Economic surplus, Baran ratio, and capital accumulation

Zhun Xu[1]

Abstract

Generations of economists have studied capital accumulation and the investment decisions of the capitalist class. This paper follows the Marxian tradition to study the utilization of economic surplus since the 19th century. We define and measure economic surplus mainly based on the capital share of GDP and top income share. Then we construct the Baran ratio, defined as the ratio of gross capital formation to a nation's economic surplus. Our results suggest that the Baran ratios for major capitalist economies such as Britain and Germany were largely constant and low from the mid-19th century to early 20th century. In the post-WW2 years the Baran ratios increased to historic high levels among both developed and developing countries. However, the neoliberal era saw a dramatic decline in the Baran ratios among most economies. There are considerable divergences across the globe. The Baran ratios of developed countries tend to stabilize in recent years around a pre-WW2 low level, while the ratios of China and India remain on relatively high levels. The empirical evidence shows that slow capital accumulation is an inherent feature of unregulated capitalism including both pre-WW2 and the neoliberal eras. Since the legitimacy of the capitalism ultimately depends on how effectively capitalists as the ruling class utilize surplus, a declining and low Baran ratio in the global economy poses a serious question on the necessity of capitalism, from the point of capital accumulation itself.

[1] zhun.xu@howard.edu, Department of Economics, Howard University, Washington DC. USA

Introduction

Economic growth has been arguably the first and foremost question for classical political economy as well as more recent economic studies. A large part of the discussions on development boils down to the nature and characteristics of ruling class. Since the ruling class controls the surplus of the society, it is at its discretion whether the surplus shall be used as investment or consumption or simply wasted. Effective utilization of the surplus implies a reasonable rate of capital accumulation and economic development.

Baran (1962) made a seminal contribution to our understanding of the connection between "economic surplus" and growth. The core idea of the book is that even poor countries still have considerable economic surplus beyond the national essential consumption, and the way ruling classes use the economic surplus defines the nation's development trajectory. A better organized society like socialism, by eliminating unnecessary upper class consumption and inefficiency of market economy among others, could achieve growth and development for all nations.

An illustrative example comes from the Chinese economic history. According to Lippit (1985), the per capita income in China was about the same in 1933 and 1953. The saving rate, however, increased from merely 1.7 percent in 1933 to 20 percent in 1953. This dramatic increase was achieved with substantially better living standards of the masses. Lippit argued that the new revolutionary society eliminated unnecessary elite consumption and waste, and was able to increase popular consumption and investment at the same time.

From a different perspective, Keynes and post-Keynesian economics has also made significant contributions towards our understanding of capitalist investment behavior, particularly the concept of animal spirit. In essence, animal spirit is the capitalist psychology of surplus utilization: the link

between expected profits and planned investment. An increase in the animal spirit can promote accumulation and growth at a given rate of profit.

This idea of economic surplus is often overlooked in neoclassical perspectives. For example, the concept of "poverty trap" sees virtually no way out of poverty unless with some exogenous shock. Because on the supply side, poverty means lack of education and health care which could lead to lower labor productivity; and on the demand side, poverty means a small market and lack of effective demand. When some neoclassical theories start to recognize the possibility of self-sustained development in poor countries, they then go to the other extreme, relying on ahistorical assumptions about the nature of capitalist class. For example, the influential Lewis model, when proposed in the 1950s, correctly argued that given the low consumption levels and wages of migrant labor from the underdeveloped countryside, the urban capitalists can receive a higher than normal return from their investments. Lewis essentially assumed the high profits would lead to continued investment and the whole economy would grow as a natural consequence. However, in reality there is no guarantee that the capitalists will be willing to spend all these profits and extra-profits on capital accumulation. In fact, if the developing countries already have an investment-inclined capitalist class, then we probably do not need to worry about many aspects of economic development at all.

The question of surplus utilization is highly relevant for advanced countries as well. For example, in the last decades, the decoupling of profit and capital accumulation in the US is evident. While overall the after tax corporate profit as a share of GDP has increased from about 4 percent in the mid-1980s to about 9 percent in last few years, the net investment as a share of GDP has, however, declined from about 5-6 percent to about 2 percent during the same time.[2] The disconnection

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[2] Calculated based on Federal Reserve Economic Data, https://fred.stlouisfed.org.

between profit and investment has been particularly acute since the recent economic crisis. Other advanced countries such as UK and Japan have also seen similar patterns with downsizing, buyback and lack of interest in investment, or simply "the capitalists' investment strike" (Smith 2016, pp. 290-3).

In recent years, there is an ongoing discussion about the slowing down in economic growth rates among major capitalist economies. The mainstream economists increasingly recognize the relevance of stagnation in capitalism. For example, Gordon (2016) explains the decline of American growth based on supply side factors such as lack of great technological breakthrough, while Krugman (2013) and Summers (2014) tend to attribute the problem to lack of effective demand. As pointed out in Despain (2015), however, few of the mainstream scholars acknowledge that stagnation is a tendency embedded in the capitalist system,

The Marxian literature has long emphasized the important of secular stagnation in advanced capitalism. In his famous pamphlet on imperialism a century ago, Lenin (1964, p.276) argued that imperialist economies based on monopoly capital "inevitably engenders a tendency of stagnation and decay". Using the concept of surplus absorption, Sweezy and Baran (1966) argued that capitalism required waste of surplus such as sales effort and war as there tended to be a shortage of consumer demand and investment. Sweezy (1982) argued that stagnation since the 1930s was only interrupted by the Second World War and the postwar economic expansion. The forces that brought the economic boom and strong incentive to invest created overcapacity and in turn undermined the incentive to invest. As Magdoff and Foster (2014) among others argued, financialization, as another major form of waste, simply postponed the stagnation through limited employment and wealth effect but intensified the contradictions in capitalism.

We follow the Marxian tradition to study the dynamics of development and stagnation in both developing and developed worlds. One major difficulty, though, is to provide a consistent measure of surplus to compare across time and space. Baran himself provided a number of different concepts of surpluses in his book. It is particularly empirically challenging to calculate the potential surplus from eliminating irrational and wasteful organization and unemployment in different contexts.

In this paper, we use Lippit (1985)'s approach to focus on a more narrow and straightforward version of the surplus, which is simply the difference between national output and essential social consumption. As a further step, if labor income is more or less the same with essential consumption, we can proximate economic surplus by property share of income (rent, profit, interest). Of course, this approximation will tend to create an upward bias in developing countries as the labor incomes are often insufficient to meet basic needs. It could also give rise to downward bias in developed countries as labor incomes exceed essential consumption due to high salary jobs in certain occupations. This being said, the property share approximation can still give a more or less accurate measure of the historical trend of economic surplus.

Another approach we use in this paper to approximate surplus is the top income share. If we assume (not very unreasonably) that in every society essential consumption level is around the medium income level, then the share of top 10 percent in national income could serve as an approximate measure of the difference between national income and essential consumption, that is, the surplus. This approach also comes with potential biases. For example, if income distribution is extremely unequal, then a top 10 percent income share could overstate the surplus. If income distribution tends to be very equal, then a top 10 percent share will underestimate the size of surplus. Still, top income shares provide useful information and can serve as a cross-check.

We then study the utilization of surplus, or the animal spirit of the ruling class by comparing the size of surplus and gross capital formation in a variety of countries starting from the mid-19th century. We construct a simple measure called the Baran ratio, defined as the ratio of investment and surplus. For example, relatively high levels of the Baran ratio indicate the ruling class is interested in capital accumulation. And persistent decreasing Baran ratio imply a gradual transition to slow accumulation and stagnation.

