Capital in the Twenty-First Century by Thomas Piketty

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A Review

A best seller on democracy and the inequality of wealth and income

French economist, Thomas Piketty's best seller presents a massive empirical analysis of the dynamics and structure of wealth and income in countries with capitalist economies since the late 18th century. His book relies primarily on the historical experience of the rich countries of France, Great Britain, the United States, Japan, and Germany (28). The result is a discovery of an empirical law that produces an ever increasing growth in wealth relative to national income in these countries. Ever increasing wealth leads to extreme concentrations of wealth in the hands of the wealthiest 10% and income earned by the highest 10% of income earners in the population. The concentration of wealth is so great that much of it is passed on to the next generation in inheritances so that eventually economies tend to be dominated by a high proportion of inherited wealth. This outcome violates the "meritoric" value of democracy - that the inequality of income and wealth are just only if they are the result of hard work and skill. Inherited wealth is not the result of hard work and skill of the recipients.

Piketty's analysis begins with the relationship between wealth and income. Note that wealth and capital are terms that mean the same thing and that they are used interchangeably throughout the book. Capital represents the market value of assets of real estate, stocks and interest bearing assets such as bonds, GICs and savings accounts in banks. These Capital assets generate annual incomes in the form of rents, profits, stock dividends, capital gains, royalties and interest all of which are "income from capital". Income from capital is then added to "income from labour" (in the form of wages, salaries and self employment income) to produce income. So when Piketty refers to income he means the sum of income from capital and income from labour. The distinction between these two types of income is significant because they are distributed in very different ways among the three broad classes in society: the rich, the middle class and the poor. Income from capital amounts to around 30% of national income in Britain and France and 20% in the United States and Canada (200,201,154,157).

Increasing inequality is most dramatic in the US where the share of total income earned by the top decile of income earners rose from 33% in 1970 to almost 50% in 2010 (Figure 8.5 p. 291). Approximately 70% of this increase reflects the share of income earned by the top 1% of income earners which rose from 8% in 1970 to 20% in 2010 (Figure 8.6 p. 292). The latter set of figures has led to the unrest in the US that was manifested in the Occupy Wall Street movement in 2011. Whether or not this unrest will be destabilizing depends on the future organization and strength of the Occupy movement relative to the effectiveness of other organizations that are engaged in justifying the inequality. Since the 1980s neoconservative groups in the US have aggressively asserted justifications for these inequalities. These include the arguments that inequalities are justified because the increase in wealth represents a reward for hard work, ingenuity, and entrepreneurship or because higher tax rates on high income earners to correct the inequality would reduce incentives to work hard or, alternatively, act as incentives for them to move production activities out of the country to the detriment of all citizens.

Why capitalist economic systems don't self correct

One of the justifications for a capitalist market economy in circumstances of growing inequality of wealth and income is that the market will correct by itself in the sense that the rate of return on capital will fall with the result that inequality will be reversed or that technological change will somehow make things better. It's only a matter of time they might say. The following quotations illustrate Piketty's strong disagreement with this view.

> "It is an illusion to think that something about the nature of modern growth or the laws of the market economy ensures that inequality of wealth will decrease and harmonious stability will be achieved (376). …. The history of inequality is shaped by the way economic, social and political actors view what is just and what is not just, as well as the relative bargaining power of those actors and the collective choices that result (20). … Political forces are central …to ensuring that (the wages of) human capital will triumph over (the income from) capital (234).

Furthermore, technology and markets will not necessarily suffice to prevent growing inequality because of the caprice of technology. For example, during the first half of the nineteenth century the exodus of labour from the countryside in Britain into its cities, together with technological changes that increased the productivity of capital, resulted in the lion's share of income going to profits while wages stagnated at objectively miserable levels. During this period there was a transfer of 10 percent of national income to capital from labour (225). In recent times, technology has increased the need for human skills but it has, at the same time, increased the need for capital in the form of buildings, homes, offices and equipment of all kinds. The profits from these capital investments have grown faster than the wages and salaries of the skilled labour.

