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Visualising economic crises using accounting models

Stephen Kinsella

Synopsis

We build and argue for new visualizations of the Irish economy based on a stock flow consistent model of the national accounts. The 2007/8 Irish crisis came from the financial sector, and these visualisations capture the interconnections between the real and financial sectors of the economy. The visualizations increase the data-density thirty to fifty times more than line graphs typically used by policy makers to guide their decisions. The many connections between the real and financial sides of the economy are made more explicit.

Introduction and Background

This paper argues accounting models, based on the balance sheet as the fundamental object of economic analysis, have the potential to supply many of the missing pieces of the picture policy makers failed to see. Several authors attribute the prevalence of the very notion of the macro-economy and the resulting economic management of modern society as coming directly from the accounting viewpoint. For many authors, the development of national income accounting did not just give economists tools to measure economic reality: the accounting approach adopted resulted in the construction of economic reality.

More data does not lead linearly to better decisions. Humans typically minimize the effort they expend in getting the necessary gain in information. The dimensionality of the policy problem complicates visualization, since a large number of indicators and data points are often required to accurately assess potential vulnerabilities. Summarising these indicators appropriately via visualization therefore becomes important in and of itself. Visualizations for policy making are representations of *"reality in order to act on it, control or dominate it, as well as to secure the compliance of others in that domination"*.

Issues and Questions Considered

Ireland's policy makers lacked good visualizations of the looming crisis. They had the data in tabular form. They just had no way to make sense of it. Pictures of the economy have the power to cause action in the real world. They are elements of the rhetoric policy makers use. The Federal Reserve's 'dot plot', or the forward guidance fan chart of the Bank of England are policy tools in their own rights. They guide the actions of the market. We understand the firm and the macroeconomy through our visualisations, and accounting and economics share many of the same techniques. Economic reality does not exist independently of accounts of it. The builders of the first national accounts in the UK were aware of this issue. In describing the economy using an accounting framework, they helped construct economic reality.

