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The Financialization of GDP and its Implications for Macroeconomic Debates

Jacob Assa¹

“The world is the totality of facts, not of things.”

Ludwig Wittgenstein, Tractatus Logico-Philosophicus (1921)

Abstract

The large and growing literature on financialization has focused on identifying the expansion of the financial sector into various realms of economies and societies, as well as analysing its effects on economic growth, employment, inequality and democracy, among other variables. Most works in this literature, however, still use standard indicators such as Gross Domestic Product (GDP) for empirically defining and examining the scope of financialization or the extent of its impacts. This paper builds on recent research focusing on the financialization of GDP itself. While the original measure in the 1930s and 1940s was designed to capture the production of measurable output, subsequent updates to the national accounting framework shifted the production boundary (which determines what gets counted in GDP) to cover more services, including those for which there is no direct measure of output. In particular, the ‘value-added’ of financial services is imputed based on banks’ revenues and costs, and the inclusion of such income in GDP has caused a deterioration in its correlation with measures of employment and median income, as well as in its performance as a leading indicator. Using new data and treating financial revenues as a cost to the overall economy, a new measure – Final GDP – performs better than GDP on all three fronts. It also sheds light on several unresolved empirical debates in macroeconomics. First, the phenomenon of the Great Moderation of fluctuations in output appears to be a statistical artefact, as the inclusion of finance in GDP smooths over volatility as well as trends of secular stagnation. Second, the spurious breakdown of Okun’s Law also turns out to be a figment of the data, since GDP by construction has been diverging from employment and aggregate demand. Jobless growth recoveries thus turn out to be merely periods of stagnation when employment growth is naturally subdued. Finally, using in-sample forecasting, FGDP outperforms GDP as a leading indicator, foretelling the Great Recession earlier and more clearly than the standard measure. The paper concludes by assessing some broader implications of the finalization of GDP for economics and politics.

Keywords

National accounts, finance, GDP, financialization, macroeconomics

I. Introduction

The rich and growing literature on financialization across the social sciences has focused on the significant rise in the economic, political and social importance of the financial sector (as well as related industries such as real-estate and insurance, grouped together under the FIRE acronym). From isolated references to this phenomenon in the 1980s, increasing to 128 in

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the 1990s², 3,535 in the 2000s and 16,130 since 2010, the financialization concept has gathered momentum and interest in various contexts and has been documented and analysed using theoretical, empirical, and ethnographic methods. Two recent surveys of this burgeoning literature (van der Zwan 2014, Christophers 2015) group the research on financialization into three broad strands, including the ascent of a new regime of accumulation, the rise of the shareholder-value orientation, and the financialization of everyday life. Some contributions document the process of financialization in particular countries and examine its impact in terms of control of corporations and the state (Krippner 2005), while others look at its implications for economic and financial crises, growth, employment and inequality (Epstein 2005, Stockhammer 2010, Assa 2012) in various countries.

Though different in terms of discipline, method, geographical and chronological focus and theoretical vs. empirical approach, research efforts in this literature have all approached financialization at the ontological level, that is, setting out to examine whether and to what extent a certain society/economy/entity has been financialized, and analysing the various impacts and implications of this transformation. This paper, on the other hand, approaches financialization at the epistemological level, and asks whether the very way we *discuss* the topic of financialization has been affected by the rise of finance. Specifically, the concept of Gross Domestic Product (GDP), 'the most powerful metric in history' (Lepenies 2016), has undergone a radical transformation in recent decades due to the metamorphosis of how financial activities are treated in the national accounting framework.

² It is telling that the number of Google Scholar hits for Financialization began accelerating after 1993, a year of critical significance in the history of GDP as will be discussed below. The number of references has also doubled immediately following the financial crisis, from 667 in 2008 to 1,150 in 2009. In total, 2,545 references to financialization were made between 1980 and 2008, compared with 17,280 between 2009 and 2015.

This financialization of GDP (which has greatly inflated GDP's overall size as well as relative the share of the FIRE sector in GDP) has had some detrimental effects on GDP from an instrumental point of view – evident in its divergence from employment and median income trends, as well as its deterioration as a leading indicator – but has also impacted numerous political and economic debates involving GDP as one of the variables. The debate on austerity, for example, normally focuses on debt-to-GDP ratios (in the US, UK and Euro-zone countries), and has recently led to an academic controversy regarding a possible threshold of the debt-GDP ratio after which growth (of GDP) slows down (Reinhart and Rogoff 2010, Herndon, Ash and Pollin 2013). How would this discussion change if the inclusion of financial incomes had not distorted GDP?

Another debate has to do with the outsized role of profits as part of GDP, which has been used to defend corporations as job creators, which deserve tax-cuts and bailouts in order to increase employment. But if a large share of profits come from financial fees (which used to be excluded from national income as they were considered mere transfers), how does this affect the relative contributions of wages, profits and taxes to the economy?

Next, the phenomenon of jobless growth has recently returned to the headlines, with a divergence between reported GDP growth figures on the one hand and employment and wages on the other. Angry voters in many industrialized countries have interpreted this as proof of a rigged system and have flocked to radical parties, especially on the far right. This debate has also included rumours about the death of Okun's Law (which relates increases in GDP to reductions in unemployment), another side of the decoupling of output and employment.

Yet another debate surrounds the so-called 'Great Moderation'– the reduction in the volatility of the business cycle as seen through GDP since the middle of the 1990s. In addition

to citing good luck, this moderation of fluctuations has been attributed to good policies of central banks in particular, and as a victory for capitalism in general. Finally, the convergence between rich and poor countries has been examined in terms of GDP, but with recent revisions to the national accounts methodology, developed countries have been counting things like the FIRE sector, intellectual property and R&D in their GDP. One such example is the recent update of the United States GDP in 2013 using SNA 2008, conveniently “reinforcing [its] status as the world’s largest economy and opening up a bit more breathing space over fast- closing China” (Economist Intelligence Unit, 2013).