Some have argued that proper investment in training and skills and the diffusion of knowledge will work in labour markets to enhance social mobility and reduce unequal incomes to a degree. Piketty concludes with respect to the US that there is little correlation between spending on public education and social mobility (484) and, further that the law of supply and demand has "ambiguous results". In other words, what are frequently thought of as factors of "convergence" (i.e., factors leading to less inequality) are weak.

An empirical law explaining why the inequality of wealth keeps increasing

Inequality of wealth in developed capitalist countries increases indefinitely over time in circumstances where the private rate of return on capital (i.e., wealth) is greater than the rate of growth in national income. The result of this law is manifested in an increase in the ratio of capital to national income – the "Capital Income" ratio. Capital means wealth which includes the market value of real estate, stocks, and all interest bearing assets (e.g., bonds, GICs and savings accounts in banks). National income includes income from labour (wages, salaries and self employment income) plus income from capital. Income from capital includes rents, dividends, royalties, interest, profits, and capital gains (242). The increase in the Capital Income ratio translates into a reduction in the proportion of national income for labour and an increase in the proportion of income from capital. Table 1 provides an example of how this translation works over a period of 40 years.

TABLE 1 Trends in Income from Capital and Income from Labour ($ billion)							
	1970	1971	1972	1973	1974	~	2010
Income	100	102	104	106	108	~	221
Investment in Capital		12	12	13	13	~	26
Income from Capital		12	13	13	14	~	37
Capital at the End of the Year	350	362	375	387	400	~	1,089
"Capital Income" Ratio	3.5	3.6	3.6	3.7	3.7	~	4.9
Labour Income		90	91	93	95	~	184
Labour Share of Income %		88%	88%	88%	87%	~	83%
The assumptions in this model are as follows. First the "Capital Income" ratio in 1970 is 3.5. Second, the annual after-tax rate of return on Capital is 3.5% (comprised of a pre tax rate of 5% and an average 30% tax rate) so Income from Capital equals 3.5% of Capital at the end of the previous year. Thirdly, Income grows by 2% per annum. Finally the savings rate is 12% of Income and all the savings are invested in capital as shown in the row, Investment in Capital.							

The results in the final column of the table are (1) a Capital Income ratio of 4.9 which has increased from 3.5 in 1970 and (2) a Labour Share of Income of 83% which has fallen from 88% in 1971. Had the after tax rate of return on capital been reduced to 2% (the same rate as the assumed rate of growth in Income) the results for 2010 would have been a Capital Income ratio of 4.9, and a Labour Share of Income of 90% rather than 83%. An additional 7 percentage points of labour income in Canada's $1.760 trillion dollar economy in 2011 amounted to $123 billion in potential purchasing power that year which represents a reduction in average family income of $9,248 from $75,714 to $65,466.

For over 2,000 years the average rate of return on capital has exceeded the rate of growth in national income with one exception – the twentieth century (356). Further the rate of return on capital appears to be fairly stable over long periods of time. In Britain and France from the 18th to the 21st century the pure return on capital has oscillated around a central value of 4% to 5%. There has been no pronounced long term trend either up or down. By contrast, the average annual growth rate in national incomes over the last 300 years was 0.5% and 1.5% in the 18th and 19th centuries. Over the last 100 years the average has been 3.0% (derived from Figure 2.5, p. 101). Indeed it was only the multiple shocks triggered by the Great Depression and World War II that were sufficient to bring the rate of return on capital down to a level below the growth rate in income (8). That period was 1945 to 1970 which is sometimes referred to as the "golden age of capitalism".

The gap between the rate of return on capital and the growth rate in national income should be analyzed as a long term historical reality – not as a logical necessity. "The rate of return on capital depends on many technological, psychological, social and cultural factors which together seem to result in a return of roughly 4-5 percent. In any event this is distinctly greater than 1 percent which is the long run rate of growth once the demographic transition is complete and the country reaches the world technological frontier where the pace of innovation is fairly slow (361).