Our results provide strong support to the secular stagnation thesis. The Baran ratios for major capitalist economies such as Britain and Germany were largely constant and low from the mid-19th century to early 20th century. In the post-WW2 years the Baran ratios increased to historic high levels among both developed and developing countries. However, the neoliberal era saw a dramatic decline in the Baran ratios among most economies. There are considerable divergences across the globe. The Baran ratios of developed countries tend to stabilize in recent years around a pre-WW2 low level, while the ratios of China and India remain on relatively high levels. The empirical evidence shows that slow capital accumulation and growth is an inherent feature of unregulated capitalism including both pre-WW2 and the neoliberal eras. On the other hand, only regulated capitalism saw high rate of accumulation and growth. We further argue that the "spirit" of the capitalist class is a product of class struggles as well as the overall historical conditions.

The rest of the paper is organized as follows. The next section presents two alternative estimates of economic surplus as well as the corresponding Baran ratios. The third section makes comparisons of Baran ratios across time and county. The fourth section briefly examines the relationship between Baran ratio and economic growth. The final section concludes the paper.

Measuring economic surplus and the Baran ratio

Ideally we would like to calculate economic surplus as the residual of national income deducting social essential consumption. This is, however, often impossible due to lack of data. Here we use two alternative methods. The first approach we use to estimate economic surplus is property share of GDP, which equals one minus labor share. ILO compiles estimates of labor share for selected countries on an annual basis since 1960. Decennial estimates of pre-1960 labor share can be found in Piketty-Zucman Wealth-Income Data Set (http://piketty.pse.ens.fr/fr/capitalisback). For advanced countries such as Britain, the series can go back to mid-1800s. The second approach utilizes the estimates from top income research pioneered by Piketty. The World Wealth & Income Database (http://wid.world) provides estimates of top income shares in select countries. This is particularly helpful when the property share data are missing. In this paper we use top 10 percent share of the national income as a proxy for surplus. Other top income shares are often not available for most countries in the sample.

As a reliability check, we then examine the difference between the estimates from essential consumption approach and the two alternative approaches used in this paper. Since there are considerable differences between the developing and developed worlds, we look at data from both China and the US as examples as each group.

For simplicity we assume the medium personal income is about the same with the essential consumption level in the US. The story in China is a little more complicated. Since the persistent rural-urban income gap, we assume that urban residents' essential consumption is the same with medium income and the rural residents' essential consumption is 60 percent of the urban level.[3] The surplus then is calculated as the share of non-essential consumption in GDP in both countries.

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[3] If we assume the rural essential consumption is higher than 60 percent of urban counterpart, then the resulting surplus will be lower, but this won't change the basic pattern.

Figure 1 presents the estimates of surplus with essential consumption and the other two approaches between 1985 and 2014. All three estimates of the US show very similar patterns (Panel A). There is no persistent bias from the alternative approaches. In the Chinese case (Panel B), the three estimates differ to a certain extent, but still share the same trend over time. The alternative approaches may have underestimated the level of surplus, which will lead to higher Baran ratio. We do not expect this potential bias to affect the trend of the Baran ratio. Therefore, both property and top income share approaches seem to be fairly reliable estimates of the level of economic surplus in a country.

Besides economic surplus, we also need statistics regarding the share of investment, or gross capital formation in GDP. For data between 1850 and 1970, we calculate the investment share of GDP based on Mitchel (1975).[4] The post-1970 data series are available from the World Bank databank.

The final step in this exercise is to calculate the Baran ratio, or how much surplus is being utilized as capital accumulation. Base on the above, we can simply divide the investment share by the level of surplus (also as share in GDP). For pre-1970 series, only select data points are calculated due to lack of annual data. Higher/lower Baran ratio means more/less efficient utilization of surplus and capital accumulation. Except rare cases that we will discuss below, we expect the ratio to be between zero and one.

Figure 2-4 present three advanced countries which have longer data series. Despite being the first major capitalist country, the Baran ratio of Britain was fairly low throughout the second half of 19th century. This suggests that the British ruling class was not very interested in capital accumulation and spent a huge portion of their surplus on unproductive purposes. Germany was

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[4] We use GDP where it is available, if not, we use GNP instead.

more pro-accumulation and rapidly catching up with Britain during the late 19th century, as its Baran ratio was more than double the British one for most of the time. France, on the other hand, ran somewhat in-between Britain and Germany. On the whole, these earliest capitalist economies spent merely around 20-40 percent of their surplus on capital accumulation in the pre-WW2 era. It is interesting to note that under the Nazi regime, German capitalist class actually became less inclined in accumulation compared to the Weimar Republic or the Bismarck era.

This is obviously very different from the scenarios starting from the end of the WW2 period where the capitalist class in these countries saw a huge boost in their "animal spirit". Between mid-1940s and mid-1970s, the Baran ratios were rapidly increasing in the three countries. At their high points, Britain spent more than 70 percent, France spent about 80 percent, and (West) Germany spent more than 90 percent of their surpluses on investment, as suggested by both approaches.

Following this Golden Age, the Baran ratios saw a continuous decline throughout the 1980s. From late 1990s to the present, the Baran ratios seem to stabilize around values that correspond to their pre-WW2 levels. In Britain and Germany, the ratios have been fluctuating around 40 percent for about 20 years according to both approaches. In France, the Baran ratio has also stabilized. But the two approaches give quite different estimates, ranging from about 50 to 70 percent.

It is more than clear that except in a short post-WW2 period with active regulation and intervention, capitalist class at least in the developed countries tend to shy away from investment and only spent less than half of the available surplus on capital accumulation. In other words, the currently recognized disconnect between profit and investment is actually a long tradition of business for capitalists.

Keep in mind though, in the context of pre-WW2 world, a Baran ratio between 20 to 40 percent may still be substantially higher than that of a typical third world country. According to Lippit

(1985), China in 1933 had no less than 30 percent of national income as surplus, while only invested 1.7 percent of net domestic product. This implies that the Baran ratio for China was about 6 percent. This was arguably why the capitalist class in developed countries used to be considered as more progressive compared to the comprador ruling class in the third world in the sense that they are much more dutifully fulfilling their job of capital accumulation.

We now turn to the Baran ratios for other select members from both developed and developing countries. For simplicity of presentation, we take the average value of Baran ratios from the two approaches except where only one estimate exists. The data of these countries are only available from 1960s onward. We divide these countries into five groups based on their respective trends of Baran ratios. First of all, according to Figure 5, the mature capitalist economies experienced a dramatic decline in their Baran ratios from the 1980s. And the decline has been slowing down since the late 1990s and seems to have more or less stabilized. For the EU 15 countries, the Baran ratio dropped from about 90 percent to about 55 percent; while the US figure dropped from more than 70 percent to 40 percent.

Figure 6 presents another group of high income economies which had a more recent high growth record and used to have some form of industrial policy. This includes Japan, Singapore, Taiwan and South Korea. These economies had impressive Baran ratios in the 1970s when they were growing fast --- over 100 percent. This implies that the capitalist class in these places tended to use as much surplus as possible on investment, even by a reduction in social essential consumption. This high accumulation period came to an end in the 1980s and the Baran ratios has declined to about 60-80 percent. Still, this group on average has substantially higher Baran ratios than the other high income group.

Among the developing countries, typical Latin American economies such as Brazil and Argentine suffer from chronic slow growth and accumulation, as can been seen from Figure 7. Unlike in the developed countries, there was no clear sign of a decline from the Golden Age. Brazil, Argentine, Colombia as well as Honduras have always Baran ratios around or below 50 percent, although there has been a moderate increase since the late 1990s. We also include Russia in this group, despite obvious differences. Although Soviet Union under socialism undoubtedly had very high Baran ratios, Russia under neoliberalism clearly suffered from lack of investment, evident with a stagnant Baran ratio around 50 percent.