As the rest of the paper shows, national accounting is more of a techno-political process than a scientific endeavour, with profound implications for the way national accounts, and, more recently, GDP, have evolved over time. This, in turn, has shaped the important economic and political debates mentioned above, and therefore understanding the history of GDP and its recent financialization can shed some light on these apparent puzzles and controversies.

II. Policy-based Evidence: national accounting as numerical rhetoric

The discipline of statistics is normally dated back to 17th century England, when John Graunt published his book *Natural and Political Observations Made upon the Bills of Mortality* in 1662. Its focus was on vital and demographic statistics, but three years later William Petty published the first known estimate of national income in his book *Political Arithmetick*. Both this title and the etymology of the word statistics (German: Statistik –study of political facts/figures; New Latin: statisticus – of politics; Latin: status – state) point to the political nature of this exercise. It is perhaps no coincidence that the appearance of both demographic statistics and national income estimates in England in the mid-1600s followed closely the

Peace of Westphalia in 1648, which ended the Thirty Years' War and established of the modern system of nation- states (Assa 2015).

Accordingly, estimates of national income at this time focused on evaluating the relative economic strength of England vs. France (and sometimes Holland), as well as arguing for or against particular economic policies. Thus Petty used his estimates to prove that "Some kind of Taxes, and Publick Levies, may rather increase than diminish the Common- Wealth" (Studenski, 1958), while British Prime Minister William Pitt in 1798, proposing the first general income tax in Britain, estimated national income without including labour income in his account, since he was arguing for exempting labour from the income tax. Benjamin Bell (in 1799 and 1802) prepared his estimates to refute Pitt's view, as well as to argue for a repeal of the Corn Laws. The first national income estimates in Germany and Italy appeared much later, around the time of their unification (1871 and 1870, respectively), reinforcing the political nature of such measures.

Pierre de Boisguilbert, lieutenant- governor of Rouen, estimated France's national income in 1697 and 1707 to advocate for repealing most taxes while imposing a low poll tax on all adults. As an ardent critic of the French government's mercantilist policies, he wrote a book entitled "France ruined under Louis XIV" (for which he lost his post and was exiled to southern France). The French Physiocrats such as Quesnay, by contrast, were more advanced in terms of economic theory but did not make any substantive statistical estimates of national income (Studenski, 1958)

As these examples suggest, throughout the history of national accounting, the influence of economic theory on national income estimates was limited, as the former often lagged considerably behind the latter. Petty's estimates appeared nearly a century before Adam Smith's *The Wealth of Nations* (1776) and Quesnay's *Tableau Economique* (1758), while

the 19th century, which witnessed the apex of the classical tradition in political economy (with Ricardo, Mill, Marx, and Marshall), exhibited a paucity of national income estimates (Studenski, 1958). Official government estimates of national income appeared as early as 1925 (in Canada and the USSR), while Keynes' *General Theory* only appeared in 1936 (and contained no estimate of national income³). And finally, monetarism and neoclassical economics were on the ascendance in the 1960s and 1970s, but there was no revision to international standard, the System of National Accounts (SNA), until 1993 (shortly after the end of the Cold War).

The practice of national accounting has therefore been, from its origins, an exercise in numerical rhetoric rather than statistical measurement, and is more akin to economic modelling than to data collection. It can be thought of as *policy-based evidence* (in contrast with the cliché of evidence-based policy), and this holds true not just for William Petty's era, which saw the rise of the nation-state. The history of national accounting follows geopolitical contours, with a hiatus in estimates during the Pax Britannica; a flourishing of activity in the 1920s and 1930s following the first World War, the Great Depression and the rise of central planning; a dichotomy of systems (the SNA in the west, the Material Product System⁴ in the USSR) during the Cold War; and the financialization of national accounting after the collapse of the Berlin Wall (Assa, 2015).

³ In his 1940 book - *How to Pay for the War* - Keynes estimated the national income of Great Britain with the explicit purpose of convincing the government and citizenry of the need for deferred civilian consumption, following the 250 year-old tradition of numerical rhetoric.

⁴ The MPS, also known as the System of Material Balances, is another proof that politics rather than theory shaped national accounting. As Studenski (1958) points out, the system championed by the USSR was not based on Marx's theory of productive versus non-productive activities but rather on Adam Smith's narrow production concept. The latter considered only industries producing material goods to be productive, relegating all services to a non-productive status and excluding them from the accounts. The irony of an avowedly Marxist regime adopting a concept of productiveness from Adam Smith, of all political economists, supports the idea that theory regularly took a back seat to political motives in the history of national accounting (Assa, 2016).

In this latter period, starting with the 1993 revision of the SNA, the rising power of international finance has influenced statistical standard-makers to reclassify the FIRE sector from non-productive to productive (Christophers, 2011). This has been done indirectly, as the mantle of updating the international SNA shifted from the United Nations alone (in 1953 and 1968) to include two organizations representing rich (and in many cases, financialized) countries (the OECD and the European Union), as well as two international financial institutions (the IMF and the World Bank). Even national involvement in the 1993 revision process included many central banks rather than just national statistical offices as has been the case in the past (Assa, 2015).

III. The Financialization of GDP

What does it mean that GDP has been financialized and how does it matter to the way society sees itself in political economy terms? As mentioned above, the inclusion of financial (as well as real-estate and insurance) revenues in national income is relatively recent. Before the 20th century most estimates of national income focused on income by class (landowners, workers etc.) or income by sector (limited to agriculture, manufacturing and a few other sectors). The 1907 Census of Production in the U.K. enabled the estimation of 'value-added' in each industry (that is, output less intermediate consumption or inputs), while the 1930s saw the inclusion of the government sector in estimates of GDP by the expenditure approach (consumption + investment + government expenditure + exports - imports). Financial services were mostly absent from these various types of accounts.

