Michael Wegener

Beyond the great moderation: The impact of heterogeneous expectations on business cycle fluctuations

Director of BERG:
Prof. Dr. Florian Herold
Bamberg University
public-economics@uni-bamberg.de

Author:
Michael Wegener

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BEYOND THE GREAT MODERATION: THE IMPACT OF HETEROGENEOUS EXPECTATIONS ON BUSINESS CYCLE FLUCTUATIONS

INAUGURALDISSERTATION
ZUR ERLANGUNG DES
DOCTOR RERUM POLITICARUM
AN DER OTTO-FRIEDRICH-UNIVERSITÄT BAMBERG

VORGELEGT VON

Michael Wegener
Mühlwörth 3
96047 Bamberg
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SYNOPSIS

When I began writing this dissertation back in 2007, some people told me that engaging in research on business cycle fluctuations was an utter waste of time. In their view, business cycles were a devilish beast of past times that – thanks to a mixture of economic research, fancy financial market alchemy and clever monetary policies – could have been tamed in the dawn of the Great Moderation. Well, more than five years later no one seriously doubts that the beast returned in the wake of the financial crisis and near collapse of the world economy in 2008. Even more luckily for me, not only did the beast reappear, but it also shook to the ground some of the fundamental beliefs that had shaped and defined orthodox economics in recent decades. The faith in the predictive power of linear models, the usefulness of general equilibrium analysis, the dogma of a fully rational and narrowly self-interested homo economicus and, last but not least, the ideology of the efficient market hypothesis itself are increasingly being called into question.

So, what is this dissertation all about?

Well, it is about business cycles, of course. But that is only half the story. The other half is characterised by a deep disbelief in the assumptions of many orthodox economic models. One may agree with Milton Friedman and his view that every economic model necessarily has to make simplifying assumptions and should, hence, not be judged by its underlying assumptions – however unrealistic and far-fetched they may be. But I certainly do not. Assumptions do matter. They are the foundation and starting point for every scientific theory and the history of financial crises and bubbles teaches us that basing an economic model on poor assumptions will almost always have devastating consequences in the long run. One may not ignore the very human nature. We might all be greedy little bastards, egoistically maximising our self-interest on every occasion, but we are far from being the ideal homo economicus. Quite natural limitations prevent us from making fully rational decisions in a complex world. Instead, human behaviour in many situations of daily life can be described best by the term *bounded rationality*.

This concept of bounded rationality is, in fact, a recurring theme in each of the four chapters of this dissertation. In Ch. 1 bounded rationality, or rather boundedly rational human agents, are introduced into Metzler's classical macroeconomic framework of inventory-driven business cycles in which the production of consumption goods crucially depends on sales expectations. To be more precise, producers of these consumption goods are then modelled to be both boundedly rational and heterogeneous. That is to say, agents not only estimate future sales according to two different expectation formation rules but are also allowed to switch between these simple rules of thumbs according to market circumstances. This basic model is then enhanced in Ch. 2 in which producers tend to select the expectation formation rule with the highest evolutionary fitness. In Ch. 3, in turn, boundedly rational agents extend an aggregative growth model to study the effects of heterogeneous income expectations on production. Similar key elements of these aforementioned approaches are also used in the last chapter, in which a foreign exchange market inhibited by heterogeneous speculators is interconnected with both the goods and the money market of a small open economy.

Each of these four chapters is a complete and independent paper in its own right which can be read without any prior knowledge of the other chapters. The first two chapters were jointly written with my Ph.D. supervisor Frank Westerhoff (Chs 1 and 2) and my former colleague Georg Zaklan (Ch. 1). These chapters were published in *Economic Modelling* and the *Journal of Evolutionary Economics*. Chapter 3 has been accepted for publication in *Decisions in Economics and Finance*. To maintain consistency, all of these three chapters differ slightly in style, notation and the numbering of equations from the published versions. Moreover, all figures have been revised, whereby – as a major issue – an error concerning Fig. 2.4 was corrected in this thesis. The last chapter has not been published yet.

Instead of the usual acknowledgements to family, friends, lovers and pets, I wish to complete these words of introduction by paraphrasing Fernando Pessoa. After investing so much lifetime and much of my heart and soul into this project, I am astounded, astounded and distressed, now that I have finished it at last. This thesis is part of my personal cowardice.

Bamberg, March 2013

Michael Wegener

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