The fourth group includes South Africa, Kenya as well as Rwanda and Uganda. Figure 8 presents very few point estimates of Baran ratios for these countries due to lack of data. Both South Africa and Rwanda seem to have a moderate decline of Baran ratio in the neoliberal age. Overall these countries had Baran ratios of less than 50 percent. In the last ten years or so, however, Rwanda and Uganda both had noticeable increase in their Baran ratios, reaching more than 60 percent.

The last group in Figure 9 includes China and India, two of the largest developing countries in the world. China's Baran ratio was close to 100 percent in the early 1980s, then had a very mild decrease, until it started increasing again since the recent global economic crisis. India had a typical pattern of increasing Baran ratio in the 1960s and 70s and in the 1980s Baran ratio started decreasing. In the 2000s, however, India's Baran ratio has been on a rise and exceeded 100 percent in 2010. Throughout the neoliberal age, both China and India were able to maintain a remarkably high Baran ratio.

These simple statistics shed some light on the character of capitalist class all over the world. In both developing and developed countries with a strong influence of neoliberalism, an average capitalist spend about 40 percent of their surplus on accumulation. In places with a legacy of

industrial policy like Japan and South Korea, a typical capitalist re-invest 60 percent or more of surplus. In countries with still active state regulation and intervention such as China and India, the capitalist class could easily spend more than 80 percent of surplus on capital accumulation.

The historical determinants of the Baran ratio

For major capitalist economies, the period between the 1960s and the early 1980s and was indeed a golden age in the sense that the ruling class became unprecedentedly productive. This should not be a surprise in a context of competition between capitalism and socialism. This was made possible by strong government intervention and regulation. For instance, the nationalist-party-led ruling class was once clearly unproductive in mainland China as we have seen above. But it later became highly productive after fleeing to Taiwan when defeated by communist revolution on the mainland. In the socialist camp, as we can see from Soviet Union (Russia) and China, the Baran ratio was also remarkably high in the post-war period. In fact, efficient utilization of surplus under economic planning was one of the key advantages of the socialist economy. This was relatively easy under socialism as the central and local planners have the right and means to appropriate and use the surplus in the economy.

This age of "productive" capitalism clearly passed in the 1980s when most economies saw declining Baran ratios. It was no longer a mandate for the capitalists to reinvest a significant portion of their surplus. The waning threat of the socialist camp, the rising neoliberalism, and the following deregulation in finance and other sectors all contributed to the change in the behavior of the capitalist class. After the decline, the Baran ratios for major economies seem to have stabilized around a much lower level. The recent economic crisis in the late 2000s did not bring much change

to the pattern. This suggests that global capitalism has moved on to a new stage featuring low accumulation, or long-term stagnation.

There are considerable regional differences. For example, Latin American economies have always had a lower than average Baran ratios, and there was no clear sign of a "golden age". The major East Asian economies still maintained a relatively high Baran ratio despite decline in the neoliberal age. Actually, the difference was not so much due to government policies. Japan and South Korea had a tradition of industrial policy, and Latin America also had a history of industrialization oriented import-substitution. Their historical conditions, however, differ significantly. In Japan, South Korea and Taiwan, the threat of communist revolution was real and the old ruling class underwent dramatic restructuring by domestic and US forces after the WW2. The land reform among other social changes also weakened the power of the nonproductive landlord class, preparing the ground for better appropriation and utilization of surplus. Latin America, by contrast, did not have as much threat from revolutions and the opportunity to restructure the ruling class. Lack of any meaningful land reform also prevents the progressive industrial policy have much substantial impact.

Both China and India had very high Baran ratios in the last decade, running against tide. China has maintained a high Baran ratio since early 1980s in our data. It is reasonable to assume China had similar levels of high Baran ratios during the 1960s and 70s. The main reason of such stability arises from direct state ownership or control of the major sectors during both planned economy and market economy era. Even with privatization and deregulation among other typical neoliberal policies, the Chinese government still managed to maintain firm control on the use of economic surplus, as can be seen from the rising Baran ratio following the recent global economic crisis. India's story was a little different. India did not have a centrally planned economy, although it did

learned from the experience of socialist economies. India until this today still implements five-year plans and emphasizes the role of public investment. Following the rise of neoliberalism, India also experienced a decline in Baran ratio. In 2000s, however, India seemed to have reverted the trend and the Baran ratio saw an increase. In fact, World Bank (2015) recognizes that India's public infrastructure investment has been a major driver of India's growth in recent years.

Does this imply that a history of socialism or industrial policy is a prerequisite for better utilization of surplus in today's world? It is illustrative to look at African countries such as Uganda and Rwanda. These economies do not have strong legacy of socialism or industrial policy. They, however, have demonstrated remarkable ability of surplus utilization as their Baran ratios increased dramatically since the beginning of this century. Rwanda's Baran ratio nearly doubled since 2000 and Uganda's number from 2012 was among the highest in the world.

There are two factors that might have contributed to increasing Baran ratios in Rwanda and Uganda. First of all, being among the poorest countries, the governments and the ruling classes prioritize economic development in policy making. This means they would be more inclined to adopt strong industrial policies and focus on investment. Second, both countries were just torn by civil wars in the 1990s and part of the old ruling class was significantly weakened. This could make a restructuring of pro-accumulation ruling class relatively easier, similar to the cases of East Asian economies.

In sum, Baran ratio in a capitalist economy has always been low, often no more than 50 percent. Only in the following abnormal conditions, an anxious and/or weaker capitalist class tends to be more "productive". First of all, a revolutionary movement could forces the ruling class to waste less and invest more, as we have seen in the Golden Age. Secondly, a post-war economy with weaker old ruling class could implement more regulation and pro-accumulation policies with less

resistance. We have seen this in both Golden Age and some contemporary African economies. Lastly, ruling classes in countries with legacy from socialist economy and/or industrial policy would also tend to focus more on investment. Japan, China and India are all good examples of this. In short, the "spirit" of the capitalist class is a product of class struggles as well as the overall historical conditions.

Growth, stagnation and legitimacy

Economic growth depends on both how much surplus the ruling class can appropriate as well as how much of those surplus will be spent on accumulation. Thus intuitively a higher Baran ratio should more or less corresponds to a higher growth rate.

With the Baran ratios from previous sections, we can look at the relationship between GDP growth rate and Baran ratio between 1990 and 2015. We choose countries from our sample where data are available. The average Baran ratios are primarily based on the property share approach, and substituted by estimates from top income approach when needed. For countries that have select data points of Baran ratios in the time period, we simply calculate the average of the point estimates. Figure 10 clearly suggests that a country with higher Baran ratio indeed tends to have higher growth rate during the past 25 year. The low Baran ratio (lower than 60 percent) countries on average grew at 2.3 percent per year, while the high Baran ratio economies grew at 4.8 percent per year.

To put this in a context, from 1870 to 2008, the average annual world GDP growth rate was about 2.8 percent.[5] This is approximately in line with the growth rate in low Baran ratio economies. In other words, a nonproductive capitalist class is a longstanding feature of capitalism. During the postwar Golden Age (1950-1975), based on the Maddison data, the world GDP grew about 4.7 percent per year. This is about the same with the growth rate of high Baran ratio economies. Capitalism historically has been a highly dynamic mode of production, especially compared to the pre-capitalist societies. So the humble growth in major economies before the WW2 could be considered high compared to their own records in the previous centuries. However, this "norm" now became a sign of stagnation, because of the abnormal history of Golden Age as well as the experiences of fast growing socialist economies. Thus the stagnation is really a return of the norm, which is turn caused by the end of abnormal historical conditions in the postwar era. Although still relevant, external factors like technology or effective demand are unlikely to be the main driving forces behind stagnation. The key here is a change in the characteristics of capitalist class, which is a result of class struggles among other historical factors.