Under the 1953 SNA, finance was seen as having a negligible or even negative⁵ contribution to the economy, while under the 1968 its 'output' was considered an input to an imaginary sector (present-day 'creative accounting' had apparently been preceded by mid-20th century creative national accounting). While this move from SNA 1953 to SNA 1968 'made finance productive' (Christophers 2011) in the sense that net interest income of banks now showed up as a positive entry, this did not affect the overall level of GDP since it was still deducted from it at the last step, being considered an intermediate cost to the rest of the economy. Thus this revision only distorted the *relative* size of sectors within GDP.

With SNA 1993 the finance sector officially crossed the production boundary (which delineates what is counted in GDP and what is not), with fee-based revenues of financial institutions now unequivocally considered productive and *added* to GDP (rather than excluded or deducted). This inflated the size of the economy in many countries where FIRE accounts for 20-30% of national income (e.g. the US and UK). Furthermore, besides giving the lie to the notion of national accounting as economic statistics (using the scientific method), this stroke-of-the-pen transformation of finance from non-productive to productive also created an inconsistency at the heart of how GDP is calculated. To see why, consider the three types of financial incomes and how they are treated in the national accounts:

⁵ A negative value-added for the banking sector could occur since its interest income from financial intermediation was excluded, leaving only income from fee-based revenues, which were sometimes much lower than overall costs.

<u>Financial Income</u>	<u>Treatment in SNA</u>	<u>Rationale</u>
Capital gains	Excluded from GDP	No productive activity
Net interest income (FISIM)	Deducted from GDP	Intermediate input to other industries
Fees from financial services	Included in GDP	Productive activity

Table 1: Three different treatments of financial incomes in the SNA

While capital gains have always been excluded from GDP (since they involve no activity whatsoever on the part of the asset’s holder), the interest income of financial institutions (Financial Intermediation Services Indirectly Measured, or FISIM) is now treated differently than their fee-based income. The former is considered to be an intermediate input to other sectors, and is therefore *deducted* from total value-added (and thus GDP), as was the case in SNA 1968. The fee-based income of financial institutions, however, is considered to be producing a final output (service) and is *added* to GDP. As recent research shows, this is theoretically inconsistent (since all FIRE income originates from creation and trade of claims or *assets* rather than goods and services), empirically problematic (given the FIRE sector’s negative correlation between employment and output shares as shown below), and leads to three major *instrumental* problems with GDP (that is, beyond criticisms of it for not measuring welfare, neglecting environmental costs, excluding care work and other normative issues). In recent years, GDP has been dramatically diverging from employment trends, deteriorating as a leading indicator (e.g. rising merrily right up to the Great Recession), and diverging (in per capita form) from median income (see Figure 1 below). The latter problem has had a particularly negative effect on the public’s trust in official statistics, as revealed by the Stiglitz Commission report in 2008 and in a subsequent book:

“[T]here often seems to be a marked distance between standard measures of important socio economic variables like economic growth, inflation, unemployment, etc. and widespread perceptions. The standard measures may suggest, for instance, that there is less inflation or more growth than individuals perceive to be the case, and the gap is so large and so universal that it cannot be explained by reference to money illusion or to human psychology. In some countries, this gap has undermined confidence in official statistics (for example, in France and in the United Kingdom, only one third of citizens trust official figures, and these countries are not exceptions), with a clear impact on the way in which public discourse about the conditions of the economy and necessary policies takes place.” (Stiglitz et al., 2010)

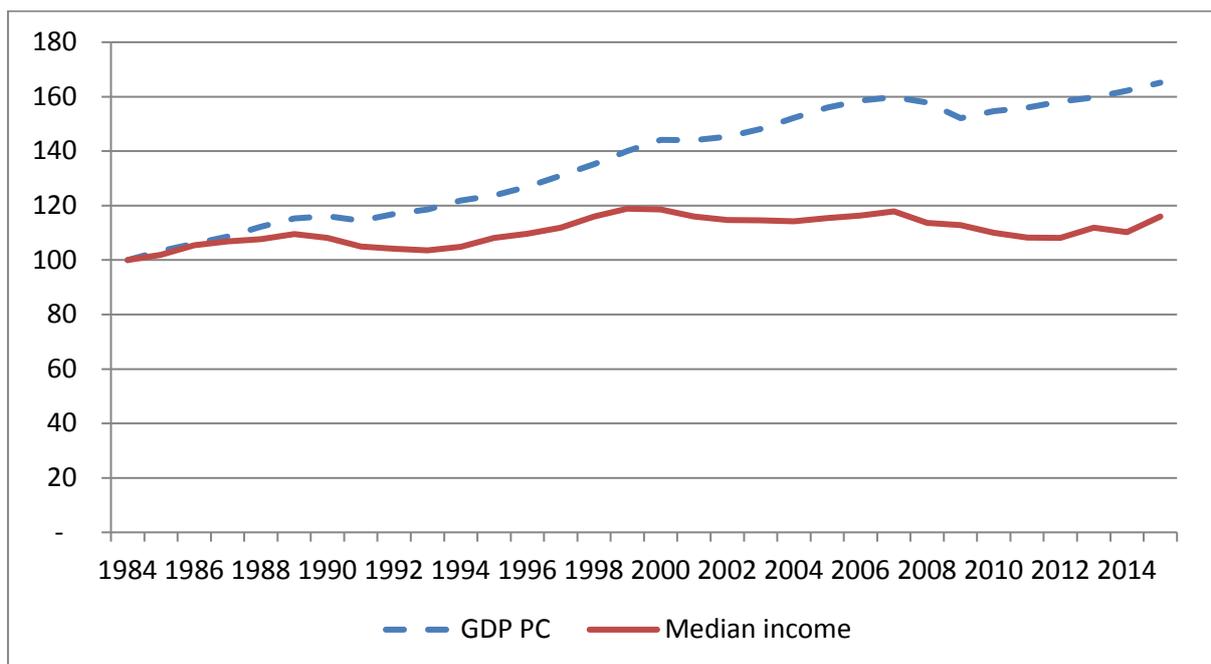


Figure 1; Median income and real GDP in the US, 1987=100

Given the politically and historically contingent development of national accounting from the 17th century to the end of the 20th, it is not surprising that “The Most Powerful Metric in History” (Lepenies, 2016) suffers from serious theoretical, empirical and perception problems. After all, the twists and turns in estimating national income over the centuries

