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Macroeconomic Fluctuations, Inequality, and Human Development

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Abstract This paper examines the two-way relationship between inequality and economic fluctuations, and the implications for human development. For years, the dominant paradigm in macroeconomics, which assumed that income distribution did not matter, at least for macroeconomic behavior, ignored inequality—both its role in *causing* crises and the effect of fluctuations in general, and crises in particular, on inequality. But the most recent financial crisis has shown the errors in this thinking, and these views are finally beginning to be questioned. Economists who had looked at the *average* equity of a homeowner—ignoring the distribution—felt comfortable that the economy could easily withstand a large fall in housing prices. When such a fall occurred, however, it had disastrous effects, because a large fraction of homeowners owed more on their homes than the value of the home, leading to waves of foreclosure and economic stress. Policy-makers and economists alike have begun to take note: inequality can contribute to volatility and the creation of crises, and volatility can contribute to inequality. Here, we explore the variety of channels through which inequality affects fluctuations and fluctuations affect inequality, and explore how some of the changes in our economy may have contributed to increased inequality and volatility both directly and indirectly. After describing the two-way relationship, the paper discusses hysteresis—the fact that the consequences of an economic downturn can be long-lived. Then, it examines how policy can either mitigate or exacerbate the inequality consequences of economic downturns, and shows how well-intentioned policies can sometimes be counterproductive. Finally, it links these issues to human development, especially in developing countries.

Key words: Inequality, Development, Financial crises, Volatility, Hysteresis

Introduction

For years, the dominant paradigm in macroeconomics ignored inequality—both its role in *causing* crises and the effect of crises on inequality. The

dominant paradigm (particularly earlier variants with a representative agent) *assumed* that income distribution did not matter (at least for macroeconomic behavior).¹ Not surprisingly, then, the dominant paradigm had little to say about the impact of crises on inequality; or the converse, the impact of inequality on economic stability.

One of the few positive outcomes of the crisis is that, finally, these views are beginning to be questioned.² As Jayadev (forthcoming) notes, citing data from Piketty and Saez (2010), this crisis, like the Great Depression, was preceded by large increases in inequality.

Economists that had looked at the *average* equity of a homeowner—ignoring the distribution—felt comfortable that the economy could easily withstand a fall in housing prices of 20% or even more, because on average indebtedness was less than 80% of the market price. But such a fall has had disastrous effects, because it has meant that a large fraction of homeowners are ‘underwater,’ owing more on their homes than the value of the home, leading in turn to rates of foreclosure and widespread economic stress.

Policy-makers too have finally come around to recognizing the role of inequality in this crisis—and in others. An April International Monetary Fund (IMF) report examining the effects of inequality on growth stated:

We find that longer growth spells are robustly associated with more equality in the income distribution ... Over longer horizons, reduced inequality and sustained growth may thus be two sides of the same coin.³

In this brief paper, I discuss the two-way relationship between inequality and economic fluctuations, and the implications for human development. Inequality can contribute to volatility and the creation of crises, and volatility can contribute to inequality.⁴ As I note below, some of the changes in our economy—such as increased financialization—may have contributed to increased inequality and volatility both directly and indirectly. (For example, changes contributed directly to volatility, but also indirectly through effects on inequality; likewise, they contributed directly to inequality, and indirectly through effects on volatility.) The links between inequality and economic fluctuations are complex, involving both direct and indirect impacts; for example, volatility may adversely affect growth, and thereby the resources available for social expenditures.

A final prefatory remark: while I focus on the link between volatility and inequality *of income*, my real interest is on well-being, in a broader sense. I will note below adverse effects on health and education.⁵ Volatility increases insecurity. Even in advanced industrial countries, insurance markets are far from perfect; most risks cannot be insured against. And even when insurance can be provided, there are significant transactions costs. Most developed countries rely on *social* insurance to mitigate these risks, and do so only imperfectly.⁶ But most developing countries provide at best very limited

social insurance. Because individuals are risk-averse, the loss of well-being from high volatility is enormous.

Unemployment, however, has a direct adverse effect on individuals and families: work gives meaning to life and dignity to individuals. The social consequences of extended periods of unemployment cannot be compensated for simply by replacing the income that has been lost.⁷

The next section of the paper lays out the basic two-way relationship between inequality and volatility. The third section then discusses a particular aspect of the inequality/volatility dynamics—hysteresis, the fact that the consequences of an economic downturn can be long-lived. The fourth section follows with an analysis of expenditure and that monetary policies can either mitigate or exacerbate the inequality consequences of economic downturns. The fifth section turns to one particular aspect of the policy response: how well-intentioned policies may actually turn out to have counterproductive effects on inequality. The sixth section then links these issues with human development, with a special focus on developing countries. While much of this paper draws upon experiences in both developed and developing countries (with studies often more available for the former than for the latter), in this section I also highlight some of the important differences.

Inequality as a cause and consequence of crises

The UN Commission on Reforms of the International Financial and Monetary System, which I chaired, argued that inequality played an important role in creating the crisis.⁸ The link is simple and clear: increasing inequality⁹ effectively redistributes income from those with a high marginal propensity to consume to those with a low marginal propensity to consume. This reduces aggregate demand. If the economy is to remain at full employment, the resulting reduced aggregate demand has to be compensated for somehow.¹⁰ The route chosen by the United States (and, historically, by other countries) is low interest rates and lax regulation. This led to a bubble, which did sustain consumption *for a while*. But it was inevitable that the bubble would eventually break. And it was inevitable that when it broke, the economy would go into a downturn.