As Figure 10 suggests, a high growth period like the Golden Age requires an average Baran ratio at about 60 percent, that is, a 10 to 20 percentage point increase for the major capitalist economies such as the US and western Europe. A change of this magnitude breaks away from the norm of capitalism and generally needs a revolutionary and/or post-war atmosphere. And even if such change happens, there is no guarantee it will be still contained within capitalism.

After all, the legitimacy of the capitalism ultimately depends on how effectively capitalists as the ruling class utilize surplus. Despite inequality and oppression, capitalism has been considered as a "progressive" social relation on the basis that capitalists keep re-investing a higher portion of the

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[5] Data are from The Maddison-Project, http://www.ggdc.net/maddison/maddison-project/home.htm, 2013 version.

surplus value compared with other social relations like Feudalism. In the heyday of cold war, capitalists managed to utilize surplus at a level that was comparable to socialist economies, which showed resilience and flexibility in the system.

What we see from the data, however, is that the capitalist class in major economies such as the US and UK has gradually ceased to be productive/progressive. And this is clearly not simply a return to the long run average, as this trend remained unchanged even after the recent crisis. It suggests any potential of progress and flexibility in the system may has been exhausted in these mature capitalist economies. There are countries where the (young) capitalist classes are still more productive, but those are primarily developing countries and have severe problems of their own. This overall pattern poses a serious question on the necessity of capitalism, from the point of capital accumulation itself.

This does not, of course, means a fast growing economy is free from its own contradictions. Endless growth is fundamentally incompatible with our ecological system. But the move to stop global warming and build environmental friendly infrastructure still needs a tremendous effort, which means that a significant portion of surplus has to be invested in these areas. This will not be possible without a good use of the surplus, or a high Baran ratio.

Conclusion

This paper follows the Marxian tradition to study the utilization of economic surplus since the 19th century. We construct the Baran ratio, defined as the ratio of gross capital formation to a nation's economic surplus. Our results clearly support the notion of secular stagnation in capitalism. The
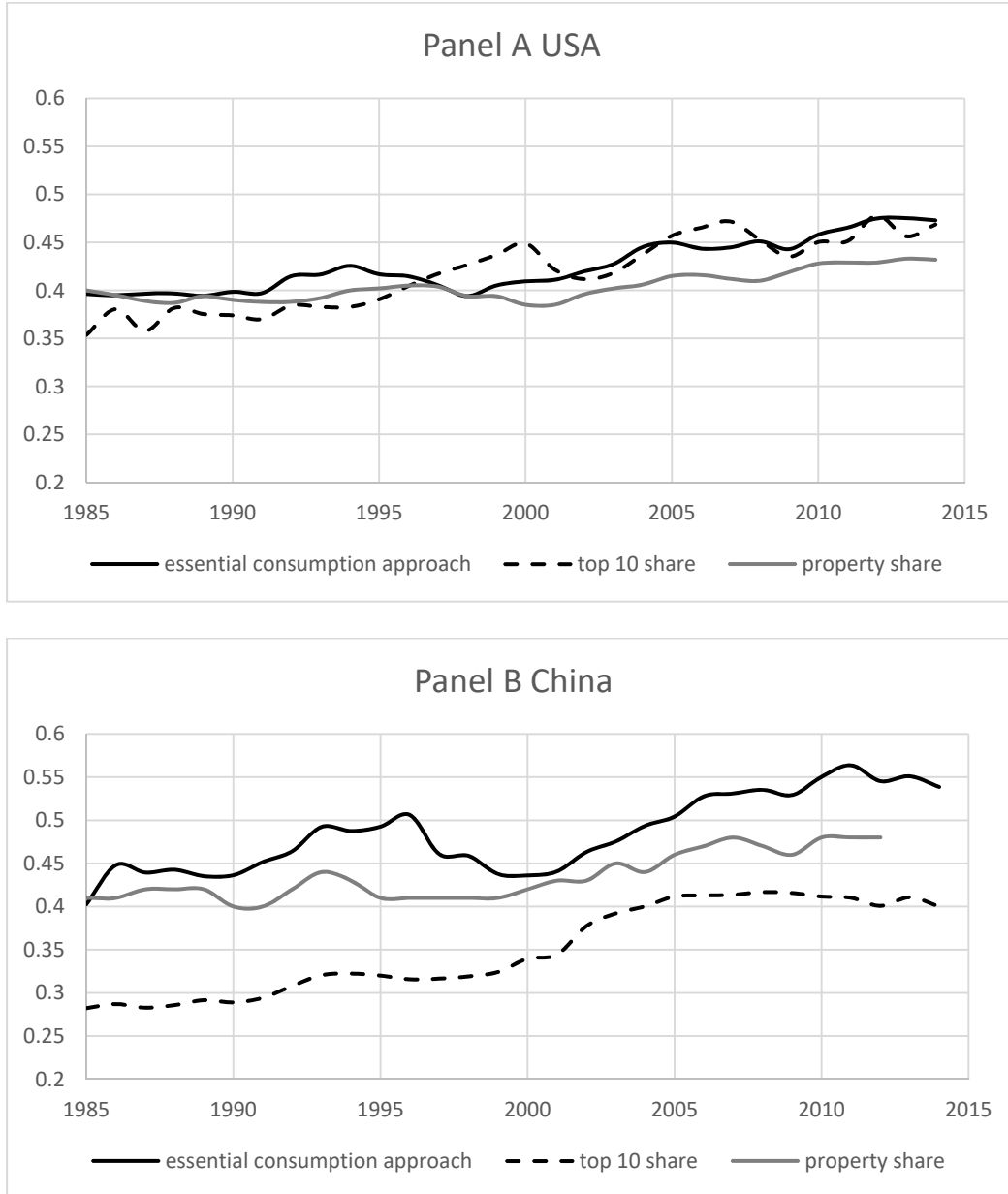
Baran ratios for major capitalist economies such as Britain and Germany were largely constant and low from the mid-19th century to early 20th century. In the post-WW2 years the Baran ratios increased to historic high levels among both developed and developing countries. However, the neoliberal era saw a dramatic decline in the Baran ratios among most economies.

There are considerable divergences across the globe. The Baran ratios of developed countries tend to stabilize in recent years around a pre-WW2 low level, while the ratios of China and India remain on relatively high levels. The empirical evidence shows that slow capital accumulation and growth is an inherent feature of unregulated capitalism including both pre-WW2 and the neoliberal eras. The Baran ratio in a capitalist economy has always been low, often no more than 50 percent. Only in the abnormal conditions, an anxious and/or weaker capitalist class tends to be more "productive". The neoliberal logic often times attribute the lack of investment and slow growth to high labor cost. This clear contradicts the fact that globally labor share in GDP has been declining throughout the neoliberal era. This paper focuses on the behavior/animal spirit of capitalist class and argues that the fault of stagnation is obviously with the capitalist class. Since the legitimacy of the capitalism ultimately depends on how effectively capitalists as the ruling class utilize surplus, a declining and low Baran ratio in the global economy poses a serious question on the necessity of capitalism, from the point of capital accumulation itself.

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Figure 1 Alternative approaches of surplus measurement: USA and China

Panel A USA

essential consumption approach — — — top 10 share — property share

Panel B China

essential consumption approach — — — top 10 share — property share

Sources: For the US, median personal income data are from the Fed economic data, https://fred.stlouisfed.org/ (1975-) and Census Bureau (1955-1975). Property share data are calculated based on wage share from ILO database. For China, the median income data are from *China Statistical Yearbook* from various years. Property share data are based on labor share estimates in Qi (2015). Top 10 percent income share data for both countries are from World Wealth & Income Database (wid.world).