followed geopolitical events and policy stances more closely than economic theory (see Assa 2015 for a detailed historical account). What then does the financialization of GDP mean for society and how it sees itself?

One can of course accept the latest reincarnation of GDP as a correct representation of reality. Lloyd Blankfein, for example, the CEO of Goldman Sachs, said in 2010 that “the people of Goldman Sachs are among the most productive in the world” (Huffington Post, 2010). Even ignoring periodic recessions and crashes, however, the latest sectoral data refutes this claim empirically. For example, in examining each sector’s share of total value-added in correlation to its share of total employment, finance exhibits a negative (and statistically significant correlation) and real-estate has no significant correlation, while all others sectors (agriculture, manufacturing, construction, transport, storage and communications, public administration, education and health) display a positive correlation between their employment and value-added shares (see Figure 2 below). These results are consistent across most OECD countries. As demonstrated theoretically, this is not possible given that overall productivity in the economy is positive (Assa, 2016).

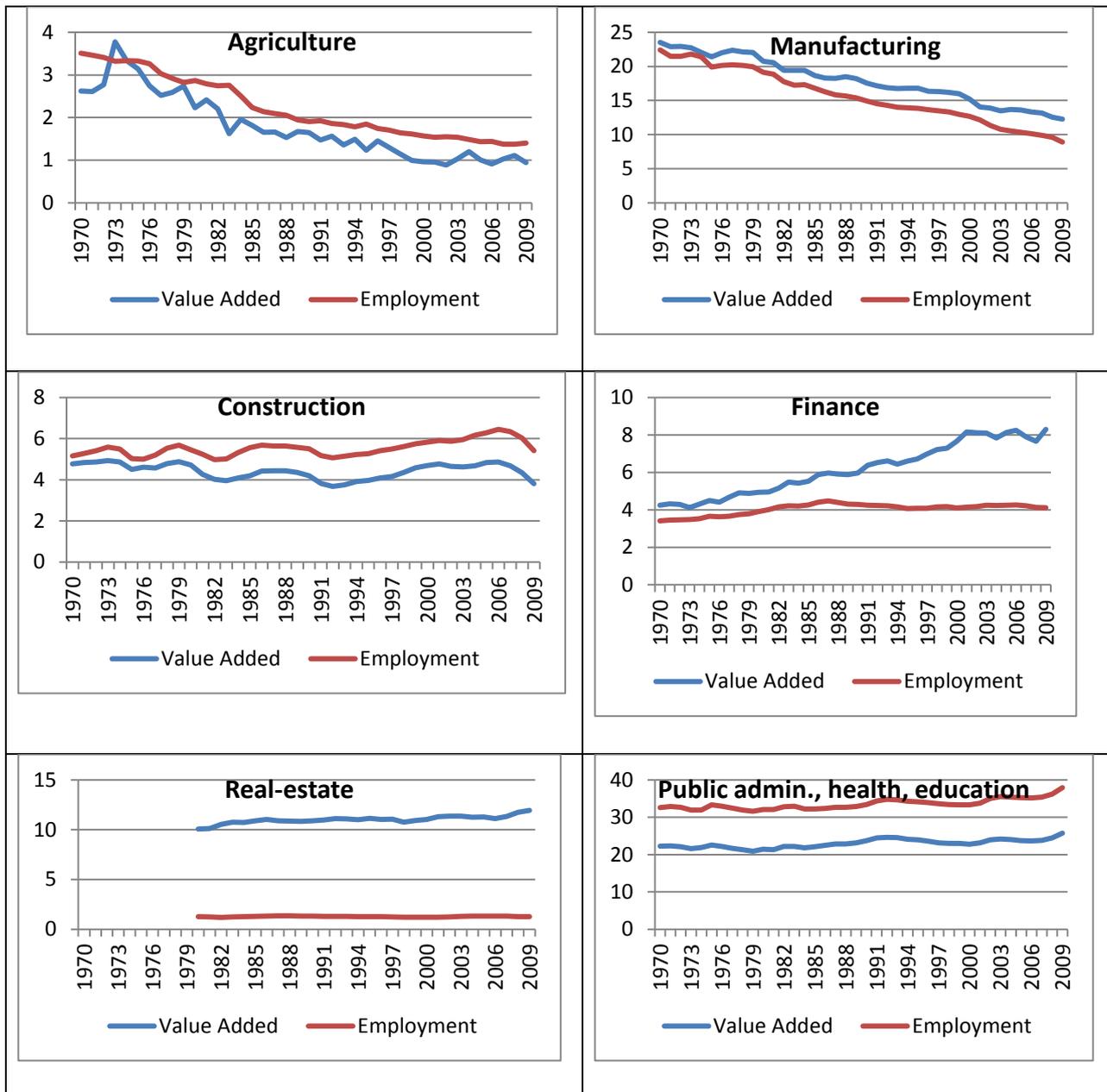


Figure 2: Shares of total-value and total employment by sector, U.S., 1970-2009

If we do not accept this naïve explanation, then, how can one correct for this distortion to GDP, and what would the implications of a definancialized GDP be for macroeconomic debates such as those mentioned above?