Why it is undemocratic when inherited wealth grows to dominate an economy

"When the rate of return on capital significantly exceeds the growth rate of income it logically follows that inherited wealth grows faster than income. The steps in this logic relate to the class structure. The classes in society are defined with reference to their share of total wealth in society – not with reference to their share of total income. The rich are defined as the top 10% (top decile) of wealth holders who collectively own about 60% of the wealth of society. Within this group are the "uber rich" who are in the top 1% of wealth holders and the rich in the next nine "centiles" of wealth. The poor are the bottom half of wealth holders who collectively own only 5% of total wealth; most of them own practically nothing. Between the rich and the poor is the middle class – the 40% of wealth holders in the sixth to ninth deciles of wealth holders. The middle class are referred to as a "propertied class" because ownership of a primary residence and the way it is acquired and paid for plays a key role in their life. Sometimes, in addition to a home they have a substantial amount of savings. When the mortgage on the home is paid off the net worth will increase. This is the typical trajectory of this class (260). Since this class of 40% of the population owns 35% of the wealth they may be considered to be close to average. However individual wealth in this group ranges from barely $141,000 to $565,000 CAD at today's exchange rate with euros. Table 2 shows the breakdown of wealth in the middle column for the various classes.

TABLE 2 Shares of Income and Wealth in Europe : 2010

	Labour Income	Wealth	Total Income
The Rich – Top 10%	25%	60%	35%
The "Uber Rich" – Top 1%	7%	25%	10%
The rest of the Rich - next 9%	18%	35%	25%
The Middle Class - the next 40%	45%	35%	40%
The Poor – the bottom 50%	30%	5%	25%
Total	100%	100%	100%
Source: Tables 7.1, 7.2 and 7.3; pages 247-249			

The first column shows their shares of income from labour in the country and the last column shows their shares of total income (from labour and capital) in the country.

The next step is to explain how capital accumulates for the different classes. It will be recalled from Table 1 that the savings rate was 12% of income and that all savings were invested in new capital. The reality is that the rates of saving vary greatly among the classes. For example, if it were assumed that the poor saved nothing and the other classes saved in proportion to their total income, a hypothetical distribution would result as shown in Table 3 on the next page.

TABLE 3 Hypothetical Distribution of Capital Investment From Savings Among Classes					
	1	**2**	**3**	**4**	**5**
Class	**Number of Individuals**	**Share of Income[2]**	**Share of Savings[1]**	**Savings for Capital**	**Capital per Individual**
"Uber" Rich	1	10%	13%	$133	$133
Rest of Rich	9	25%	33%	$333	$37
The Rich	10	35%	47%	$467	$47
Middle Class	40	40%	53%	$533	$13
Poor	50	25%	0%	$0	$0
Totals	100	100%	100%	$1,000	

1.The share of savings is calculated as the share of income among the rich and middle classes who collectively earn 75% of national income. The poor who earn 25% of total income are assumed to save nothing. The figure in Column 3 is calculated by dividing the figure in Column 2 by 0.75.
2. Source: Table 2.

The main result of this hypothetical example is that the capital of the individuals in the rich class will grow much more quickly than the capital of individuals in the middle class – assuming that both classes save the same percentage of their total income. In this example the average savings rate which was 12% of total income has increased to 16% for the rich and middle classes as a result of the assumption that the poor save nothing. An even more realistic assumption might be that the rich have an even higher savings rate than the middle class. This arises of course because prices in markets for basic goods and services (other than luxury goods and services) are more or less the same for the rich as they are for the poor and the middle class so that higher income groups can save a higher proportion of their income while covering their costs of living.

