



Annual report 2017

Expectation formation in energy markets and its impact on the success of future energy policies





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List of abbreviations

A	Meaning
B	Meaning



Project goals

Most of economic research deals with history-dependent equilibria leaving no room for expectations. We argue that the formation and the coordination of expectations are crucial for the success of energy policies. Specifically, we want to find out why market participants expect a new energy system to be successful. We seek to derive how policies affect the coordination of expectations in a market and to assess the consequences quantitatively.

Summary

The project builds on the hypothesis that current research and policy debates put a too strong emphasis on the historic evolution of economy, technology, and energy systems. As a matter of fact, most of the literature in energy and macroeconomics deals with purely history-dependent equilibria. We argue that the formation of market expectations and the coordination of expectations by appropriate policies are crucial for the success of future energy policies. If expectations for a technological regime switch are favourable we expect positive momentum effects and speeding moments reducing the costs of energy policy substantially. Thus we seek to shed light on the question whether and how appropriate policy can help avoiding unfavourable income effects during the energy transition.

Starting with the seminal paper of Krugman (1991) there are a few contributions which distinguish between history and expectations as the determinants of an equilibrium selection process. If past development ("history") determines the transition to a long-run equilibrium, a shift to a new steady state requires significant and potentially expensive policy interventions which might be hard to get approved by the political process. But if the equilibrium is determined by "expectations" of a cleaner future production, policy has only to be active in an initial phase. After that, induced investments may create major network, momentum, and scale effects. Hence, expectation-driven equilibria can support initial policy and lower the costs of the transformation of energy systems significantly. To summarize, the project pursues the research questions: 1. How do realistic energy policies affect the interplay between history expectations? 2. What are the differences between taxes and subsidies in this context? 3. How can the government coordinate expectations? 4. How do the costs of energy policies change with expectations? And 5. What are the specific issues and results for the Swiss economy and policy?

Work undertaken and findings obtained

A throughout literature review is ongoing, especially focusing on expectation formation. Starting with the Krugman paper (1991), we seek for papers explicitly formulating how expectations can influence the equilibrium selection process and the transition to this selected equilibrium. Expectations are characterized by a notion of self-fulfilling prophecies, in the sense that favourable expectations induce the selection of a superior equilibrium on the one hand, but are related to fundamentals in the sense that they have to be admissible on the other hand (Bretschger and Schäfer, 2017; Schäfer and Steger, 2014). In this regard, it is important to understand how economic policy can coordinate expectations, e.g. by investments in appropriate infrastructure or by support of energy networks such as charging stations for electric cars. In general, expectations need to be favourable for the selection of a superior equilibrium under a new energy regime. The influence of economic policy on the relevance and the quality of expectations is heavily under-researched in the literature.



Furthermore the framework of Bretschger and Schäfer (2017) will be extended to include more realistic policy instruments and combinations and to apply it to the Swiss economy.

National cooperation

None

International cooperation

None

Evaluation 2017 and outlook for 2018

The project has only started. We are highly motivated and look forward to achieve first results in extending the framework of Bretschger and Schäfer (2017) and applying the theoretical model to the Swiss context.

References

Bretschger, L. and A. Schäfer (2017): Dirty history versus clean expectations: Can energy policies provide momentum for growth?, *European Economic Review*, in Press (<http://dx.doi.org/10.1016/j.euroecorev.2017.01.001>)

Krugman, P. (1991): History versus Expectations, *Quarterly Journal of Economics* 106, 651-667.

Schäfer, A., T.M. Steger, 2014. Journey into the Unknown? Economic Consequences of Factor Market Integration under Increasing Returns to Scale, *Review of International Economics* 22: 783-807.