IV. Putting out the FIRE

One cannot turn back the clock to 1953, when financial incomes were accounted for as either negligible or negative contributions to the economy. For starters, at that time interest income accounted for the bulk of banks' revenues, whereas today financial fees dwarf banks' interest income in most countries (e.g. net interest income was £56 billion for the UK in 2005 compared with £354 billion for fee-based net revenues⁶). There are, however, other precedents for removing FIRE from GDP. William Nordhaus and James, in their paper *Is Growth Obsolete?*, reclassify some consumer and government outlays as *instrumental* expenditures, that is, intermediate rather than final. Thus they deduct the costs of commuting to work, police and sanitation services, and national defence from total (final) output (Nordhaus and Tobin, 1972).

In a similar vein, Shaikh and Tonak (1994) reclassify military, bureaucratic and financial activities as social consumption rather than social wealth creation, arguing that these activities, "like personal consumption, actually use up social wealth in the performance of their functions." Basu and Foley (2013) exclude FIRE incomes from GDP (creating a measure called Non-financial value-added or NFVA) on empirical grounds, citing the same divergence of GDP and employment trends mentioned above. Their adjusted measure indeed tracks employment in the US far better than GDP.

Should finance then be included in or excluded from total value added and GDP? As mentioned above, *interest-based* financial income is already treated as intermediate rather than final expenditure in the SNA, and deducted from GDP. This logic could be extended to *fee-based* income, and make the treatment in the SNA symmetrical. After all, *any* FIRE income

⁶ United Nations, Main Aggregates and Detailed Tables database, table 202, accessed 5 October 2016 (URL: http://data.un.org/Data.aspx?d=SNA&f=group_code%3a202).

is generated from creating and trading assets, which do not have a final use-value, that is, cannot be consumed directly. Instead, assets - as well as their realized form in terms of credit and money - serve to purchase other goods and services which are then used (in either intermediate or final consumption).

Financial services, however, are paid for by households and firms, and the revenues associated with them (from which financial “output” is imputed) are not simply non-productive for the economy as they represent an opportunity cost since the money paid for them could have been spent on productive activities elsewhere. This, coupled with the observed negative correlation between finance’s shares in output and employment, suggests that the sector is *extractive* rather than productive (or value-reducing rather than value-adding). It is therefore more accurate to account for the financial sector as a cost of producing the rest of GDP, that is, a cost involved in generating all true value added. In other words, the ‘value-added’ of finance should be deducted, not merely excluded, from GDP as it is the ultimate and ubiquitous intermediate input (albeit an intermediate cost rather than an input for intermediate consumption) to all industries producing a use-value output of either goods or services.

This methodology goes beyond NFVA, which merely leaves out finance as non-productive. Also, while novel, our approach builds on two elements already existing in SNA 68 and SNA 93. From SNA 68 it takes the concept of applying the output of the financial sector as an input with a negative sign, though as an input to the rest of the economy rather than to an imaginary sector; it also mirrors the treatment recommended for the FISIM income by SNA 93, applied symmetrically to the fee-based part of financial incomes.

This treatment was recently proposed by Assa (2016), embodied in a new measure, Final Gross Domestic Product (FGDP), which treats fee-based income of financial institutions

symmetrically to how the SNA treats interest income, *deducting it* (rather than merely excluding it as in Basu and Foley's case) from GDP as a cost for other sectors. This measure performs better than either NFVA or GDP in the three dimensions measured above, that is, better correlation to employment, better correlation to median income, and a superior performance as a leading indicator (see Figure 2 above and Figures 3 and 4 below). The present paper uses a related but slightly different approach, by deducting the *value*-added of the FIRE sector - rather than its output – from GDP. The difference between the value-added and output of a sector is that sector's intermediate consumption (inputs) from all other industries, in this case, non-financial sectors. It is therefore conceptually more appropriate to leave those inputs in GDP.

But why is this more than just a technical issue for statisticians and national accountants? Why should economists, other social scientists or ordinary citizens care?

V. Implications for macroeconomic debates

The answer is that, since GDP is so central to many macro-empirical debates as mentioned at the beginning of this paper, resolving the inconsistent treatment of financial incomes in the SNA can shed light on some seemingly intractable debates and puzzles, where all sides to the argument use GDP. The underlying argument is that measurement is part of the problem in these debates, although it is not discussed along with economic theory and policy, since 'data' is assumed to be objective⁷. This section will focus three such debates leaving others for future research.

⁷ The Latin origin of 'data' – Datum – means 'something given'.

i. Jobless Growth and Okun's Revenge

One of the most controversial debates which have broad socio-political ramifications has revolved around the phenomenon of 'jobless growth'. Basu and Foley (2013) point out that the two U.S. business cycles before the Great Recession were followed by 'jobless recoveries', wherein employment rose much more slowly compared to GDP than standard models would predict. The 2007–8 crisis itself was another such anomaly, since the U.S. unemployment rate in 2009 increased twice as fast as conventional models would predict given the drop in output. Finally, the recovery of real GDP in second quarter of 2009 "had even less impact on the aggregate unemployment rate than in the previous two jobless recoveries" (Basu and Foley, 2013).