Figure 2 Baran ratio: Britain 1850-2012
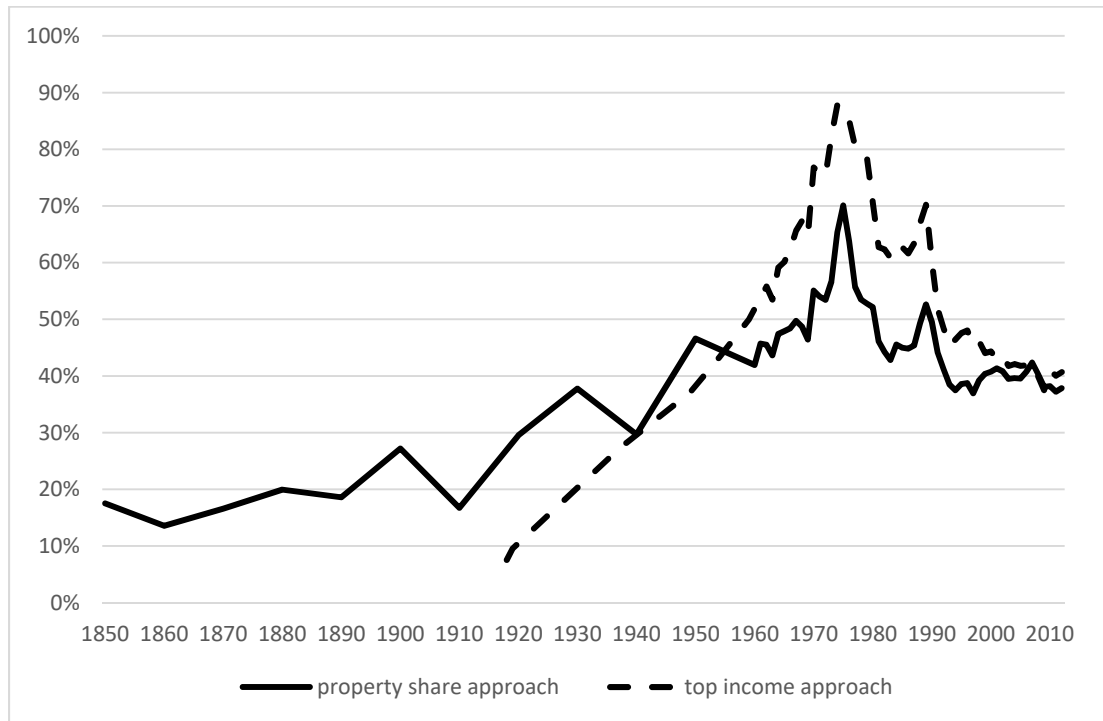
Sources: Capital formation data between 1850 and 1970 are based on Mitchel (1975), European Historical Statistics. Capital formation data after 1970 are from World Bank databank. Property share data before 1970 are based on Table A49 in Piketty-Zucman Wealth-Income Data Set (http://piketty.pse.ens.fr/fr/capitalisback). Post-1970 data are based on wage share estimates from ILO. Top 10 percent income share are from World Wealth & Income Database (wid.world).

Figure 3 Baran ratio: Germany 1870-2015
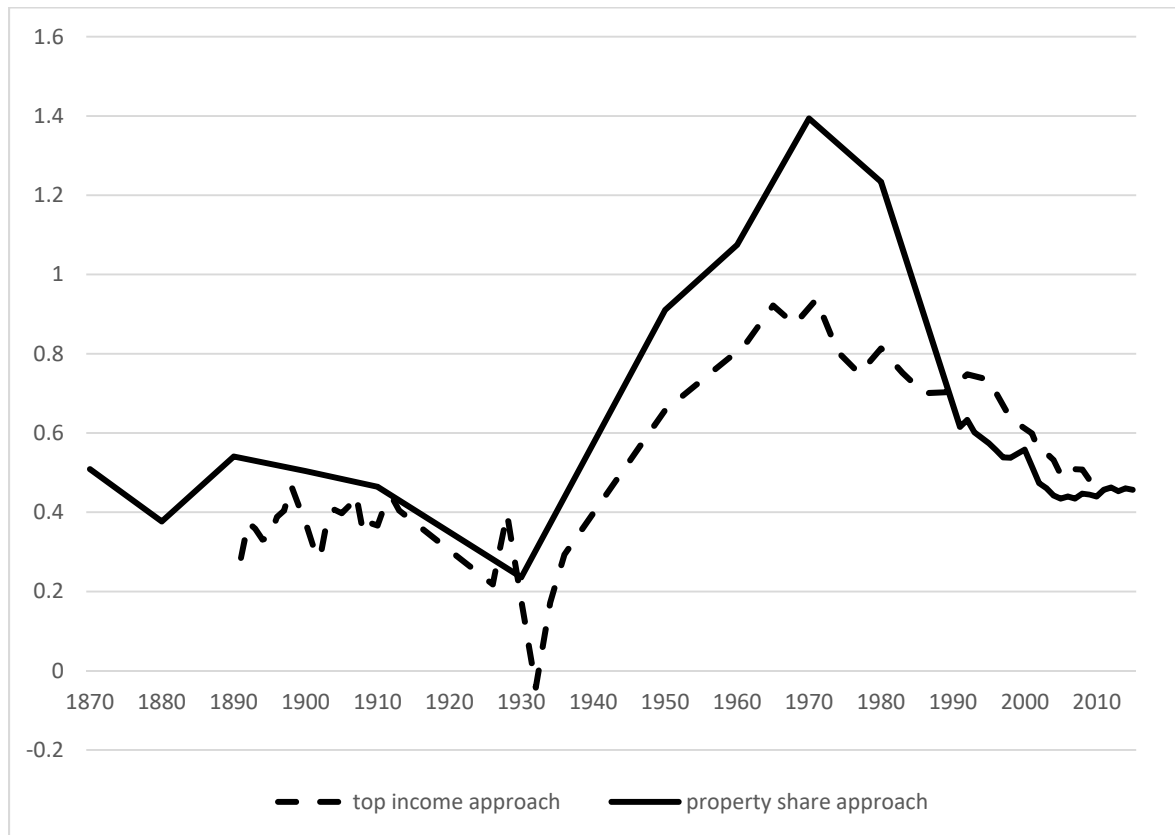
Sources: Capital formation data between 1850 and 1970 are based on Mitchel (1975), European Historical Statistics. Capital formation data after 1970 are from World Bank databank. Property share data before 1970 are based on Table A49 in Piketty-Zucman Wealth-Income Data Set (http://piketty.pse.ens.fr/fr/capitalisback). Post-1970 data are based on wage share estimates from ILO. Top 10 percent income share are from World Wealth & Income Database (wid.world).