*Political economy*¹¹

Of course, there are other ways by which the weaknesses in aggregate demand resulting from growing inequality might have been offset. But the inequality itself made one of the key alternatives less likely: fiscal policy (say investments in education or infrastructure) could have been used to stimulate the economy, but the high inequality is often accompanied by a demand for a smaller government and more fiscal restraint. The well-off worry that a strong government might redistribute income away from them—the median voter's income is much less than the mean income, so he has much to gain from progressive taxation.¹²

In modern democracies, however, contrary to the standard theory, it does not appear that the median voter is pivotal (or at least that what emerges from the political process represents the informed interest of the median voter). Policies are affected by lobbying, campaign contributions, and revolving doors, so that the wealthy have disproportionate influence. Thus, as inequality grows, at least in many countries, so too do constraints on the government's fiscal space.

The problem is aggravated by the increase in debt and deficit that almost inevitably accompanies a severe economic downturn (such as the recent one). Conservative forces, always looking for an excuse to downsize government, seize upon the 'unsustainable deficits' as grounds for cutbacks in government spending, even though such austerity measures may do little to improve the countries' long-term fiscal position—and in fact may have adverse effects. Austerity leads to lower gross domestic product (GDP), lower growth, and therefore lower tax revenues, and higher social expenditures. Experiences with IMF programs in East Asia and Latin America confirm these adverse effects. (So too do the more recent experiences in Latvia, Greece, and Spain.)

The burden is thus left to monetary policy to ensure that the economy operates somewhere near full employment.

Wage rigidities are not always the cause of unemployment: balance sheet effects and the risks of excessive flexibility. The evolution of the crisis has also made clear that inflexible labor markets are not (always) the cause of unemployment; quite the contrary, countries such as the United States with high degrees of labor market flexibility have performed particularly badly, at least in the labor market.¹³

Indeed, there is an important tradition in macroeconomics, dating back to Fisher's debt deflation theories,¹⁴ which suggests that greater wage and price flexibility, under certain circumstances, may be adverse not only for equality, but even for stability—and that the problems can arrive well before deflation sets in.¹⁵ As wages fall, aggregate demand falls (as Keynes emphasized); but even if prices fall in tandem (meaning that *real wages* are not falling¹⁶), individuals and firms have *unindexed debt commitments*. Firms and households are forced into bankruptcy—with an increase in economic disruption, a loss of informational and organizational capital, and a downward shift in both aggregate demand and supply curves.

Such balance sheet effects can amplify an initial disturbance and, because firms are induced to contract their level of activity, net profits are reduced. With imperfections in equity markets, firms cannot simply go out to replace lost equity.¹⁷ It takes time for balance sheets to be restored—thus adverse shocks are amplified and their effects are persistent as well.

Moreover, there are important asymmetries: while decreases in wages make firms better off (improve their balance sheets), they make households worse off. While increases in oil prices make oil producers better off, they make consumers worse off. Each of these (not fully anticipated) price

changes has balance sheet effects, but in general the level of activities are concave functions of balance sheets, so that those who wind up with improved balance sheets do not expand their activities as much as those who wind up with worsened balance sheets contract them (Greenwald and Stiglitz, 1993a).

Why fluctuations may have adverse effects on inequality

We explained how inequality—and the attempt to maintain full employment in the face of increases in inequality by creating a bubble—may contribute to volatility. But the relationship is two-sided. Volatility contributes to inequality through several channels. Moreover, as the discussion of financialization below illustrates, some changes in the structure of the economy have contributed both directly to inequality and to volatility—and thereby indirectly to inequality as well.

One way that volatility contributes to inequality, which I have already noted, is that unemployment exerts downward pressure on wages.¹⁸ Another, focusing on inequality in overall well-being, which I will discuss at greater length below, is that in downturns governments cut back expenditures, and especially social expenditures that are of particular importance to the poor. (Later I will discuss how monetary policy may also exacerbate these effects).

The adverse effects on inequality are all the greater because the incidence of unemployment is typically strongest among the least skilled (Furman and Stiglitz 1998). This is not inevitable, but it is not surprising. Because of the high costs of training skilled workers and the difficulties of recruiting good workers, firms are more likely to retain these workers through a downturn, assigning them, if necessary, to jobs requiring fewer skills. Unskilled workers are more akin to ‘commodities’ traded on spot markets.

But because skills decrease with unemployment, those at the bottom have, at the end of the crisis, less human capital (relative to their better-off peers), amplifying the effects on inequality and making them more persistent.

Just as there are policies that could mitigate the adverse effects of inequality on volatility—or exacerbate those effects—there are also policies that could mitigate (or exacerbate) the effects of volatility on inequality. Later, for instance, I will explain how, in the face of volatility, misguided policies of inflation targeting may have exacerbated both inequality and volatility.

Volatility may also have adverse effects through indirect channels. For instance, in a more volatile economy, firms may demand high-risk premiums. Thus, to achieve the same level of investment on average, the share of wages will be lower. Alternatively, the level of investment will be lower (at any given interest rate), and at least in the short to medium term this translates into lower growth—and less resources for the government, including less expenditures in public education and social protection.

Weakened automatic stabilizers

Policies in recent years have strengthened the nexus between inequality and volatility—in particular, leading not only to more inequality, but also to a greater sensitivity of inequality to economic fluctuations. The reductions in the progressivity of the income tax system, the shift of pension plans from defined benefit to defined contribution systems, and the broader undermining of social protections have weakened the economy's automatic stabilizers, making the economy more vulnerable to shocks—and, in particular, adversely affecting the poor in downturns.