A good deal of the accumulated wealth of the rich over their lifetime is transferred to the next generation through inheritances. "People with inherited wealth need save only a portion of their income from capital to see that capital grow more quickly than the economy as a whole. Under such conditions it is almost inevitable that inherited wealth will dominate wealth amassed from a lifetime's labour by a wide margin and the concentration of capital in the hands of a small minority will attain extremely high levels – levels potentially incompatible with the meritocratic values and principles of social justice fundamental to democratic societies (26)." For example, "Inherited wealth probably accounted for 50% to 60% of private wealth in the United States in the period 1970 to 1980 (428)."

The concentration of inherited wealth in the hands of a small minority violates the meritocratic value of democracy – that income from inherited wealth is not regarded as meritorious because it is not earned from human effort or skill. Note that the rate of return on capital is a "pure" rate which is the actual rate minus the imputed costs of time spent by the owner in managing the portfolio of capital assets (205).

The concentration of wealth in the hands of a small minority also violates the democratic principle of social justice that states that any increase in wealth or authority that does not result in a compensatory benefit for the rest of society, and particularly the least advantaged in society, is unjust. The evidence suggests that increasing inequality has in fact reduced benefits to the rest of society and the least advantaged. "There is absolutely no doubt that the increase of inequality in the United States contributed to the nation's financial instability. The reason is simple: one consequence of increasing inequality was virtual stagnation of the purchasing power of the lower and middle classes in the United States, which inevitably made it more likely that modest households would take on debt especially since unscrupulous banks and financial intermediaries, freed from regulation and eager to earn good yields on the enormous savings injected into the system by the well-to-do, offered credit on increasingly generous terms (297)."

The middle class which emerged in the 20th century could be an endangered species in the 21st

The middle class are significant because they are essentially a twentieth century phenomenon. In 1910 they did not exist in the sense that the middle 40% of the wealth hierarchy owned only 5 to 10% of wealth depending on the country (261). Furthermore, the rise of this class was accompanied by a very sharp decrease in the upper centile of wealth holders' share of total wealth which fell by more than half – from 50% at the turn of the twentieth century to around 20-25 % at the end of that century (262). The increase in the tax rate on capital income in the mid twentieth century was a contributing factor to this change. "An increase in the tax on income from capital from 0 to 30 percent (reducing the net return on capital from 5 percent to 3.5 percent may well leave the total stock of capital unchanged over the long run for the simple reason that the decrease in the upper percentile share of wealth is offset by an increased share of wealth of the middle class. This is precisely what happened in the twentieth century although the lesson is sometimes forgotten today (374)."

By virtue of its size, the middle class is the most politically important class as it outnumbers the rich by 4 to 1. Further, at least in Canada, the voter participation rates for homeowners, most of whom are in the middle class, are significantly higher at 74% than the 54% rate for non home owners. So the political power of the middle class even exceeds that of the lower half of the population who are poor.

Nevertheless the position of the middle class is fragile to the extent that its fortune depends on the future relationship between the returns on capital relative to the growth in national income. On the basis of past trends, Piketty's projections indicate that, in the US, the shares of the middle class and the poor will fall as a result of the rise in the share of income of the rich.

TABLE 4 Projected Class Income Shares for the US			
	1970[1]	2010[2]	2030[2]
"Rich" (top decile of wealth)	28%	50%	60%
"Middle Class " 6th to 9th deciles of wealth)		30%	25%
"Poor" (bottom half of the wealth owners)		20%	15%
		1005	100%
1.Source: Piketty, Figure 8, page 324 2.Source: Piketty, Table 7.3, page 249			

Inequality of income from labour can be reduced with little loss in economic output