Figure 4 Baran ratio: France 1900-2013
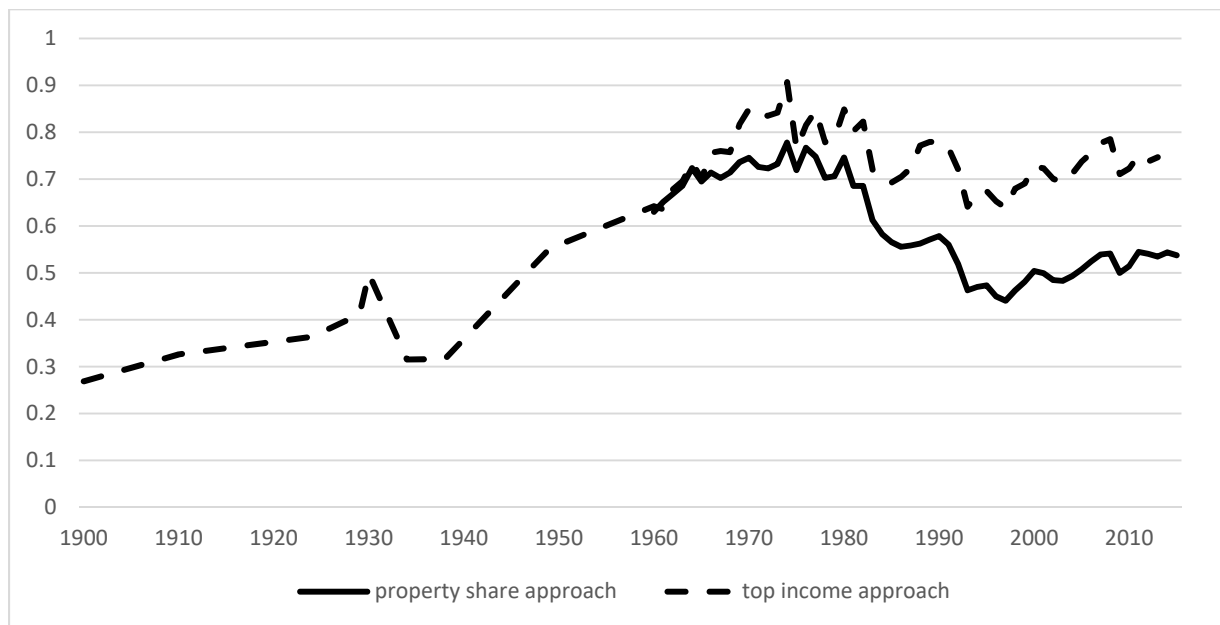
Sources: We use gross fixed capital in GDP to proxy for gross capital formation before 1970, from Carre, Dubois, Malinvaud (1975, p. 117). The gross capital formation data in 1900 is missing and 1896 value is used instead. Capital formation data after 1970 are from World Bank databank. Property share data before 1970 are based on Table A49 in Piketty-Zucman Wealth-Income Data Set (http://piketty.pse.ens.fr/fr/capitalisback). Post-1970 data are based on wage share estimates from ILO. Top 10 percent income share are from World Wealth & Income Database (wid.world).

Figure 5 Baran ratio: developed economies group 1
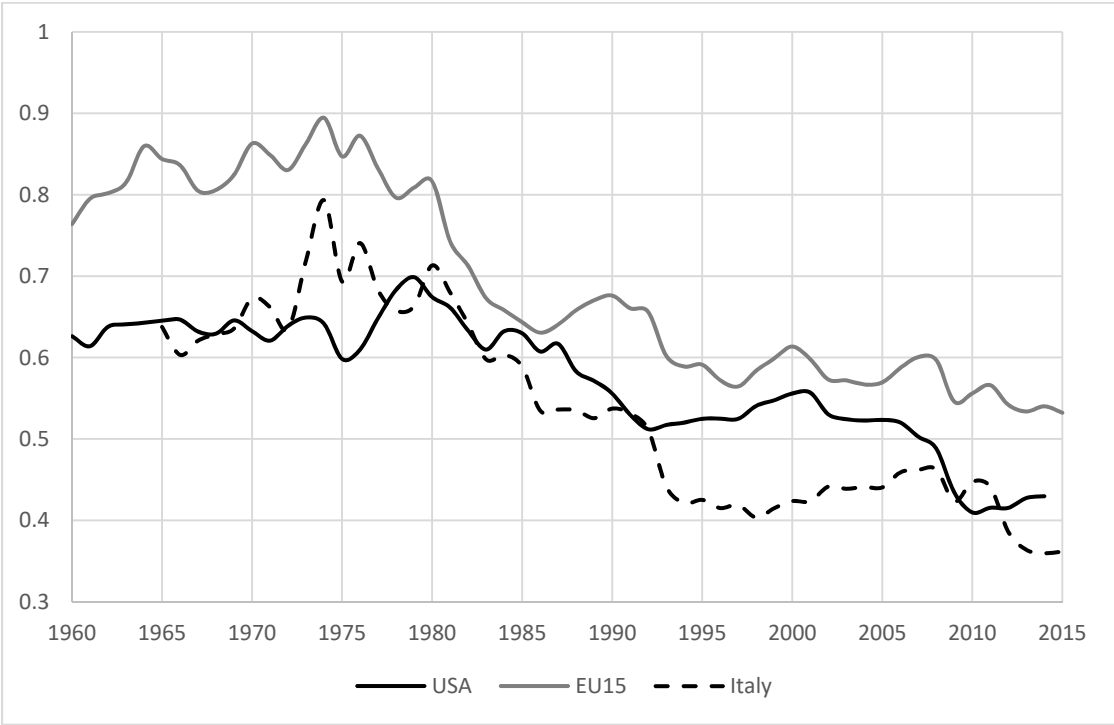
Sources: Capital formation data are from World Bank databank. Wage share estimates are from ILO. Top 10 percent income share in the US are from World Wealth & Income Database (wid.world).

Figure 6 Baran ratio: developed economies group 2
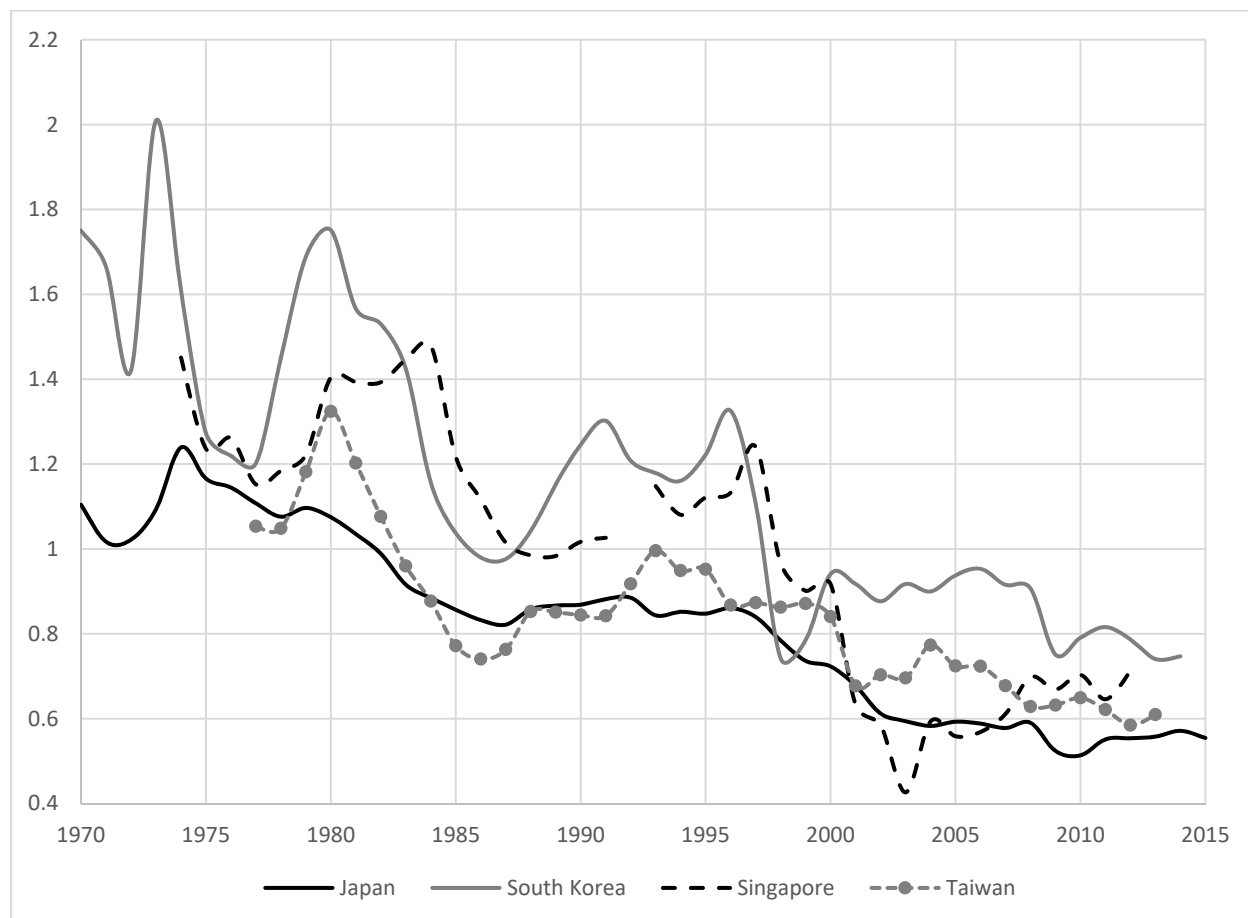
Notes: Singapore and Taiwan estimates are based on top income approach. Japan and South Korea estimates are based on property share approach.

