



List of suggestions for behavioural elements in the macroeconomic model

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Work Package 203

MS34 "List of suggestions for behavioural elements in the macroeconomic model (input to WP 205)"

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List of suggestions for behavioural elements in the macroeconomic model

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Contribution to the Project

Based on Milestone 31 this MS proposes a list of behavioral elements that may be considered as possible model elements or building blocks in constructing the sustainable-macroeconomic model in Work Package 205.

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Abstract

Traditional economic theory describes economic agents as being perfectly rational. According to this approach, agents possess all necessary information and have the ability to process this information to make the best decision for maximizing their profit. However, in the real world this assumption does not hold for a number of reasons. First, economic agents are not in possession of all the information relevant to making decisions and furthermore, information is costly. Second, they do not have all the computational abilities needed to arrive at optimal decisions. Third, they are boundedly rational and have a number of other-regarding preferences which influence their choices. Here we provide a list with the most important behavioural biases of different stakeholders involved in a sustainability transition. This will allow us to improve macroeconomic models and associated analyses of transition policies.

Stakeholders in a transition

Sustainability transitions can be seen as a scaling up of system innovations, which change the structure of technological and socio-economic subsystems and their connections. During this process, a multitude of economic actors, categorized as consumers, producers, investors, innovators and governments, have to undergo changes. These actors show different and sometimes unique behavioral biases, which if taken into account in macroeconomic transition modeling can increase the effectiveness and efficiency of derived transition policies, thereby fostering a transition toward sustainability.

In the following we provide a list of important behavioral biases and social preferences associated with the various stakeholders involved in a transition to sustainability. This follows to a large extent the insights of behavioral economics. The consideration of such biases and preferences in macroeconomic transition models can increase the accuracy and predictability of such models. The literature basis for this list is provided in an earlier Milestone of the WWWforEurope project, namely Gazheli et al. (2012).

Consumers

Other-regarding preferences

Altruism - Meaning that one acts to benefit others at a cost to oneself. Generally, altruism positively affects cooperation. Notably intergenerational altruism is relevant for solutions to climate change as the latter involves an extremely long term environmental problem covering multiple generations. Intergenerational altruism denotes altruistic acts to benefit future generations. Reciprocity is a possible mechanism to stimulate altruism.

Reputation - Social reputation (associated with indirect reciprocity) and self-image are important drivers of pro-social behavior. Public good experiments conducted show that social approval can considerably increase voluntary contributions to a public good. Identity-revelation is important for increasing cooperation.

Fairness and reciprocity - Aspiring for fairness or reciprocity are deviations from the rational actor model that seem to be rooted in the evolutionary history of our species and influence decision-making already in non-humans. Different studies show that the presence of fairness in policy proposals can increase the probability of policy acceptance.

In/out-group (parochialism) - Various experimental studies show that people often act to favor members of the same group over non-members. In other words, altruism is not applied to everyone but individuals may act non-altruistically or even spitefully towards others. Parochialism may act as a barrier to solving urgent environmental problems, unless we are able to create a global social group to which altruism applies.

Imitation/critical masses - Imitation can both hinder and foster a transition. In the case of advertising environmentally damaging goods, imitation is possibly turned into a barrier to making a sustainability transition. If, on the other hand, imitation is used to adapt to changes by adopting new practices or products, it can contribute to foster a transition to sustainability. Often a critical mass of people imitating and diffusing the same innovation is needed to allow for a major transition. The current trend of increasing interconnectedness in social networks underlines the

potentially important role of these mechanisms in effectively fostering behavioral changes for sustainability.

Moral and normative concerns - Norms and rules emerge in families, groups of friends or social networks. As people like to feel part of these groups, they are influenced by other members and the norms of the group. A relevant distinction is between descriptive norms (dominant behaviors) and injunctive norms (approved or disapproved behaviors in a society).

Status - Status is a scarce good that many people aspire to. Status seeking can be satisfied by purchasing positional goods, which often put a heavy burden on the environment. Sustainability transitions are hampered by status seeking that result in many consumers being more concerned about status and image than environmental features of goods and services. Ameliorating the intensity of, or redirecting, status seeking are options that require that status seeking is an integral part of behavior as described in transition models.

Bounded rationality

Affect - Some types of consumption, like of cars, is largely driven by affective and symbolic motives. Generally, people attribute a high affective value to objects they own. Furthermore, the subjective value of an object increases as it becomes property.

Endowment effect - A bias to stick to existing consumption behaviors and, more generally, to prefer the status quo over alternatives.

Habits - Individual agents often show habitual behavior. The more frequently an action is repeated and the more closely it is associated with some reward, the stronger the mental habit will be. Individual habits are learned, stored and retrieved from the memory when the particular situation with which the habit is associated is perceived by the agent.

Framing - A related cognitive bias results from the effect of framing, which – in contrast with the prediction of rational actor theory – has a non-negligible influence on choices. Framing means that the same contents presented differently result in different decisions. This is equally true for citizen (social-political, like voting) and consumption decisions. Examples of each include climate change communication whose effectiveness largely depends on the proper management of risk perceptions and school canteens where the arrangement of food has a significant influence on choices. Often there is no neutral choice architecture, so devising it wisely – like putting the healthiest and most sustainable food products at the front – is important if one is serious about fostering socially desirable decisions.