In many countries (including the United States) the structure of government makes such cutbacks almost inevitable.¹⁹ Delivery of education and health services is a local responsibility, and local governments' capacity to borrow is limited (in the United States, many states have balanced budget provisions in their constitutions, strictly limiting the extent to which they can borrow). Hence, an economic downturn translates directly into cutbacks in public services, including those on which the poor are dependent.

The role of financialization

Finally, financialization of the economy is an important component of the nexus between economic volatility and inequality; it is responsible both for increasing inequality and increasing fragility. A large fraction of economic crises are related to credit bubbles, and credit bubbles can more easily occur with an overdeveloped and under-regulated financial system.²⁰ Under-regulation contributes to the expansion of the financial sector, both because excessively risky and exploitive practices are not circumscribed, and because there is increased risk associated with an implicit increase in the 'bailout' subsidy—evidenced over and over again in the last 30 years. Under-regulation/liberalization results in increased leverage (sometimes, as recently, hidden through 'financial innovations') and a reliance on less stable sources of funding.

As elsewhere, politics and economics are intertwined: large financial sectors can exert influence to prevent effective enforcement of anti-trust laws, at least as they apply to the financial sector, again with adverse distribution effect, and to change regulations and laws in ways that give the financial sector more scope to exploit other parts of the economy. The 2005 creditor-friendly bankruptcy law is a case in point—which further contributed to the credit cycle by giving lenders confidence that they could recover money even from those who could not really afford to repay. There is thus a vicious circle: more profits in the financial sector increase their political influence to promote laws and regulations that advantage the sector over other parts of society; and at the same time, those laws and regulations increase the economy's fragility and the implicit subsidies those in the sector receive.

Within the financial sector, the same dynamic is at play: the too-big-to-fail institutions have an advantage over others, since their creditors are willing to

supply them with funds at lower interest rates, *because* they know that they will be bailed out.

Thus, financialization directly and indirectly results in the economy being exposed to more (endogenous) shocks.²¹ Financial and capital market liberalization has, in particular, exposed developing and emerging markets to external shocks—and, in most cases, the promised benefit of being able to smooth internally generated shocks has proved elusive. Capital flows have been procyclical, not countercyclical.²²

But financialization has contributed to the vicious cycle of increasing inequality and volatility in another way. The ‘discipline’ of short-term capital flows—the asymmetries between liberalization of capital and labor flows—has hurt the bargaining position of labor both within the private sector and the public. Employers threaten to leave, to go elsewhere, unless wages and taxes on capital are cut.

There is one more way that financial market globalization may have contributed not only to the depth of the crisis and its rapid spread, but also to its duration. In most economies, a major source of job creation is small and medium enterprises (SMEs), which typically rely on smaller, more local banks. There is some evidence, both from research at the IMF²³ and Columbia,²⁴ suggesting that financial market liberalization and the internationalization of banking has not been good for the access to credit of SMEs. So too, the way the bank rescue operation was conducted—rescuing the banks that were too big to fail, but allowing smaller and community banks to go bankrupt—has meant that the credit channel remains clogged, with obvious implications for the effectiveness of the second round of quantitative easing, popularly known as QE2.

Empirical research using cross-country regressions to explain volatility and the likelihood of the occurrence of a recession has confirmed that wage rigidities are a less important source of economic ‘vulnerability’ and fragility than an overextended financial system (see Easterly *et al.*, 2001a, 2001b, 2003). These findings are consistent with more recent IMF research that suggests the duration of growth spurts is positively correlated with equality and the probability of financial crises, especially in countries with large financial sectors.²⁵ These results are also consistent with the theoretical perspectives advanced in this paper.

Hysteresis—the persistent effects of downturns

In the previous section, I explained both the role of increasing inequality in causing downturns, and the role of downturns in increasing inequality. In this section, I explain how these adverse effects can be long-lived, contributing to a weak and sometimes ‘jobless’ recovery. The phenomena that I want to discuss here go under the broad rubric of hysteresis. Most importantly, policies—how we respond to the economic downturn—can not only affect the pace of recovery but also have effects that persist long after the downturn has officially come to an end.

While worries about a jobless recovery have been associated with virtually every recovery, analyses of data from the last few crises in the United States suggest that employment recovery has become slower. How governments responded to the current crisis, especially in light of the looming concerns about debt, may both exacerbate these trends and compound the increasing problem of youth and long-term unemployment.

Increased unemployment is what follows from the difference between the flow into the unemployment pool and the flow out. Even in a deep downturn, individuals are being hired; the pace of hiring is simply less than the pace of job loss. Hence, in analyzing the dynamics of unemployment, we have to think carefully about the factors that contribute to these dynamics (Greenwald and Stiglitz, 1995). Measured unemployment typically does not include those who have dropped out of the labor force because they have been seeking employment so long without success that they have been discouraged. But in reality, such workers are unemployed—it would certainly be inaccurate to say they are employed. They would like a job, and they cannot get one. One of the reasons that unemployment rates fall so slowly in the process of recovery is that these ‘discouraged workers’ return to the active labor market when job prospects improve.