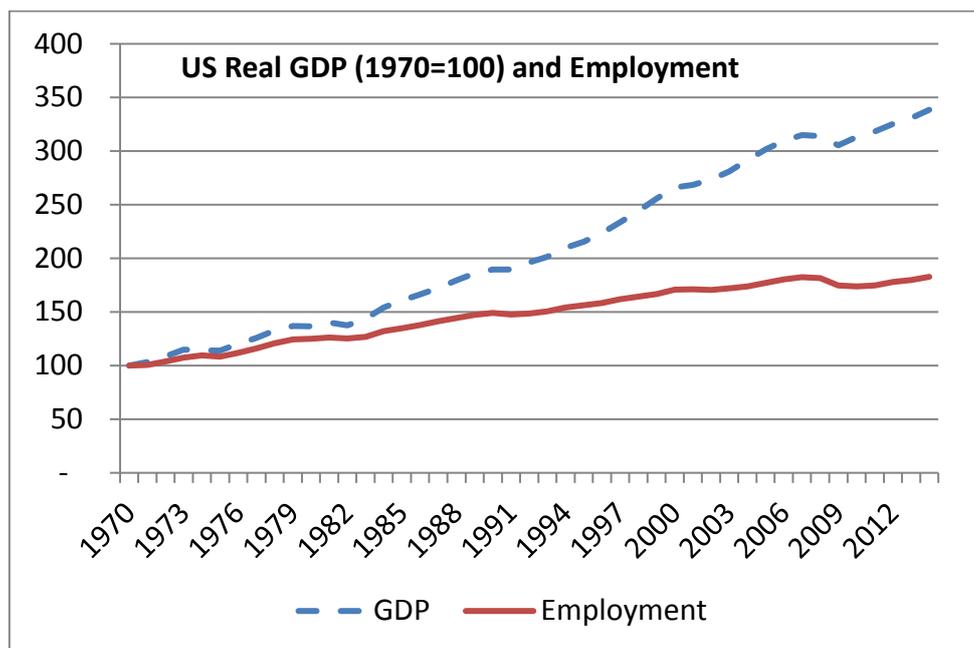


Figure 3: US Real GDP vs. Total Employment, 1970=100

This decoupling of output and employment trends is closely related to the debate about the demise of Okun's Law. In 1962, Arthur Okun observed a negative relationship between changes in unemployment and changes in output in the US, whereby a one percent

reduction in output corresponded to a half a point increase in the unemployment rate. While this has been confirmed by subsequent empirical papers and reflected in economics textbooks, the validity of this 'law' or empirical relationship has recently been questioned. Some of the proposed reasons for its apparent breakdown have included structural changes in some economies (Gordon, 2010), the instability of the empirical relationship over time (Cazes et al., 2012, Knotek, 2007), or the Great Recession itself (IMF, 2010). Others, however, confirm the relevance and validity of Okun's Law for both the US and other OECD countries (Ball et. al. 2013).

Which side is correct? As both parties to the argument use GDP to make their point, it is possible that the measurement of output is part of the problem. Basu and Foley (2013) already suspected this, and suggested that the growth in services in the last few decades "systematically leads to real GDP overestimating real output at the aggregate level, which explains part of the apparent breakdown of Okun's Law". Taking this a step further with FGDP, jobless recoveries appear to be periods of stagnation, in which employment is not indeed expected to increase much. It is the measurement of aggregate activity rather than Okun's Law which has broken down, with GDP's financialization. As shown above, the incomes of the FIRE sector have either a negative relationship or no significant relationship to employment in their sector, so including FIRE in GDP weakens the overall relationship between GDP and employment in the economy. Given the right indicator, it would appear that rumours of the death of Okun's Law have been exaggerated.

Table 2 shows the results of two regressions examining these claims with the latest data (as of October 2016). For the whole period 1970– 2012, FGDP is closer than GDP to Okun's original prediction of 0.33 for the coefficient relating output changes to changes in the unemployment rate. More importantly, the second part of the table shows that the GDP

coefficient is far lower in the later period, whereas FGDP is still meaningful. Furthermore, the R^2 of the GDP coefficient drops from 0.79 for the whole period to only 0.59 for the later period, indicating that changes in GDP explain less of the variation in the rate of unemployment than they did before 1986, and less than changes in FGDP explain throughout the period. Overall, then, while there is a reduction in the Okun coefficient using both GDP and FGDP, the former presents the period 1986–2012 as a virtual breakdown of Okun’s Law (since a -0.08 coefficient means it would take a 12.5 percent drop in output to raise the unemployment rate by one percentage point), whereas FGDP still shows the relevance of Okun’s observation, although with a slightly lower coefficient (roughly a 4 percent drop in output in 1986– 2012 is required to raise the unemployment rate by one percentage point, compared with 2 percent for the longer period 1970–2012).

	Coefficient	p-value	R²
1970-2012 (T=43)			
GDP	<u>-0.20</u>	<u>0.00</u>	<u>0.79</u>
FGDP	<u>-0.44</u>	<u>0.00</u>	<u>0.87</u>
1986-2012 (T=21)			
GDP	<u>-0.08</u>	<u>0.00</u>	<u>0.59</u>
FGDP	<u>-0.23</u>	<u>0.00</u>	<u>0.80</u>

- FGDP: OLS, Dependent variable: ΔU

Table 2: Regressions of GDP and FGDP on changes in the unemployment rate (U.S.)

ii. The Great Moderation as a Statistical Mirage

Another debate concerns the so-called “Great Moderation,” a reduction in the fluctuations of output (measured by GDP) which presumably began around 1994. One explanation advanced

for this structural break in volatility involved “a decline in the variance of shocks and a narrowing gap between growth rates during booms and recession” (Kim and Nelson, 1999). Others point to structural changes rather than good luck, and cite the “shrinking contribution of non-technology shocks to output volatility...a change in the interest rate rule, giving a larger weight to inflation stabilization (relative to output stabilization) and...an apparent end of short run increasing returns to labor” (Gali and Gambetti 2009).