Producers

Routines - A complex set of simultaneous and sequential interactions of skilled individuals. The interactions depend on earlier contacts (learning, adaptation) and organization-specific “language”. Altered demand or product prices, ambitions to acquire new markets, or increasing a company’s market share may serve as reasons to revise routines. However, these revisions are not as predictable in

reality as rationality would dictate: they depend on random changes in the collection of interactive firm employees and their unique, often irreplaceable, capabilities.

Satisfying strategies - The periodic revision and optimization of whole business strategies is imperfect from a purely rational perspective. Firms generally seek a satisfactory rather than maximum profit and do not change strategies if the realized profits are within a certain targeted range. Empirical data from the manufacturing sector indicate that firms shift to more aggressive strategies only if their profits fall below the industrial average. Profits realized by competitors are often used as benchmarks in strategic planning.

Over-optimism - The illusion that everything is under control and will work out fine has three main reasons: organizational pressure and two cognitive biases known as anchoring and competitor neglect.

Anchoring - means that managers stick to initial information as described in preliminary proposals that are overly optimistic, even after detailed financial analysis reveals imperfections later on.

Organization pressure – refers to the fact that firms undertake only those projects that look most promising on paper, so executives have to accentuate the positive aspects of their proposals.

Status-quo bias – Status quo represents the existing condition or state of affairs. People would prefer staying at or keeping the status-quo instead of changing, especially when change, like caused by innovation, is associated to a high degree of uncertainty.

Financial sector and investors

Overconfidence - Investors overestimate the probabilities of certain outcomes (and their own ability to predict these), so they trade much more or frequently than rational investors would do.

Disposition effect - Another puzzling behavior in stock markets is the tendency of investors to sell winning shares quickly and hold losing shares for longer periods.

Loss aversion - refers to people's tendency to prefer avoiding losses to acquiring equivalent gains as the utility losses associated with the first are larger in absolute terms than the utility gains associated with the second.

Mental accounting - denotes cognitive activities that individuals use to serve the same function as regular accounting in organizations (register gains and losses, limit losses to an acceptable level, etc.).

Equity premium puzzle - investors buy bonds even though stocks perform consistently better in the long run. Loss aversion combined with a frequent evaluation of portfolios by agents relying on "mental accounting" can produce this behavior.

Prospect theory – This theory of decision-making under uncertainty covers many different insights and is seen as providing a basis for understanding many behavioral biases mentioned here. At the core is the experimentally supported finding that people generally value gains and losses differently: they are risk averse when the outcome is positive and risk seeking when it is negative. Moreover, they weigh risk in the sense that tend to overreact to small probability events and underreact to large probability events. In addition there is a certainty effect: people prefer certain outcomes over

probabilistic ones. Another important insight is the isolation or simplifying effect: when comparing alternative prospects, individuals focus on differing characteristics and give less attention to shared characteristics.

Subjective expected utility models – this means subjective probabilities and utility functions which denotes a slight deviation from mainstream expected utility theory. Individuals acting on this basis may use probabilities that are inconsistent with reality and therefore make wrong decisions. This is particularly relevant to financial markets where uncertainty is pervasive.

Imitation and rational individual behavior – these may cause irrational group or herd behavior which can cause market or even macroeconomic instability.

Innovators

Inertia - When choosing a problem to be addressed by the innovation team certain proposals may encounter barriers because of psychological or practical resistances to change, e.g. habits or routines.

Career aspirations - As innovation is often a long-term process, predictions (about future preferences, market conditions, etc.) are important and the limited forecasting ability of innovators increases the role of subjective expectations. If these expectations are influenced by the opinions of colleagues or competitors, a herd effect can follow. The dominance of certain members in the innovation team and individuals' career aspirations can significantly influence the outcomes of group decisions.

Governments

Whereas market conditions provide incentives for consumers and especially producers to act as rational agents, the government often operates outside markets unaffected by such incentives. Other reasons for bounded rationality at the collective level include political myopia (election cycles, party interests and personal interests of politicians and public officers), stakeholder involvement and power games (e.g., lobbying), the lack of direct accountability to voters, and regulatory capture. These biases are particularly important for transition policies which have to balance long-term societal goals with short-term concerns. In addition, the government should best be seen as a collection of interacting (at times opposing, negotiating or cooperating) stakeholders as in public choice theory, with the difference that stakeholder cannot be assumed to act in a fully rationally manner.

References

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Project Information

Welfare, Wealth and Work for Europe

A European research consortium is working on the analytical foundations for a socio-ecological transition

Abstract

Europe needs a change: The financial crisis has exposed long neglected deficiencies in the present growth path, most visibly in unemployment and public debt. At the same time Europe has to cope with new challenges ranging from globalisation and demographic shifts to new technologies and ecological challenges. Under the title of Welfare, Wealth and Work for Europe – WWWforEurope – a European research consortium is laying the analytical foundations for a new development strategy that enables a socio-ecological transition to high levels of employment, social inclusion, gender equity and environmental sustainability. The four year research project within the 7th Framework Programme funded by the European Commission started in April 2012. The consortium brings together researchers from 33 scientific institutions in 12 European countries and is coordinated by the Austrian Institute of Economic Research (WIFO). Project coordinator is Karl Aiginger, director of WIFO.

For details on WWWforEurope see: www.foreurope.eu

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