One of the consequences of long-term unemployment is that workers’ skills attenuate. The longer individuals are unemployed, the greater the loss in their ‘human capital,’ the skills required to make them productive in the labor market. The result is that the longer individuals are unemployed, the more difficult it is to re-employ them, at least at wages comparable with what they received in the past. (Formally speaking, the lower the probability that they will move from unemployment to employment in the next period, and the greater the difference between the wage they receive upon reemployment and the wage they previously received.) This is one of the reasons that it is important to do what can be done to have a speedy recovery.

It is worth noting that, aside from skills formation, which has been the focus of this discussion, there are other aspects of human development. Young people who see a society without good prospects—and good opportunities awarded disproportionately to those with connections—will become alienated from the rest of society. The sense of optimism and drive will be enervated, and with it their willingness to invest in themselves and in their communities.

This is an example of hysteresis—the path dependence of the economy.

In the United States and some other countries, there are other long-term effects that are likely to make a quick return to full employment particularly difficult. Here, I will note three.

Uncertainty—combined with large losses in pension wealth—has induced many elderly not to retire, reducing openings for young people, who are facing unemployment rates sometimes twice that of the average. These individuals may not retire quickly even after the economy recovers, partly because of the destruction of their retirement accounts, partly because the recession has permanently changed their risk perceptions, and

partly because they may have changed their minds about the virtues of retirement versus work. (Unemployment increases when the flow into the labor market minus the flow out of the labor force exceeds the rate of new hires minus the rate of lay-offs/job terminations. A decrease in the flow out of the labor force thus contributes as much to an increase in unemployment as a decrease in hiring or an increase in layoffs.)

Inadequacies in systems of social protection/safety nets imply that individuals are more reliant on their families for protection. This is especially so in countries (such as the United States and many developing countries) where health insurance is provided by the employer. In these circumstances, as the economy goes into a downturn, other family members may join the labor force—having a second member is then the best (or only) fall-back if the primary earner loses his job. This effect is called the *additional worker effect* (see Basu *et al.*, 2002.) With more workers seeking jobs, it becomes more difficult for new entrants (with limited qualifications) to get a job.

The failure to restructure mortgages in the United States has left many with large negative equity in their homes, impeding labor market mobility.²⁶ This is again likely to increase both the unemployment rate and the decline in wages—in effect, an individual's job search is circumscribed.²⁷

Bankruptcy and access to credit

This crisis, like a large fraction of crises, has entailed a collapse of credit markets and bankruptcies of large numbers of firms. Bankruptcies also provide examples of hysteresis: firms that go bankrupt when they cannot meet debt payments (either because of excessively high interest rates, as in the East Asia crisis, or because of deficiencies in demand, as in this crisis) are not 'unbankrupted' when these circumstances are reversed; for example, when interest rates are lowered or demand is restored. This also constitutes a long-term loss of human capital—one of the most important elements, at least from the perspective of long-term economic development, is entrepreneurship.

In each of the instances described, the effects of the downturn are long-lived, making a quick recovery all the more difficult.

Policy and inequality

The extent to which economic fluctuations leads to an increase in inequality (either in the short run or more permanently) critically depends, of course, on policy. My previous discussion highlighted how changes in automatic stabilizers (e.g. progressivity of the income tax, movements from defined-benefit to defined-contribution social security systems, changes in systems of unemployment compensation) can affect the extent to which GDP falls in response to an adverse shock, say to aggregate demand, and can affect the extent to which employment falls in response to a decline in GDP. In the current crisis, for instance, German policies managed to greatly limit the extent to

which unemployment increased—it increased far more in America’s allegedly ‘flexible’ labor market. In this section, I focus more narrowly on two sets of policies—government expenditures and monetary policy.

Government expenditures

Lower incomes for the poor have all the adverse consequences described earlier. But, as other papers in this symposium point out, equally important in generating adverse outcomes for human development are decreases in government spending. Economic downturns lead to deficits, and pressures to bring deficits into control lead to cutbacks in public services, with particularly adverse effects on the poor. That this would be so is not inevitable: it is conceivable that government would protect social programs for the poor. But in practice that does not seem to be the case, at least in many instances.

The reason is obvious: the poor are the least politically powerful in most societies. They are the least able to protect themselves against cutbacks.²⁸ As I noted earlier, the extent of inequality in a society may affect not only the size of the public sector, but also how it responds to cutbacks. Societies with greater inequality may not only have a smaller public sector, but the wealthy may be in a better position to ensure that government does not impose cutbacks on them.²⁹

For some countries (such as those with high debt and deficits before the crisis), there is little choice but to cut back on spending. They lack access to capital markets to finance deficits to maintain pre-downturn levels of expenditure. Some political entities (such as the states in the United States) may face constitutional restrictions on their ability to borrow—although typically there are ways to circumvent these restrictions to a limited degree; for example, through infrastructure banks. (In the case of the United States, there is the possibility of assistance from the federal government.) Even with these restrictions, however, it is not *inevitable* that there be cutbacks on overall expenditures (most states and localities could increase their taxes) and that the incidence of the cutbacks fall disproportionately on the poor. These patterns are a result of the political economy considerations to which I referred earlier.

But other countries (such as the United States) face a more meaningful choice. They are able to borrow. Indeed, for the United States, there is an argument for increased spending, because the long-term cost of capital is low. We thus need to ask the following: why do they not sustain spending? And if there are spending cutbacks, why do they so often disproportionately affect social programs? The economic return to government spending may be even higher in the downturn, since the ‘shadow prices’ of labor and other resources are diminished. The benefits of spending are increased by the multiplier, the fact that GDP increases by a multiple of what is spent, when there are underutilized resources. Indeed, in some cases (such as that of the United States today) the returns on increased government investment are so large that the increased government tax collections generated by the increased income

(in the short run from the multiplier, and in the long run from the increased growth engendered) means that the long-run national debt is lowered.

