

Testing transitions: A new model to explore how producer- and consumer-led sustainability strategies could affect macroeconomic stability



P2CS seed project March 2019

This P2CS seed project is developing a new model economy that can be used to test the system impacts of different production to consumption systems.

The SEI Initiative on Producer to Consumer Sustainability (P2CS) is an SEI-wide research initiative that connects the sustainable production and sustainable consumption agendas. P2CS explores the links and interactions within production-to-consumption systems – encompassing global flows of commodities and the impacts, dependencies and wider dynamics associated with production and consumption – in order to find new opportunities to enhance their sustainability.

The initiative enters its third implementation phase in 2019.

As global consumption increases – and the global economy grows – so do its impacts on the environment. Any transition to genuinely sustainable production and consumption will require deep-rooted change to the global economy and to the national economies that comprise it. As with any complex system, changes in one part of the global economy can have significant consequences in other parts. Macro-level adjustments can affect households, producers, retailers and service industries, and vice versa, often in unforeseen ways.

This uncertainty can paralyse policy-making, making radical, systemic change seem too much of a gamble – even as the severe risks of inaction are becoming ever clearer. This P2CS seed project is developing a new model economy that can be used to test the system impacts of different sustainability strategies – in particular those focused on changing consumption patterns.

This new model fills an important gap, not only because little research has been done so far on the macroeconomic impacts of consumption-led strategies but also because it comes much closer to representing realistic economic behaviour than most of the models that are currently available and commonly used. Most models assume that economies adjust relatively smoothly to external changes, and in some of those models, people make an optimal choice given some knowledge of the future. This new model assumes that people cannot know what lies ahead, particularly during a transition. Instead, they anticipate the future by applying rules they have developed based on past experience.

The model

The macroeconomic model developed in the project is for a high-income economy – the kind that is responsible for large shares of today's consumption impacts. Where possible, the model uses parameters based on the US economy.

Based on post-Keynesian economic theory, the model reproduces important features of real economies. In particular, it recreates business cycles in a realistic way and allows for deep slumps with persistent underemployment and abandonment of capital stocks; economic models that assume full utilization of capital stocks in the long run can miss the possibility of prolonged crises.

The model economy is a work in progress, isolating specific areas of the economy for examination first, which can then be built upon. This means that as of yet, certain areas of the economy are not included. For example, while it includes 12 productive sectors, as well as households, it is currently closed to trade and has no government sector. Although this has not prevented the model from mimicking business cycles, the creators aim to move beyond these assumptions in future work. This will make it possible to see what role government intervention or trade policy could play in reducing environmental impacts of consumption. In its current form, the model is particularly useful for studying consumer-led initiatives.

Photo (above):

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Dates: 2017–2018

Duration: 24 months

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Testing sustainability strategies

So far, the model has been used to test two potential sustainable consumption strategies. Both assume that reducing consumption will proportionately relieve pressure on the environment by reducing production. In essence they compare strategies targeting consumer choice per se with targeting the means to consume: income.

In the first experiment, the consumption level (in dollar value) is reduced, while the potential workforce remains unchanged, with 100% of the working age population available for employment. (Whether they are employed or not depends on the state of the economy.) Thus, less cash is being spent on goods and services. To represent this, consumption per dollar of income was reduced as far as possible without completely destabilizing the model economy, while the size of the potential workforce remains unchanged.

The second experiment looks at “downshifting”, in which people (presumably wealthier, higher-paid people) cut their working hours or drop out of the workforce entirely. In this case, less than 100% of the working age population is available for employment and less cash is available in the economy to spend on consumption. To represent this, the figure for the size of the potential workforce was reduced as far as possible without completely destabilizing the model economy, while consumption per dollar of income remains unchanged.

The first experiment led to economic instability with even modest declines in consumption. Reducing consumption meant lower returns for businesses and less incentive to invest; wages fell and so consumption fell even further. The result was a classic recession: a savings glut and sluggish investment.

The second experiment had more promising results. The labour force could shrink to the point that the economy slowed considerably – the goal of downshifting – without leading to instability or involuntary job loss. The concept of downshifting has been criticized on the basis that it would lead to higher wages for those remaining in work, and thus more consumption in the long run. In the experiment this kind of “rebound” effect did occur, but it was outweighed by the overall drop in consumption.

A new experiment is underway to test a third controversial concept, “degrowth”, based on the idea that we should seek to reverse economic growth as it has never, in the real world, been absolutely decoupled from growth in environmental pressures and we have already exceeded planetary boundaries. It is probably fair to say that most economists believe that degrowth would lead to economic collapse. We share that scepticism, but accept the challenge that degrowth proponents have put in front of us. In the model economy, we will explore strategies to achieve the goals of degrowth: a good quality of life within planetary boundaries.

Key findings

The experiments carried out to date suggest that it is possible – at least temporarily – to halt GDP growth and the associated growth in environmentally damaging consumption through voluntary downshifting in a high-income capitalist economy. How long this effect would last without government intervention is unclear. On the other hand, simply reducing consumption levels without reducing workforce participation (starting with the wealthier) could lead to economic instability.

It goes without saying that such economic modelling does not provide all the answers. For example, downshifting relies on workers voluntarily taking a cut in income (for an increase in leisure time), which would require a major shift in cultural norms – among other things – to happen on a large scale.

However, economic modelling can start to address some of the major economic questions involved in planning for a sustainability transition, especially as part of broader scenario-building exercises.

Published by:

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