A recent paper already questioned the existence of this moderation by performing wavelet and empirical mode decomposition analyses, showing that rather than vanishing, volatility since the mid-1990s has rather moved from shorter cycles with higher frequency to longer ones with lower frequency (Crowley and Hallet, 2014). Once again, however, both sides to the debate use standard GDP and define volatility based on this measure. The problem is that the financialization of GDP (the measure of output on which Crowley and Hallet depend) has reduced aggregate volatility (since the FIRE sector’s ‘value-added’ is a synthetic measure imputed based on net income), suggesting that the Great Moderation “may be traced to still more fundamental measurement issues as described in the FGDP framework, and that the Great Moderation is ultimately a statistical mirage because of the mismeasurement of output, not a mere transfer of volatility from one frequency to another.” (Assa, 2016).

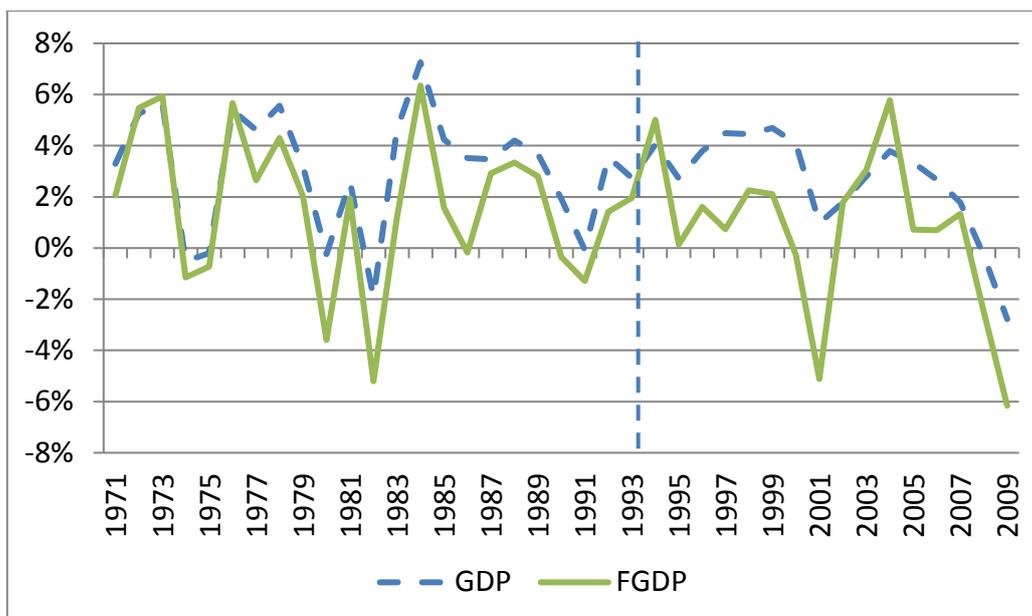


Figure 4: Changes in real GDP and FGDP, 1970-2009

Coefficient of Variation:	GDP	FGDP
1970-1993	0.75	1.73
1994-2007	0.36	1.80

Table 3: Coefficients of variation for GDP and FGDP (U.S.)

First looking at overall period in Figure 4, FGDP is clearly more volatile than GDP, with an overall standard deviation of 2.8% compared to GDP's 2.1% between 1970 and 2007. Furthermore, FGDP shows more pronounced spikes than GDP. For example, in 1994 FGDP rose by 6% whereas GDP only by 4%. On the downside FGDP is also more sombre than GDP, dropping 5% in 1982 compared to 2% in GDP, and 5% in 2009 compared to 3% in GDP. Furthermore, FGDP indicates some recessions which GDP does not capture, such as 2001 (as a whole).

However, when comparing the two periods addressed by the Great Moderation literature (1970-1993 and 1994-2007) as seen in Table 3 above, the coefficient of variation (standard deviation scaled by the mean) dropped by more than half for GDP between the two period, while the same coefficient for FGDP actually *increased*. In other words, the Great

Moderation, viewed in the lens of FGDP, is not a real macroeconomic phenomenon and therefore does not require explaining (or justifying). It is an illusion created by the increasing share of finance which has a smoothing effect on GDP since it is a synthetic measure, an imputed value added based on net income rather than independently measured production.

iii. Mis-leading Indicator

Common wisdom holds that the economics profession as a whole did not see the Great Recession coming. The Queen famously asked for an explanation for this rather serious oversight, to which the British Academy responded in a letter, citing “a failure of the collective imagination of many bright people, both in this country and internationally, to understand the risks to the system as a whole⁸”. There were some exceptions to this failure, however, and Galbraith (2012) groups them according to school of thought (including radicals, bubble-detectors, Keynesians, the Minsky school, and institutionalists). What these exceptions have in common, in addition to swimming against the current of public euphoria, is their use of indicators *beyond* GDP to support their warning calls. Such indicators included net borrowing and savings, flow of funds, data on household debt and information on financial asset prices. However, this dash-board approach is rather time-consuming as there are numerous indicators available for analysts to consider when making forecasts. Wouldn't it be ideal if one indicator could perform better than GDP in warning of stagnation, reductions in demand, or crises?

As it happens, FGDP performs better than either GDP or NFVA in this regard. Figure 5 shows the results of an out-of-sample forecast of changes in employment (as a proxy for

⁸ Letter from the British Academy to Queen Elizabeth II, July 22, 2009.

aggregate demand) based on part of the observations of GDP and FGDP (1970-1994). GDP completely misses the drop in demand and employment in the early 2000s, while FGDP shows the downturn as well as the recovery ahead of employment itself. Leading up to the Great Recession, FGDP peaks at 6% in 2004, grows only at an alarming 1% in 2005-2007 and then -2% and -6% in 2008-2009. GDP meanwhile, grows at a health-looking 3% in 2005-2006, 2% in 2007, -0.3% in 2008 and only turns negative (-3%) in 2009. Looking more closely using quarterly data, FGDP is well ahead in the tracking of stagnation and recession, e.g. turning negative already in 2006Q3, while GDP caught up only six quarters later - in 2008Q1, *after* the financial crisis had already begun. FGDP's forecast evaluation statistics also show smaller errors (Mean Square Error and Root Mean Square Error) than those of GDP. Thus, an analyst using annual data to predict the path of the economy based on GDP would be quite misled.