There are several possible explanations why, in spite of the increased net returns to government spending, there are typically pressures for cutbacks. First, even countries that are able to borrow may face significantly higher costs for doing so. They face worsened terms of intertemporal trade-offs. Income and substitution effects would naturally lead to cutbacks, even if 'political economy' considerations were not at play. (As I noted above, this is not true for the United States, where real interest rates are close to zero.) Second, there is often a diminution of perceived national wealth, with the breaking of asset bubbles or, at least, the decline in asset prices. The persistent shortfall between actual and potential output is a waste of resources—a waste that is seldom anticipated in wealth assessments prior to the downturn. Finally, government receipts typically diminish markedly, with the decrease in GDP, and especially if, prior to the crisis, they were partially bloated with revenues from the bubble or boom that preceded it. It is costly (and politically contentious) to increase resource transfers from the private to the public sector (e.g. through taxes).³⁰

I think, however, that the real reason for the cutbacks is a combination of misunderstandings of economics and of the forces of political economy. The analogy between government and households holds sway. If a household is spending beyond its means, it has to cut back. Otherwise, ruin lies in its future. Financial markets, with their focus on only one side of the ledger—the liability side, ignoring the asset side—contribute to these misunderstandings. And here ideology and interests intersect: many in the financial market have an agenda to downsize the government, and looming deficits and debts provide the rationale. (While money was pouring into the banks as part of the bailouts, they conveniently put these concerns aside.) Improved fiscal positions could lead to a lowering of long-term interest rates, which would lead them to realize large capital gains on their long-term bonds.

These arguments help explain the cutbacks. But why should cutbacks be disproportionately focused on social spending? My earlier discussions of political economy provide the explanation: Many areas of government are hard to cut (especially politically), such as defense; some areas, like disability pay, typically increase automatically. There is thus particularly strong downward pressure on discretionary social and educational expenditures (and other investments, for which the consequences of cutbacks will not be apparent for years³¹). The political constituencies of the poor are typically far weaker than, say, those calling for bank bailouts. And, again, conservative agendas that have long argued against social expenditures seize upon the opening provided by the downturn, arguing that we can no longer afford them.

In some countries, such as the United States, one could make an argument that income and substitution effects make ambiguous the question about whether social and educational expenditures should be cut or increased. Today, real interest rates (even long-term rates) are extraordinarily low, suggesting that it would make sense to consume more today, and that it

would make even more sense to invest more today. Indeed, for those like the United States that have underinvested in the public sector in the last two decades, there are good public investments that in the long run will lower the national debt. Increased public investments in infrastructure, technology, education, and job training programs will promote growth and employment in both the short term and the long term—and thereby increase government revenues. Such investments will, furthermore, crowd in private investment, with further benefits to growth, employment, and equality. Industrial policies may be necessary to create a new dynamic comparative advantage, allowing an employment-preserving and equality-preserving response to globalization.

Even if countries focus on the debt-to-GDP ratio, what they should be focusing on is the medium to long run, not the short run. These policies lower the debt-to-GDP ratio for at least three reasons: they increase the denominator—GDP; they increase tax revenues, as a result of growth; and they lower several categories of expenditures, such as those for welfare payments.

More broadly, there are careful restructurings of tax and expenditure programs that can simultaneously stimulate the economy, reduce the deficit in the short run, and lead to higher growth, employment, and improved equality. Because of differences in marginal propensities to consume, any increases in redistributive taxation can stimulate the economy and lower deficits. Because the unemployed typically have a very high marginal propensity to consume,³² increased support for the unemployed (financed, say, by a tax on upper income individuals) will stimulate the economy. Because small firms are more likely to be finance-constrained than large firms,³³ government programs targeted to them may stimulate the economy (both in the short run and the long). Incremental investment tax credits financed by appropriately designed increases in the corporate income tax rate will stimulate the economy today and in the future. An increase in the estate/inheritance tax can encourage consumption today, lower the deficit, and improve equality of wealth and income.

Unfortunately, some of the proposals being discussed in the United States (to take one example) go in exactly the wrong direction. Cutbacks in social security (or even proposals of such cutbacks) will provide enhanced incentives *not* to retire, making it more difficult for young people entering the labor force to get jobs. Greater insecurity will induce individuals to save more, diminishing GDP.

In short, for many countries, there are policies that would strengthen the country's long-term fiscal position and promote growth and employment both in the short term and the long term—but these are often not the policies that are chosen. There are distributive consequences, which may make these policies conflict with the seeming interests of those who are richer. I say 'seeming' because in some cases even their interests would be well-served. But here, ideology may play a role: these programs might lead to a stronger state, and they may worry that, while such a state might use its powers wisely to promote long-term economic growth from which they and the

rest of society might benefit, there is no way of ensuring that the state will so limit its actions. It might use its powers to redistribute wealth away from them. The wealthier might even worry that any reforms could change the political processes, which allow their perspectives to have disproportionate weight (through campaign contributions, revolving doors, lobbying, and control of media). This, in turn, might inhibit the role of the state in redistributing wealth *toward* the top (e.g. through lax enforcement of antitrust laws, giveaways of state resources, etc.).³⁴

A vicious circle. Of particular concern is the possibility of adverse dynamics that result when putting together the results of this section and those of the preceding two: if societies with greater inequality adopt weaker measures of social protection and less progressive income tax structures, and act as if they face tighter fiscal constraints, then an economic shock will result in more adverse effects on inequality, weakening further the political weight of the poor, weakening further social protections, reducing tax progressivity, and tightening further fiscal constraints. Moreover, if the wealthier feel more able to cope with shocks—and even more so if they happened to be ideologically committed to free markets—then these societies characterized by greater inequality will deregulate and liberalize more, exposing them to more shocks. (The obvious adverse consequences to human development are discussed in the section ‘Inequality, volatility, and human development’).