The progressive income tax system developed in the mid 20th century in the US, Canada, Britain and much of Europe has been dramatically reduced since them. For example the top marginal income tax rate in the US was 94% in 1944; in 2010 it was 40% (499). The 94% rate signaled implicit views of the then political leaders about the maximum income that should be tolerated in society. The high rate left little incentive for senior executives to bargain with shareholders for increased compensation since any increase would be heavily taxed. As a result of a reduction of top rates (largely from 1965 to 1990) there has been an explosion in compensation of senior executives who have successfully bargained with their shareholders for pay increases. Piketty and colleagues' study of 3,000 firms in fourteen countries concluded that the higher compensation is unrelated to the personal productivity of senior executives (639 n46). Indeed they characterized the high marginal income as income for the economically useless behavior of bargaining for more pay. In this light, Piketty proposes increasing tax rates to 80% on annual incomes in excess of $500,000 for the purpose of greatly reducing inequity at the top end of labour income hierarchy. This inequity is now manifested in the fact that the top 1% of income earners in the US receive 12% of the total labour income in the country; the comparable figures for their counterparts In Europe and Scandinavia are 7% and 5% respectively. This change would not result in a material exodus of senior executives to Canada or Mexico (513).

The US has also increased inequity of labour income at the lower level of the income scale by reducing the purchasing power of the federal minimum wage by almost 30% since 1970 (309). Studies have concluded that the 25% increase in the minimum wage envisaged by President Obama will have little or no effect on the number of jobs (313).

Inequality in the global capitalist system can be fixed with a modest progressive tax on capital

Democracy has lost control over the globalization of capitalism. To gain control it must ideally organize a progressive global tax on capital coupled with a very high level of international financial transparency to avoid tax evasion. Such a tax would provide a way to avoid the "endless inegalitarian spiral and to control the worrisome dynamics of global capital concentration" (515). Specifically the tax would apply to the net value of assets that each person controls (516).

At current exchange rates between the Canadian dollar and the euro, the suggested rates of tax are 1% on wealth between $1.4 million and $7 million Canadian and 2% on wealth in excess of $7 million. The revenue from these rates is equivalent to a tax of 10% and 20% on the income from capital for the next ten years and earmarking the receipts for debt reduction (544). Assuming a 5% rate of return on wealth, these rates would generate $7,000 to $35,000 annually for the first bracket and $70,000 and up for the second bracket. A billionaire would pay $10 million per annum.

Collateral benefits of a global tax on capital

1. Since the goal of the tax is not to generate a lot of revenue but rather to prevent further inequality of wealth, not much money would be generated.

2. A capital tax would force governments to clarify and broaden international agreements concerning the automatic sharing of banking data that would be necessary to enable national tax authorities to calculate the net worth of every citizen (520).

3. A benefit for democracy is that the tax provides more transparency and accuracy for citizens about the distribution of wealth and income. This is important because the distribution of wealth and income is a matter for citizens to decide in the public interest. A truly democratic debate cannot take place or proceed without reliable statistics (519).

4. It would clearly define societal norms about individual income and wealth. Tax policies implicitly reveal societal norms. For example the top marginal personal income tax rate for Ontario residents in Canada in 1969 was just over 100% for personal incomes above $400,000 which is the equivalent of $2.360 million in 2010 dollars. This fact could be said to reveal a societal norm in the 1960s that, if maintained in 2010, reveals that no individual Ontarian in 2010 should have had an income in excess of $2.360 million. Furthermore, a rate of return on wealth of 5% would imply a societal norm that individual wealth should not have exceeded $47 million in 2010 - and even less if the individual had earned some income from employment in addition to his or her income from wealth.

5. Such a tax would generate information that would be instrumental in eliminating tax havens. This is important because, in Piketty's view, "It is not right for individuals to grow wealthy from free trade and economic integration only to rake off the profits at the expense of their neighbours. That is outright theft (522)." The comprehensive banking data automatically should have been part of the free trade and capital liberalization agreements negotiated since 1980.

The international tax on capital is technically feasible

Piketty argues that it is technically feasible to develop a global tax on capital. The nature of the tax would involve further refinements to the US Foreign Account Tax Compliance Act (FATCA) which is scheduled to be phased in during 2014 and 2015. The refined system would apply to all countries and would be accompanied by effective economic sanctions on banks and on countries that do not comply.

