	Labour market accounts, flow of funds, input-output models, environmental accounts (like the relation of CO2 production to the structure of production and final demand), international value chains.	Detrended national account variables are used as an inspiration to calibrate model parameters, the volume of GDP investment, consumption and exports and imports are used resource constraint.
Nature of money	Credit originates money and money-like assets. Credit (including trade credits) is originated via transactions between often private agents; credit and lending enables ex-post accounting identities to be 'true', even without market clearing (a company in foreclosure which does not pay wages that are due can be seen as an extreme example of borrowing from employees).	Loanable funds, government created.

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1. This post is the second in a series which sets out to compare the concepts of economic variables in the macro economic statistics (i.e. the National Accounts) and the neoclassical macro models. The first post showed that a disconnect exists. This post sets out to compare the basic properties of the measurement model and the neoclassical model. Subsequent articles will look at variables in detail. The work of Mitra-Kahn made me write a somewhat lengthy introduction to this post which would have fitted better in the first post, but at that time I was not aware of these ideas.
2. His 'How to pay for the war' is the critical publication, mind that this was published in *February* 1940.
3. Many core neoclassical variables, like the natural rate of interest or the natural rate of unemployment, are not directly observable.
4. Thumbing through the size of the Nobel prize committee it strikes the mind that almost all non-economic prizes are awarded for the (enabling of) the discovery of new facts.

Brexit: The day we entered the eye of the maelstrom

By Thomas I. Palley

In years to come, the Brexit referendum may come to be seen as the day we entered the eye of the maelstrom that now promises enormous destruction. The immediate consequence looks to be a possible financial crisis, but even if that is avoided the other costs of Brexit will not be.

The European economy was already on the outer circle of the maelstrom. Brexit has swept it into the eye, accelerating the process whereby social alienation and bad economic outcomes produce bad political outcomes, and bad political outcomes produce worsened economic outcomes and further social alienation.

Economic implications

The leading edge of events will be financial markets. Even if an immediate financial bloodbath is contained, the reasonable expectation is for significant downside turbulence over the coming months that will ripple into the real economy. Moreover, a bloodbath now would not be panic. Instead, it can be rationally justified by the economic and political outlook and the fact that asset markets were already richly valued.

British financial markets and the British economy will be the epicenter. The shock to London's stock market will hit wealth and household confidence, negatively impacting consumer spending and the United Kingdom (UK) real economy.

Britain's real estate market (especially London) was already highly priced, and it is now very vulnerable to reduced local and foreign buying. British banks are financed in sterling and a lower sterling exchange rate has unpredictable negative implications for them and their counter-parties.

Business will cut back further on investment in the UK because business dislikes uncertainty. Big ticket investments will be placed on hold until the status of the UK's access to European markets is clarified.

All these impacts will ramify outward, hitting other economies, including the US. The mechanisms are financial contagion, currency turbulence, and uncertainty, all of which generate negative aggregate demand effects that are then multiplied via the contraction process. The first port of call will be the European economy, which is already in a fragile condition and is most integrated with the UK.

Political implications

Bad as the economic news is, the political shocks to come may be worse.

The Brexit electoral outcome map shows all of Scotland voted to remain. That means the UK's constitutional crisis regarding Scottish independence is likely back on.

In Spain, there is the long-standing issue of Catalonia's demand for independence, which Brexit further mainstreams and encourages. Now, Italy's Northern League, which is politically powerful in the rich northern half of the country, is calling for an EU exit referendum.

In effect, Brexit is a green flag for separatisms of all stripe. That has adverse implications for the euro, which is already under the threat of Grexit. Consequently, sterling's weakness stands to be accompanied by a weakening of the euro, providing an additional currency channel for spreading Brexit's shockwaves into the global economy.

With regard to US politics, negative economic fall-out from Brexit will injure the incumbent candidate Hillary Clinton and benefit Donald Trump.

Beyond that, Brexit carries vital political lessons for the Obama administration and Clinton campaign, both of which must not give reason for US voters to further disdain the establishment.

Brexit has structural similarities with Trump's rise. It is the logical outcome of the Conservative Party's political strategy of the past twenty years. Conservatives used the European Union (EU) as a whipping boy to help smuggle in their "Thatcher – Reagan" neoliberal economic policies. The Labor Party spoke out in defense of minorities, but it did not defend the EU and nor did it adequately confront neoliberalism.

In the US, Trump is the analogue "exit" candidate. His rise is the logical outcome of thirty years, during which Republicans used dog-whistle racism and the culture war to smuggle through their neoliberal economic agenda that has wrought the destruction of shared prosperity. Democrats resisted racism and the culture war, but were complicit in the promotion of neoliberalism.

The lesson for the Clinton campaign is it must move beyond rhetoric criticizing neoliberalism and adopt serious remedies that tackle its legacy of inequality, economic insecurity and loss of hope. Neoliberalism is the ultimate cause of the establishment's rejection. Racism, immigration and nationalism may be the match for the anti-establishment fire: wage stagnation and off-shoring of jobs are the fuel.

As regards the Obama administration, the lesson concerns the Trans-Pacific Partnership (TPP). On all sides, the US electorate has rejected the TPP, but the Obama administration keeps pushing it. That further discredits the establishment and benefits Trump who is the outsider candidate. Clinton is the insider who has openly touted her links to President Obama, and she still lacks credibility on her opposition to TPP because of her past endorsement.

In this environment, the Obama administration's pushing of the TPP is recklessly irresponsible politics that send us, nose down, into the eye of the maelstrom.

Brexit and mainstream economics

By Stuart Birks

The Brexit referendum result is just one step in a long process of change, the course of which is by no means certain. There will be lots of speculation and analysis, with those close to the action are likely to be preoccupied with the direct impacts. There are additional points of particular interest to pluralist economists which are worth some consideration. Here are some very preliminary points.

For the vast majority of tertiary students, exposure to economics is limited to a cursory description of societies based on self-interest in the form of maximising utility or profits through market mechanisms and resulting in some "ideal" competitive outcome for the world (see HERE for one possible driver). This is deficient.

In markets people express their preferences through their decisions on buying and selling. In politics preferences are expressed by voting. "Voting power" in the market is based on money, whereas in politics current democracies give the same weight to each qualifying voter. Politics has an influence and the expression of preferences can differ from that through markets, so a solely market-based view is too limited.

In mainstream economics historical and institutional influences are downplayed or ignored altogether. A fixed, stable, underlying structure is assumed, allowing the use of static analysis and with little regard for possible "exogenous shocks" (as through the political forces, for example) that can lead to structural change. Structural stability is essential for econometric estimation, and structural change will greatly reduce the value of past observations for understanding future options.

Where change is considered, this is frequently analysed through comparative static analysis although adjustment paths and times can be very important.

The referendum process has been criticised for the associated simplification and misinformation on both sides. These issues may be widespread and affect markets also. Political processes may be flawed, and markets may also give limited options and misrepresented products. The key role afforded to a theoretical ideal in mainstream economics could be more of a distraction than an aid to understanding.

Those who have a market-based world view should note that there is no guarantee that markets would provide incomes above the subsistence level. Note also that that private ownership allows windfall gains to individuals from what might alternatively be considered society's assets. If people have a political voice, there is a limit to what might be tolerated.

How then can economists make a useful contribution in such an environment? More specifically, how should economics change so as to make a useful contribution?

Suggestions will be gratefully received.

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