Monetary policy

There is general consensus that monetary policy contributed to the creation of this crisis. Historically, flawed monetary policies have been a major source of volatility (e.g. in stepping on the brakes too strongly in response to worries about inflation).

In this paper, my focus is on how monetary policy has affected the inequality–volatility nexus. As I noted earlier, in the standard macroeconomic and monetary models that informed the policies that led to the crisis, there was little role for inequality. Not surprisingly, the policies predicated on those models have arguably increased both volatility and inequality.

Inflation-targeting monetary policies as a contributor to inequality and volatility. Doctrines focusing on inflation targeting, predicated on the mistaken belief that low inflation was necessary and almost sufficient for economic stability, shifted attention away from what has proved to be a far more costly source of instability—fragility in the financial sector.³⁵ (The models also supported deregulation; it was argued that banks, in their own self-interest, could and would manage risk well—far better than any outside regulator could. No note was made of the problems posed by agency and externalities—the interests of those making risk decisions did not coincide with those of the rest of society. No note was even made of the distorted incentive structures, designed to encourage excessive risk-taking and shortsighted behavior.) Moreover,

stabilizing the price level meant, at least in some instances, more instability in *real* variables. Furthermore, there was no good argument for why, regardless of the source of the disturbance facing the economy, the best approach to adjustment should entail focusing on interest rates (rather than, say, exchange rates).³⁶ (See Stiglitz *et al.*, 2006.)

Inflation targeting also meant that, in practice, unemployment was often kept at a high level—at a higher level than may have been necessary for maintaining overall economic stability. Monetary policy in most countries reflects the perspectives of financial markets, and indeed, in most countries, those from the financial sector have a dominant role in the boards that determine policy. These doctrines serve their interests well, along with those of capital owners: high unemployment exerts downward pressure on real wages; increasing profits and high real interest rates enhance incomes of creditors. The way such policies are implemented in practice may exacerbate these problems: when the economy is weak, real wages fail to keep up with productivity gains, and may even decline; when nominal wages subsequently start to grow, to make up for what happened during such periods, monetary authorities, worried about rising labor costs, tighten, ensuring that there is no ‘catch up.’

Monetary authorities (in their role as financial regulator³⁷) pushed deregulation of financial markets. As I have noted, this contributed to the financialization of the economy—and at least in some countries, much of the increased inequality was associated with this increased financialization, both directly and indirectly through the greater volatility to which it gave rise. Instability in cross-border capital flows, for instance, has been one of the major sources of volatility in many developing and emerging countries, and, as I noted earlier, capital market liberalization—the stripping away of regulations to control these flows—has thus contributed to economic instabilities. Capital market and financial market liberalization have facilitated the spread of a problem in one country (such as the United States) to others.³⁸

In the response to the crisis, further inequalities were created, some of which (as I note further below) are likely to contribute to the slow recovery. In the United States and Europe, interest rates were lowered to record levels. There was, in effect, a transfer of money from those dependent on interest receipts (including prudent, risk-averse retirees) to banks. While the transfer helped recapitalize the banks, no conditions were put on the banks. Lending did not increase, as was hoped. But as interest-dependent retirees’ incomes weakened, so did their consumption. Unemployment increased, both because of the resulting decrease in aggregate demand (there was little evident increase in investment in response to the low interest rate, although the low interest rate may have helped increase stock market values, which may have had some positive effect on consumption, to the extent that investors believed the effects were permanent³⁹) and because the prospect of lower incomes from the only seemingly safe assets, T-bills, may have induced some workers to postpone retirement (see the discussion above).

But for the poorest in the developing countries (and even the poor in the developed) the flood of liquidity generated by the Fed and other central banks may have had another adverse effect. With America's economy still weak and that part of its financial system that lends money to SMEs still not repaired, the money went to where it was not needed—the booming emerging markets—and not to where it was needed. It contributed to bubbles and exchange rate appreciation. The exchange rate appreciation threatened the stability of jobs and employment in export-competing and import-competing sectors. Higher food and energy prices have particularly adverse effects on the poor. In those countries still following dictums of inflation targeting, the higher inflation induced higher interest rates, contributing to a slowdown of economies, even when unemployment was high, and where inflation was mostly 'imported,' and not the result of an overheated economy.

In turn, higher interest rates and an appreciated currency lead to serious distortions in the structure of the economy. In those cases where export sectors are the source of long-term growth, the adverse effects on that sector (in the absence of government intervention) could be long-lived.⁴⁰ It is understandable why governments throughout the world have responded with a variety of capital account interventions. But these interventions are typically not costless.

How well-intentioned responses to downturns may impede recovery

So far, I have explained how: inequality contributes to economic downturns; economic downturns contribute to inequality; and governments' responses (both monetary and fiscal policies) may exacerbate adverse impacts on human development both through actions that prolong the downturn and through cutbacks in government spending. I have argued that these effects are often long-lived.