Sources: Capital formation data are from World Bank databank. Wage share estimates are from ILO. Top 10 percent income share in the US are from World Wealth & Income Database (wid.world).

Figure 7 Baran ratio: developing economies group 1
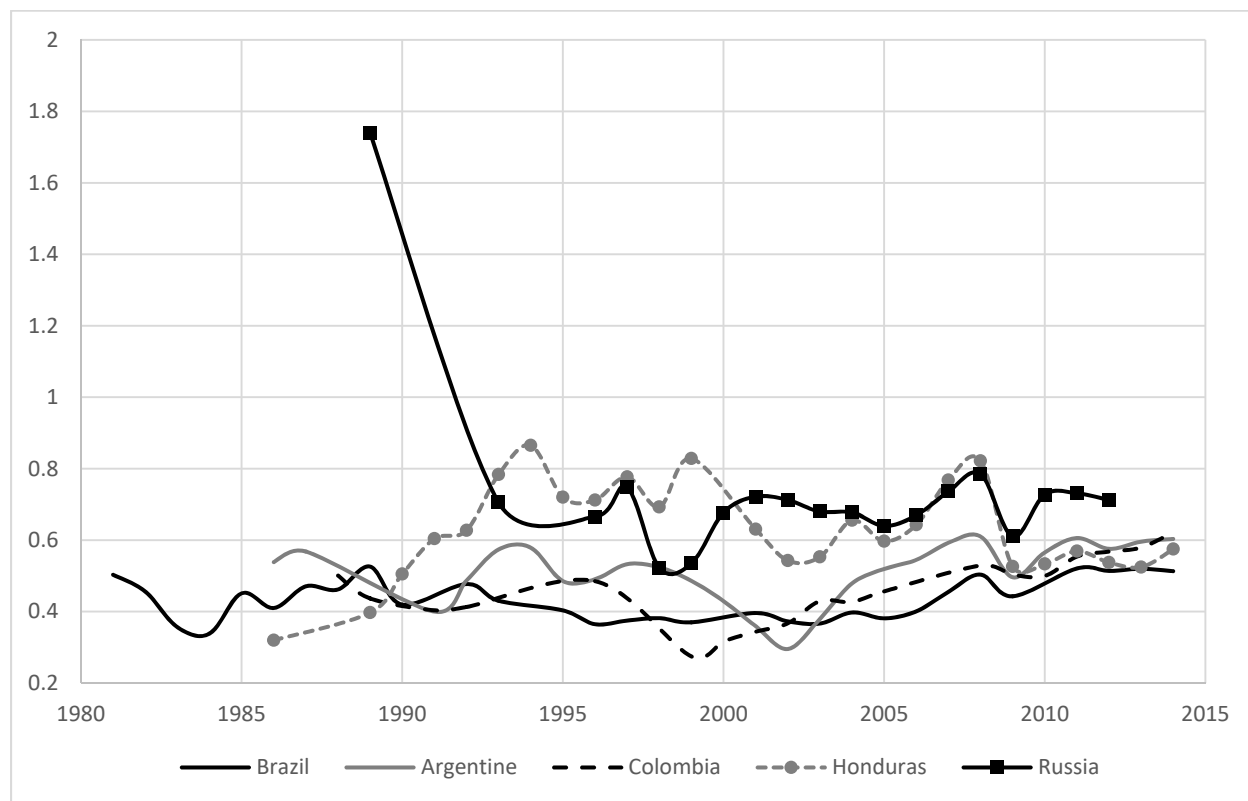
Notes: All are based on top income share approach.

