A multisectoral approach to financialization

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The term *financialization* remains an unclear concept in social science. Over the years, it has been interpreted in varying ways, resulting in different research strands across a range of academic disciplines. Even though a precise concept varies considerably across analysis, the shared premise is that the relative size of the financial sector has grown significantly in the last three decades. Broader speaking, financialization can be understood as an increase in prominence of finance in the economy, or the "increasing role of financial motives, financial markets, financial actors and financial institutions in the operations of the domestic and international economies" (Epstein, 2005, p. 3).

The recent financial crisis has reminded us that financial markets and intermediaries have crucial effects on the real economy. From a multi-sectoral perspective, the financial sector matters precisely because it connects the entire productive structure through financial intermediation. The interconnection between financial and non-financial structures is one of the mechanisms through which the strengths and vulnerabilities of economic activity are transmitted. Hence, understanding how those interdependencies differ across sectors and time is important to a better comprehension of the financialization process itself.

Early discussions on the relation between finance and the productive structure go back to classical economists such as Adam Smith and Karl Marx. Key subsequent contributions include Hilferding's (1910) view of an emerging fusion of financial and industrial motives, further extended by Hymer (1960) to an international set up. More recently, several studies have addressed their correspondence with the macroeconomic environment (Keen, 1995; Skott and Ryo, 2008; Sordi and Vercelli, 2014), investment (Stockhammer, 2004; Orhangazi, 2008; Davis, 2017), income distribution (Lin and Tomaskovic-Devey, 2013; Jaumotte et al, 2013; Dünhaupt, 2017), and innovation (Mazzucato, 2003; Mazzucato and Tancioni, 2012).

This essay presents a multi-sectoral assessment of financialization based on Input-Output (IO) analysis. Our contribution joins other efforts to provide integrated financial information at the sectoral level in order to assess the interconnections between real and financial sides of the economy. IO models have been used for many decades to measure

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sectoral interdependencies, compare structure of economies, quantify structural and productivity changes, etc. Our main innovation consists in conceptualize financialization as *an increase in the financial content in monetary terms of each unit of output produced.* In this way, we are able to investigate changes in relative importance of financial activities taking into account interactions among sectors.

Using a 15 and 14-sector level of aggregation, we apply our methodology to the United States (US) and Brazil for the period 1947-2015 and 1995-2011, respectively. There is a certain consensus in the literature that the US has experienced a financialization process after the 1980s. Our results show that once we move on to a more disaggregated set up two different dynamics emerge. First, traditional activities such as agriculture, mining or manufacture presented an inverted-U relationship with a reduction in their financial content in recent decades. This contrasts with service industries in which there is basically a positive trend for the whole sample that increased its slope after the 1980s. Therefore, current financialization has been a phenomenon mainly of the non-tradable sector or service-led.

Moreover, the financial sector has increased the vertical integration of the branch. The production process that takes place entirely within itself has grown from 20% to almost 60% in the last fifty years. The evidence provided gives some support to the idea of an increasing separation of the financial from the real sides of the economy in the US. In the light of Minskyan theories of the financial cycle, this could be related to an increase of financial fragility. We consider that further research in that direction is required.

Aggregating the economy, our conceptualization of financialization is able to reproduce well know results. For instance, it is evident that the 1980s stand as a major structural break with an increase in the slope of the financialization process. It is also clear that the dot-com bubble and the financial crisis of 2007 have left an important mark in the US productive structure. Overall, direct and indirect coefficients have double in the last fifty years indicating that financial content per unit of output has increase by 100%.

On the other hand, Brazil did not exhibit an increase in the financial content of its production. On the contrary, most sectors showed a reduction in their financial content especially between 1995 and 1997. This can be explained by the control of inflation that followed the macroeconomic stabilization plan "Plano Real" which diminished the need of financial instruments for protection against inflation. Furthermore, the financial sector still heavily relies on traditional activities such as manufacture and has responded positively to consumption and natural resources booms. Still, there is some degree of heterogeneity among sectors that emphasizes the importance of the analysis at a more disaggregated level.

Our results also contrast differences in terms of backward and forward linkages for both countries. In terms of levels, forward linkages are greater than backward ones reinforcing the intuition that this sector is a follower more than an inducer. Furthermore, forward links also exhibited opposite trends for Brazil and United States. In terms of our preferred scenario, the former experienced an important reduction from 3 to 2.2. The later shows an increase of the indicator from 2 to 3. Backward linkages were much more stable fluctuating around 1.4 and 1.5.

While there are still many questions left unanswered, we have aimed in this article to provide a different starting point to an intensively studied topic. For instance, it will

be interesting to understand the implications of changes in financial content per unit of output in terms of economic growth, income distribution, and other sectors of the economy.

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