In this section of the paper, I want to explain how even well-intentioned policies to limit the extent of the downturn may at the same time prolong its duration—at least as far as workers are concerned.

While there are often complaints about a jobless recovery, there is some evidence that the last recovery was indeed jobless.⁴¹ In the United States, the last crisis was, I believe, the first instance where workers had not fully recovered from income losses suffered during a previous crisis. In 2010 the median income was lower than it was in 1997.⁴² Making matters worse, as the economy went into recession in this and the previous crises, there is some evidence that there was more ruthless job cutting.⁴³

One explanation for the changed behavior is increasing shortsightedness on the part of firms, as they focus more on quarterly earnings. It used to be that firms were reluctant to fire or lay off workers; there was a risk that they would find employment elsewhere, with a resulting loss of firm-specific human and organizational capital and individual-specific information. This

was referred to as labor-hoarding.⁴⁴ With real interest rates in this and the previous downturns lower than in most other downturns, one might have thought that firms would be even more concerned to retain their workers. In fact, they have been more ruthless in cutting back.

There are two possible explanations of the seeming change in behavior. The first is that with increased emphases on quarterly returns, firms have become more myopic. Norms have changed to reflect this, with praise awarded to firms and managers that 'bite the bullet' and quickly respond by firing workers or cutting costs.

Workers will, of course, respond to these changed norms. They will invest less in the firm, and more in 'general human capital' that will increase their portability and malleability. This means, of course, that the cost to the firm of losing a worker will be less.

A change in norms also means that the adverse efficiency effects will be mitigated—a firm that mistreats its workers in this way is no longer viewed as a pariah. This is the new normal.

Additionally, in economic downturns, the *shadow* cost of capital increases. That is, even if the T-bill rate falls, the spread between T-bill rates and lending rates increases (Greenwald and Stiglitz 2003a). Moreover, firms, especially SMEs, are credit-constrained. So even though T-bill rates have fallen, firms act as if they had increased; especially in this crisis, in which years after the onset of the problems, credit remains tight (partially because much of SME lending is collateral-based, and the value of collateral, typically real estate, is vastly diminished).⁴⁵

Of course, these changes do have adverse systemic effects. There is widespread recognition that systemic performance arising out of such myopic behavior is far from optimal.

There are policies the government could institute that might provide a check, and some policies may have exacerbated these problems. In the United States, preferential tax treatment of high bonuses based on so-called incentive pay encouraged compensation schemes that, in turn, encouraged firms to engage in behavior that led to higher reported short-term profits, even if long-term profits were reduced. Requiring qualified compensation schemes to have most of the compensation associated with long-term returns would provide incentives for managers to think more about the long term. Giving more voting rights to long-term investors (called loyalty shares) might also encourage firms to think less myopically.

So too would policies that encourage investment in human capital (as many countries do). Such policies would simultaneously act as automatic stabilizers through incentivizing firms to hang on to workers as the economy goes into a downturn.

The second set of explanations has to do with changes in cyclical patterns of interest rates and exchange rates, interacting with changes in technology.⁴⁶ Although standard models in economics use a simple aggregate production function, a more accurate depiction is provided by models with 'vintage capital.' In such models, capital goods produced at any date have a

particular output and labor requirement, with relatively little substitutability. As demand increases, machines of lower output-per-unit labor are brought online. What matters then in the short run are not the choices that firms originally had, but how they exercised those choices. In a recession, if real interest rates become very low, firms have an incentive to buy capital-intensive machines requiring little labor. Wages may have fallen a little, but far less than the cost of capital. Thus, as the economy recovers, there is less additional labor needed to increase output.

In this and the previous recession, real (T-bill) interest rates fell markedly. (Although the benefits of this change were not universally felt—especially not by SMEs that faced increased constraints on capital availability, as I have noted; it was large multinationals that benefitted.) This stands in marked contrast to earlier downturns—in the Great Depression, short-term real interest rates actually increased.

Exchange rate effects can reinforce or weaken this effect. For countries that are capital goods importers, large decreases in the exchange rate make capital goods more expensive, and discourage this kind of labor-capital substitution at the margin. Thus, the policies of the IMF and the US Treasury in the East Asia crisis—high interest rates with policies that failed to stem the fall in exchange rates—set the stage for a quick recovery. Had they succeeded in preventing the exchange rate from falling, it might have actually weakened the recovery (at least as far as employment is concerned).⁴⁷

Inequality, volatility, and human development

So far, I have focused on the nexus between economic fluctuations and inequality—and how policy can mitigate or exacerbate the adverse consequences that normally arise. Here, I focus on the impacts on human development, understood very broadly. I have already hinted at several aspects: the deterioration of skills that is associated with long-term unemployment, the adverse effects on health of unemployment and the loss of one's home.

There are, of course, multiple links: volatility may adversely affect human development directly (e.g. through the loss of skills during an extended period of unemployment) and indirectly. The indirect effects can be through the impact on inequality, described earlier, which, through the 'political economy effects' described earlier, lead to weaker social expenditures—with adverse feedbacks on volatility itself, as a result of a weakening of automatic stabilizers.

Volatility may also adversely affect growth.⁴⁸ For instance, greater volatility may adversely impact individuals' ability and willingness to invest in human capital, or firms' ability and willingness to invest in physical capital.⁴⁹ In economic downturns, financial constraints will impede long-term investments, including those in R&D. Greater volatility, especially in the absence of adequate safety nets or systems of social protection, discourages risk-taking.