Sources: Capital formation data are from World Bank databank. Top 10 percent income share data are from World Wealth & Income Database (wid.world) and World Bank databank.
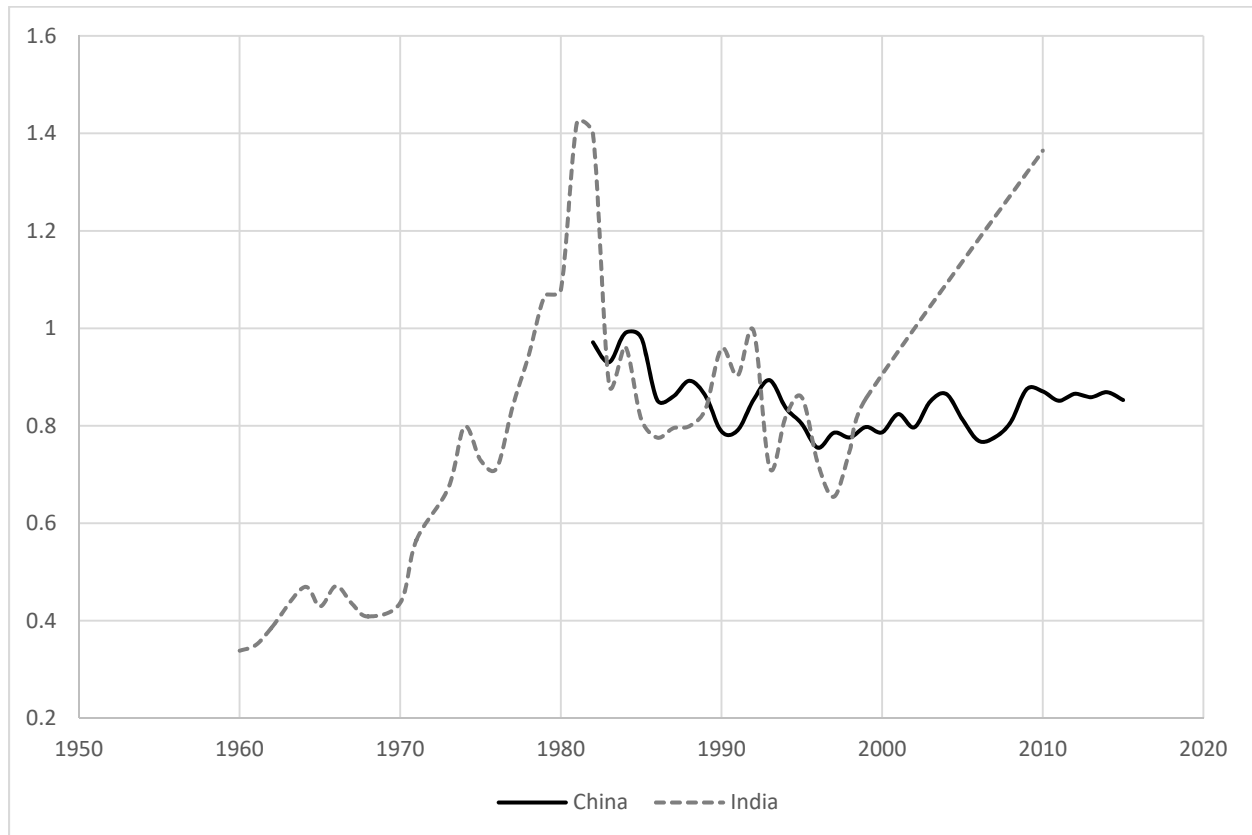
Figure 8 Baran ratio: developing economies group 2
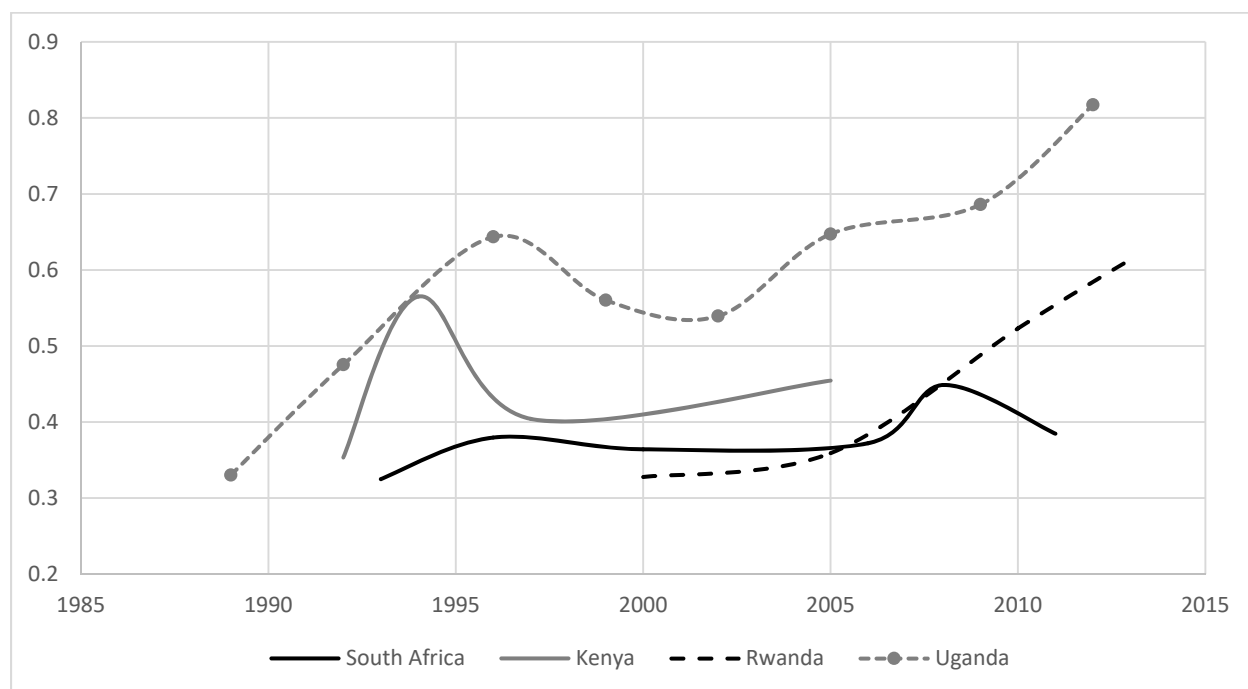
Notes: All are based on top income share approach.

Sources: Capital formation data are from World Bank databank. Top 10 percent income share data are from World Wealth & Income Database (wid.world) and World Bank databank.

Figure 9 Baran ratio: China and India

Notes: China's data are based on essential consumption approach. India's data are based on top income share approach. We can only find top 1 percent income share estimate for India, and we impute the top 10 percent share by multiplying top 1 share with a factor of 3.5. We obtain this factor based on the ratio of top 1 and top 10 income shares in a few other countries. A change in the factor does not alter the overall trend.

Sources: Capital formation data are from World Bank databank. Top 10 percent income share data are from World Wealth & Income Database (wid.world) and World Bank databank.

Figure 10 Baran ratio and growth 1990-2015
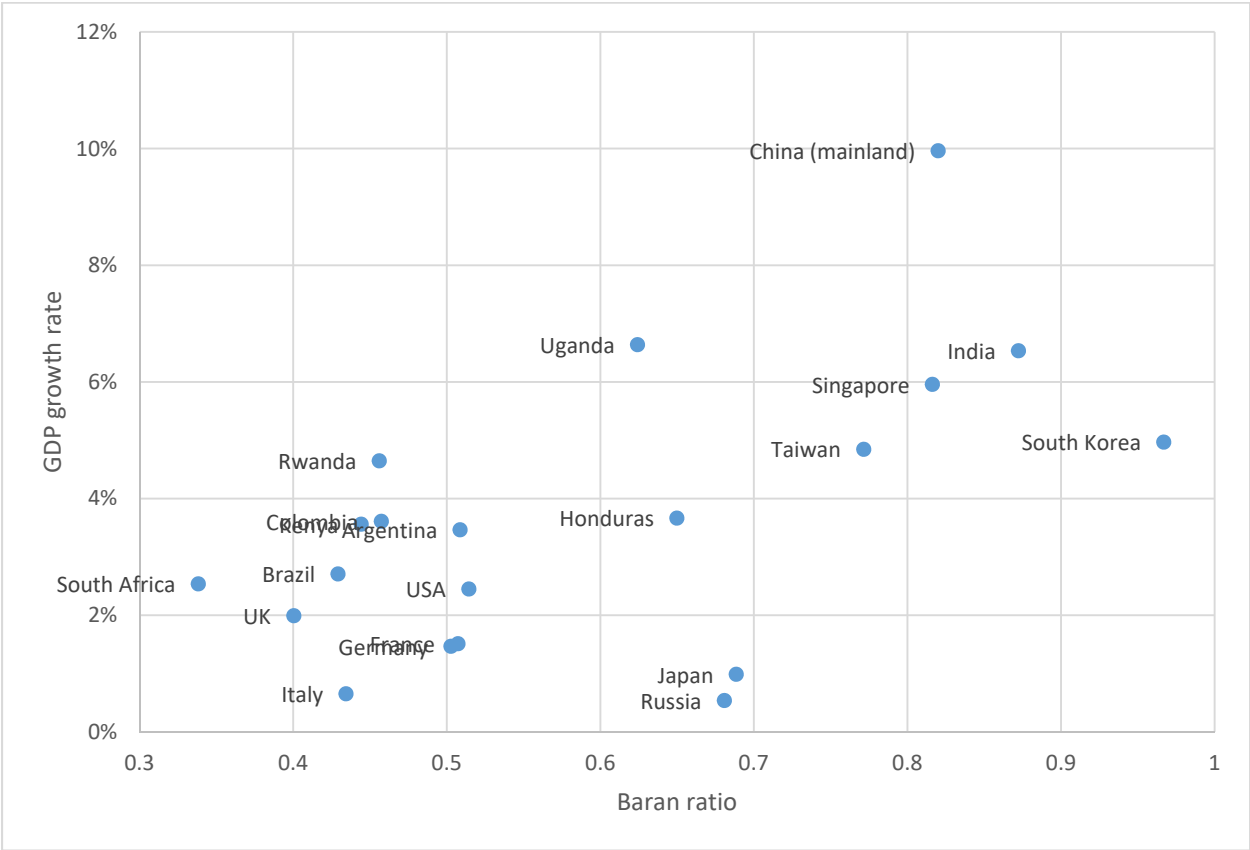
Notes: GDP growth rates and Baran ratios are average values of 1990-2015.