Addressing climate change is a risky proposition with potentially huge returns

The public debt is much smaller than total private wealth and perhaps not really that difficult to eliminate. It is not our major worry. The more urgent need is to increase our educational capital and prevent the degradation of our natural capital. Climate change is a far more serious and difficult challenge because it cannot be eliminated at the stroke of a pen or with a tax on capital which comes to the same thing (568).

British economist Nicholas Stern estimates that the loss of global well-being is so great that it justifies spending at least five points of global GDP a year right now to attempt to mitigate climate change in the future. This represents spending by the rich countries on a far vaster scale than the 1 to 1.5 percent of GDP that they have been spending over the last several decades (569, 654: 54n).

In this context some believe that a massive public investment to address climate change is warranted. Just as the massive buildup in public spending to fight the second world war pulled the US and Canada out of the Great Depression of the 1930s so a massive increase in public investment to address climate change could pull the world out of the current "Great Recession" and its prospects for stagnation in economic output for possibly another decade.

Piketty notes that the issue is complicated by the uncertainties and unknowns about solutions to climate change. Do we really know what we ought to invest in and how we should organize our efforts? Should we count on advanced research to make rapid progress in developing renewable energy sources or should we immediately subject ourselves to strict limits on hydrocarbon consumption? Or would the best approach be a balance of these two?

This book is a brilliant work of art with a new frame

In my view Piketty's massive set of data is organized around an innovative and brilliant analytical model for assessing the dynamics of wealth and income. The structure has several important features.

1. The data distinguish wealth that derives from inheritance from wealth that derives from savings from the hard work of a life time of labour because these two forms of income relate differently to the principles of democracy and their underlying ethics.

2. The distinction between income from labour and income from capital is made to reflect the distinctly different realities about the mechanisms and institutions that govern them.

3. The utilization of centile data to define classes according to the degree of wealth relates to the reality that these classes have significantly different perspectives, persuasive capabilities and bargaining power in democracies. As Piketty states, the history of inequality is affected by collective choices that are shaped by the perspectives, relative (political) power and persuasive capabilities of different social groups. To be sure the definition of the middle class could be refined by adding sociological variables but his attempt tries to capture some sociology that may be roughly related to different wealth. Furthermore it is impossible to have a reasonable democratic discourse on the topic without concrete definitions and data that relate to them.

4. Piketty's framework and analysis positions democracy as paramount. This means that the actual outcomes of the distribution of wealth and income are assessed in terms of whether or not, and the extent to which, they are consistent with the ethical precepts which underlie democratic principles. This frame contrasts sharply with the neoconservative approach that implicitly establishes the economic system of capitalism as paramount and relegates implications for democratic objectives to collateral damage. The neoclassical economists and the neoconservative camp simply ignore the (non economic) institutional and political factors arising from democratic discourse that affect income and wealth inequality by assuming them away and concentrating on the purely economic marginal productivity of capital (215). The neoconservatives have followed Milton Friedman in treating markets as sacrosanct and they have also followed Friedrich Von Hayek who put the virtues of the market system on a pedestal claiming that they were essential to avoid serfdom and secure freedom. They have embraced the ideology that technology is a force for equality and the public good – a naïve assumption as science and economic history have shown. The ultimate problem with markets and technology, as Piketty points out, is that the price system knows neither limits or morality and the effects of technology are capricious (234). Therefore the idea that technology and markets will, by themselves, result in a harmonious distribution of income and wealth is an illusion.

Caveats

Piketty presents a number of caveats about his book. He states that "The answers in this book are imperfect and incomplete (1) but I try to show that this minimal theoretical framework of the capital income approach is sufficient to give a clear account of what everyone will recognize as important historical developments (33). This approach has its limits. It is always preferable to analyze wealth inequality at the individual country level as well and to gauge the relative importance of inheritance and saving in capital formation (19). For example, the average saving rate may increase sharply as wealth grows and becomes more concentrated at the top. The average effective rate of return on capital may be higher when the individual's initial capital endowment is higher (as appears to be increasingly common). And excessive high prices of real estate or petroleum due to the Ricardian principle of scarcity may affect divergence (27). Evidence of the phenomenon of ultra high compensation for top earners (CEOs) in the US and to a lesser degree in Britain could affect wealth and income distribution further in those countries (24).