Methodology

In order to respond to these issues, we need to be sure the data are correctly measuring the right things, that they are consistent across time and with each other—that is, everything must come from somewhere, and go somewhere—and that these data must integrate the real
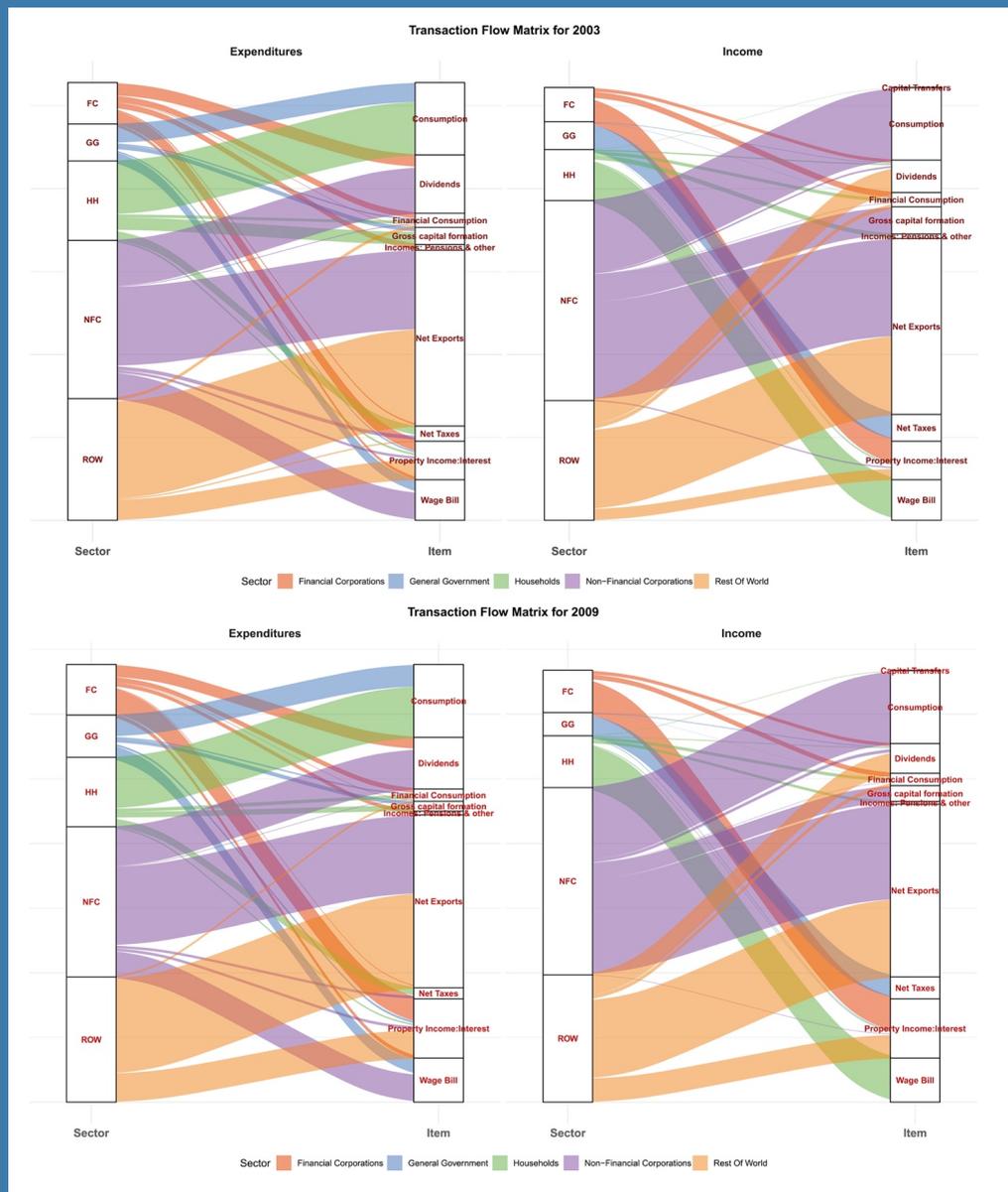
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and financial sides of the economy. The aim of the stock flow consistent framework is to provide a comprehensive and fully integrated representation of the real and financial sides of the economy through the adoption of rigorous accounting rules. This approach employs specific social accounting matrices to track the variation of financial stocks and flows and to ensure that every financial stock or flow in the economy is recorded as a liability or outflow for someone and an asset or inflow for someone. Stock flow consistent models are built from the national accounts, which equates the current account with the financial account, and allows the connection of the real economy with the financial in a data-based, and rather theory-free, manner. The Irish economy is a perfect case study. Ireland is a small, highly financialised economy that experienced one of the worst downturns following the 2007/8 global financial crisis.

We build a model that contains transaction flow level data of the entire economy. Visualising these flows in real time may allow policy makers to 'see' a crisis before it takes hold. Two example years are shown below.

Transaction Flow Matrix for 2003

Transaction Flow Matrix for 2009

Sector — Financial Corporations — General Government — Households — Non-Financial Corporations — Rest Of World

Outcomes and Findings

Crises occur when a macroeconomic shock like the collapse of a bank-credit fueled asset bubble exposes weaknesses in sectoral balance sheets. The shock can be transmitted across the country very rapidly if it occurs within the banking system. The more fragile the banking system is in terms of its ability to use risk-absorbing capital to offset losses, the more likely a banking crisis is to happen. These crises do not come from space. They buildup within the balance sheets of key sectors of the economy. There are severe distributional consequences associated with macroeconomic shocks like these. Ireland experienced most of them. There is a pressing need for specific evidence-based measures to guard against such shocks. Given the complexity of the policy problem, the objective of this paper was to argue for, and then to develop, a series of accounting-based representations of an economy based on its national accounts. These visualizations are designed to act as a 'dashboard' of data-based displays for policy makers to use into the future.

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Forthcoming Research Bulletin

Title: Trust and power as determinants of tax compliance across 44 nations

Authors: Batrancea, L., Nichita, A., Olsen, J...., Doyle, E. et al.

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