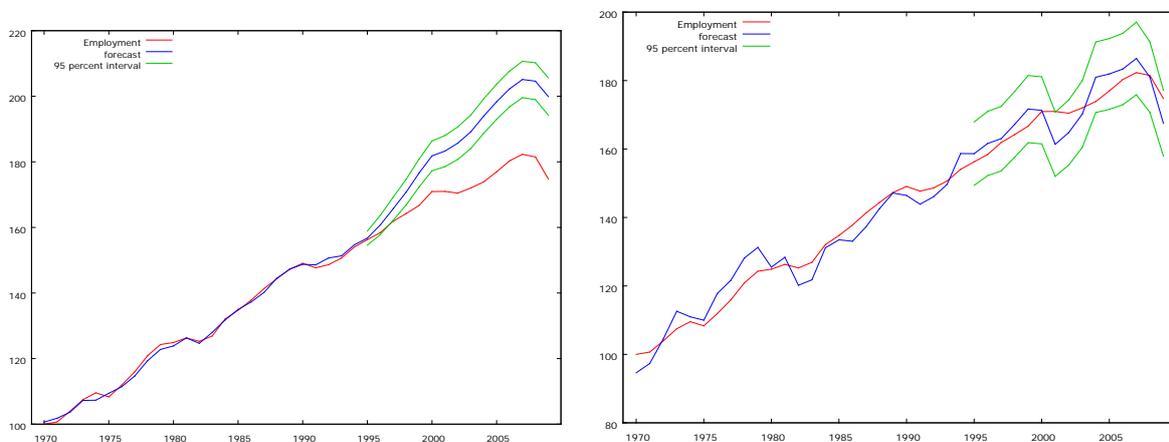


Figure 5: Forecasts of employment based on ARMAX, using data for the U.S. for 1970–1994

FGDP could be performing better than GDP as a leading indicator of secular stagnation precisely *because* it deducts financial fees as overall economic costs, treating them as leakages out of aggregate demand, while GDP shows these fees – increasingly associated with the creation of consumer debt – as final consumption expenditure. In other words, GDP may

be suffering from a statistical bubble by treating demand- weakening (not to mention unsustainable) credit- and debt-related income as if it were adding to the demand for goods and services.

VI. Lessons for economics and politics

Heterodox economists have long critiqued the mainstream economics orthodoxy for its abstract theoretical frameworks and neoliberal policy recommendations. What has been taken for granted by orthodox and heterodox alike, however, has been the macroeconomic data used both in scholarly analysis as well as in socio-political debates. Given the ubiquity and centrality of GDP to so many critical debates across the world, this complacency about how macroeconomic 'data' is constructed has allowed financialization to stealthily taint the way societies and polities see themselves and the economic world they exist in. The debates discussed above have broader implications than just the empirical question at hand. For example, whether growth has been jobless or not is also a question about how well financial capitalism lifts all boats. The story of the Great Moderation has been used to declare monetary policy as very successful (Bernanke, 2004), which in turns belies the Marxian and Keynesian claims of inherent instability in capitalism and thus the need for state intervention. And the lack of understanding about how tainted indicators - not just models - allowed the Great Recession to come a surprise has ensured that no major reform of either is being proposed.

The fact that economic indicators, and not just theories and policies, are not beyond dispute can also help explain a curious schizophrenia in the economics profession. Some neo-classically trained economists such as Paul Krugman, who use standard models and theories in their scholarly work, nonetheless advocate progressive (or liberal, in the American sense of

the word) policies, e.g. Keynesian fiscal stimuli during the Great Recession. This could be partly due to the fact that while standard indicators like GDP show that all is well, employment, unemployment and median income data point to a much worse situation (and vice versa). Alluding to Wittgenstein's quote at the beginning of this paper, different facts – along with different theories – can lead to different policies, and thus it is crucial to know where these 'facts' come from and how they are derived.

Further research is needed to assess the full implications of definancializing GDP for economic and political debates. The debate on the dangers of national debt could be revisited using a debt-to-FGDP instead of debt-to-GDP. The distribution of total national income by expenditure and the relative importance of consumption, investment, and government spending can be re-evaluated (Assa 2016 suggests that using FGDP, consumption is hardly as dominant as it is in GDP, giving more weight to the exogenous demands injections coming from investment and government spending). FGDP could also shed light on the nexus between inequality and growth, on which the enormous literature on the subject is mostly inconclusive. One would expect that, as growth using FGDP is lower and more volatile than growth using GDP, the relationship between growth and inequality would turn out to be more clearly negative than when using GDP.

There are also some potential applications for issues in development economics. The convergence (or lack thereof) between developed and developing countries has been studied repeatedly, and it would be interesting to see how it looks without the distorting effects of financial incomes (presumably reducing the growth trends of developed countries, which have larger financial sectors on average). Furthermore, as GDP is closely related to Gross National Income (GNI), definancializing the former may have interesting effects on the latter. As GNI thresholds are used in various contexts such as aid allocation by the World Bank, the

calculation of the Human Development Index, and the criteria for defining the Least Developed Countries, this could have far-reaching consequences.

Finally, there is need to assess how national accounting is taught in macroeconomics courses at both the undergraduate and graduate level. It is the author's personal experience that economists as a rule know far less than statisticians and national accountants on the subject of GDP (beyond the three approaches to it which are in most textbooks), and are hardly aware of how many imputations and assumptions are involved in its calculation, and how little theory has to do with it. If we are to strengthen the social understanding of the economy in general and of finance in particular, it is crucial that students, social scientists and the public at large are better informed about the one metric that can affect so many aspects of their lives.

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