And the winner of the great debate is ….

For the last 200 years or more a great debate has been conducted about the distribution of wealth and income notably between Marxists, neoclassical economists, Keynesians and more recently neoconservatives. The debate has been conducted, as Piketty notes, with a "paucity of facts and an abundance of prejudice" (2). With systematic data now in hand Piketty draws the following conclusions.

The increasing accumulation of capital presents a problem for capitalists because the resulting shrinking of the share of labour income results in insufficient consumption to meet the output of the productive capital with the result of an under utilization of capital and a falling rate of profit. In these circumstances, “Capitalists dig their own grave. Either they tear each other apart in a desperate attempt to combat the falling rate of profit or they force labour to accept a smaller and smaller share of national income which ultimately leads to a proletarian revolution and general expropriation (228,229).”

Increasing inequality leads to periodic financial instability in society. “There is absolutely no doubt that the increase of inequality in the United States contributed to the nation’s financial instability. The reason is simple: one consequence of increasing inequality was virtual stagnation of the purchasing power of the lower and middle classes in the United States which inevitably made it more likely that modest household would take on debt especially since unscrupulous banks and financial intermediaries, freed from regulation and eager to earn good yields on the enormous savings injected into the system by the well-to-do offered credit on increasingly generous terms (297).”

“The role of central banks to act as a lender of last resort and do whatever is necessary to avoid financial collapse and a deflationary spiral. This is a very limited role for dealing with the issue of public debt. The central bank does not create wealth but only redistributes it – except in the case where it prevents collapse of the financial system. Therefore the central bank’s role needs to be supplemented with fiscal policies of taxation and currency. The institutions of the central bank and a well-designed progressive tax policy are complementary instruments for achieving a properly functioning social state. Friedman’s monetarist doctrine was that only proper monetary policy – not government interventions and social transfer programs – was necessary to save capitalisms from itself. Friedman’s doctrine was incorrect. (549).”

In 1910 the size of the government sector as measured by the ratio of total taxes to GDP ranged from 8% to 10%. By 1980 it ranged from 39% to 55% (Figure 13.1 p. 475). These major changes arose as a reaction to the crises of two world wars and the Great Depression of the 1930s. Most of the revenue increases from these changed ratios was expended on public education, health and pensions where benefits are more or less equal for everyone. In this regard they are consistent with the democratic principle of equal treatment for all groups in society. In particular the expansion of public pensions has eradicated most of the poverty of senior citizens that characterized the 1950s (478). The transfer payments to the poor and economically vulnerable (e.g. welfare and unemployment insurance) account only for about 1.5% to 2.5% of GDP depending on the country. [In the U.S. for example the size of government increased from 8% in 1910 to roughly 47% in 1975. US, Nobel prize winning economist Paul Krugman noted that much of the increase in the size of government, the emergence of a middle class society and the reduction in economic inequality corresponded with the “golden age of political bipartisanship” between 1948 and sometime in the 1970s when both Republicans and Democratic parties accepted the changes that had taken place in the Great Compression between the 1920s and the 1950s (Krugman, Paul *The Conscience of a Liberal* New York: W.W. Norton & Company, 2009 pp. 78, 38). We could conclude therefore that these changes represented genuine democratic outcomes in that period of the country’s history.

The three ways to reduce public debt are austerity, inflation and a tax on capital. The worst solution in terms of both justice and efficiency is a prolonged dose of austerity (541). Inflation is at best a very imperfect substitute for a progressive tax on capital because millions of small savers are wiped out; it is particularly harmful to people of modest means (546,547). Sometimes inflation redistributes wealth in the right direction and sometimes not and so it does not necessarily lead to decreasing inequitable wealth distribution. The most effective way to reduce the public debt is to levy an exceptional (i.e. one time) progressive tax on capital.

Marx's observation of the inherent increase in capital accumulation without limit was correct. As economist James K. Galbraith points out "The neoclassical economics dumped the social and political analysis of Marx for a mechanical one which implicitly raised the uses of machinery over the social role of its owners and legitimatized profit as the just return to an indispensable contribution. " [James K. Galbraith. "Kapital for the Twenty-First Century?" Institute for New Economic Thinking Blog, March 31, 2014 p. 1.] Their models were highly rationale and highly mathematical and the assumptions that underpinned them were highly unrealistic. Meanwhile Marx's prescription for the state's takeover of the means of production failed to appreciate what Friedrich Von Hayek later emphasized - that markets play a role in the coordination of the actions of millions of individuals. Soviet-style centralized planning demonstrated how inferior the state is at playing that coordinating role. In these circumstances the optimal policy mix is, as Piketty suggests: a progressive levy on individual wealth to reassert democratic control over capitalism in the name of the general interest (i.e., the common good) while relying on the forces of private property, competition and markets (532).

To conclude the neoclassical economists and the neoconservatives have lost the debate to the Keynesians and the Marxists. Keynes' analysis was that the rate of return on capital was too high owing to a shortage of capital; his solution was an increase in progressive taxation. Further Keynes' analysis pointed to chronic under consumption in the capitalist system (the flip side of Marx's overproduction) and his solution to achieve the democratic goal of full employment was an increase in the "socialization of investment" – that is an increase in the size of the government sector of the economy.

Piketty has also concluded that the rate of return on capital is too high and explained why Marx's observation about the infinite accumulation of capital was correct. Piketty's solution is for a special form of progressive taxation – a tax on capital (rather than an inheritance tax) to reduce the after-tax rate of return on capital so as to enable the preservation of the capitalist market economy and avoid the "proletarian revolution and general expropriation" that Marx predicted (228,229). Note that some countries may argue that an alternative to a tax on capital is to increase the rate economic growth above the long term average through trade policies that lead to increased production for export. However this strategy cannot succeed on a worldwide basis where exports must equal imports. The gains in growth from one country's increase in exports must be offset by another country's loss of growth due to increased imports.

Piketty does not make a proposal about the socialization of investment and the relative size of the government sector. He explains that this issue is beyond the scope of his study. He has apparently not considered the environmentalist economists solution of more leisure to obviate the need to expand the government sector while allowing for a modest downsizing of the private sector. In any event Picketty suggests that this is a decision for citizens to make as the outcome of democratic discourse that would provide direction to their government.

Why will the return on capital continue to exceed the growth rate in national income?

Piketty's definition of capital as wealth differs from the value of "real" capital – that is the cost (book value or replacement cost new) of real productive assets of buildings, equipment, tools and land etc... that are jointly used with labour in the production of goods and services. There are significant differences between the two. For example the value of residential real estate in urban Canada can be three times as high as the replacement cost of residential homes. I'm also puzzled why the price of stocks has not fallen as a consequence of the falling share of income from labour and consequent reductions in purchasing power, reduced sales and reduced profits. Piketty has alluded to increasing private and public debt that has kept the US economy afloat for decades - at least until 2008. The future for increased debt may not be what it used to be.

I would also like to see research on the impact of the increasing concentration of industry on monopolistic competition and the extent to which, if any, the greater degree of monopolistic competition plays a role in restricting investment in real capital in order to maintain or improve historical rates of return on stocks – i.e. wealth. In Canada the ratio of equity capitalization of the top 60 corporations on the S&P TSX to GDP has increased from 24% in 1990 to 70% in 2005. [Jordan Brennan, "A Shrinking Universe: How concentrated corporate power is shaping income inequality in Canada" Canadian *Centre for Policy Alternatives*, November 2012. Figures 5 and 6, pp 19, 20].

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