Earlier I described the adverse effect of volatility on inequality. But increased inequality may have an adverse effect on growth. Successful growth requires heavy investments by government (public transportation, education, R&D, etc.), and support for such investments may weaken with greater inequality—as support for a strong government itself weakens. There is a vicious cycle—weak investments in human capital and human development more broadly weaken growth, increase volatility and inequality, and exacerbate the adverse effects of whatever volatility that occurs; but the weaker growth, greater volatility and inequality, and greater sensitivity to adverse shocks in turn lead to weaker investments in human capital and human development.

Slower growth may adversely affect the poor in other ways, as well. At the very least, it reduces the resources available to invest in human development. Moreover, because of the adverse effects of volatility on inequality, and the adverse ‘political economy’ effects of inequality, the benefits of what growth that does occur may go disproportionately to those who are well-off.

The effects of volatility on human development can be long-lasting. There is a natural lifecycle to each individual, and events that happen at critical stages of their lives have lifelong effects. Prenatal and childhood malnutrition will impair productivity throughout an individual’s life. It can stunt growth and impair mental development.⁵⁰ The damage cannot be undone in later years. That is one of the reasons that, in the absence of an adequate safety net, a severe economic downturn in a developing country can have such severe long-term effects. (There is a concern that, in somewhat diminished form, such effects can even arise in developed countries; in the United States, in the midst of the crisis, the incidence of food insecurity rose to more than 14%.⁵¹)

Economic downturns also interrupt education—and the interruption has long-term effects. Large fractions of students never return; or if they do, they do not go as far. In the case of developing countries, children may not be able to afford even minimal school fees, or may be put to work. One of my most moving visits to Thailand during the East Asia crisis was to a slum community on the outskirts of Bangkok that had pooled its resources to ensure that its children’s education would not be interrupted. Although there were other such examples, the statistics suggest these are exceptions, not the rule.⁵²

While the broad economic forces that I have identified in this paper that give rise to these links between volatility, inequality, and human development are present in all economies, whether developed or developing, there are some important differences. In developing countries, government-provided safety nets (social protection) are weaker, and that means that the social consequences (including the consequences for human development) are larger. On the other hand, in some countries (where urban-rural ties are still strong), social connections are stronger than in developed countries, and migration back to the rural sector is easy, providing some ability to absorb shocks. This was evident, for instance, in the Thai crisis. At the same time,

while impacts on the urban sector are mitigated, large adverse effects are felt in the rural sector. The influx of labor drives down wages, with particularly negative effects on the landless (or land-poor).⁵³

The greater wage and price flexibility in some developing countries may (as I argued above) result in a deeper economic downturn, especially since there are none of the automatic stabilizers that serve to dampen downturns in more developed countries.

Capital and insurance markets too are typically less developed in developing countries, which implies that the ability to smooth the effects of shocks over time and across states of nature is less. This increases the adverse welfare effects of shocks; but, equally important, can worsen the adverse effects on human development; for example, as a result of reduced parental ability to invest in the education and health of their children.

Governments also may face more severe budgetary constraints, evidenced again in the contrast between what happened in the East Asia crisis and the US Great Recession. Interest rates confronting the US government fell dramatically, and the United States had no difficulty financing its enormous deficit—even though its flawed policies were the cause of the global downturn. The East Asian countries, by contrast, had essentially no access to funds, and had to turn to the IMF and G-7 for assistance, which they accepted even though it was accompanied by onerous conditions, which, in some instances, may have exacerbated the adverse effects on human development, as a result of cutbacks on social expenditures.

Other aspects of the structure of developing countries may also increase their vulnerability to adverse shocks. A larger fraction of production occurs in SMEs, and these are typically dependent on banks for finance. Severe shocks are often associated with major weakening of the banking system. At the very least, job creation is stymied.⁵⁴ In some countries, however, where financialization is particularly poorly developed, these effects are not felt, with the result that these countries weather adverse shocks better.

The combination of weaker social protections, tighter budget constraints, less access to international financial markets, and a weaker private-sector insurance system thus makes developing countries more vulnerable to adverse shocks, and makes it more likely that these adverse shocks translate into adverse effects on human development—often with long-lasting effects.

Concluding remarks

I have focused my remarks on the impacts of monetary and fiscal policy, but I should also observe that many other policies are relevant—creditor-friendly bankruptcy laws can contribute to long-term inequality, with adverse effects on human development, while laws that provide for constructive collective bargaining can enhance equality. Lax enforcement of anti-trust laws can contribute both to a less competitive economy and more inequality. Asymmetric trade agreements, with free financial flows but constrained labor flows, may

not only weaken workers' bargaining power, but lead to higher volatility, less efficiency, and more inequality.

Let me conclude by reiterating some of the central messages:

- The economic consequences of volatility go far beyond the loss of GDP.⁵⁵ They even go beyond the loss of employment to which the reduction in GDP gives rise—although the loss of well-being, as I have noted, is not adequately captured by the loss of output from the under-utilization of labor services. There are the direct social and individual consequences to unemployment. But there are also further effects: the loss of well-being from increased insecurity; the deterioration of health; the loss of human capital; the adverse effect on well-being from the increase in crime that typically results—including increased expenditures on ‘defensive measures.’ Some of these effects are long-lived, and are reflected in negative impacts on human development. (See Fitoussi *et al.*, 2010).
- Issues of inequality and human development, on the one hand, and instability, recessions and recovery, on the other, are intertwined. Inequality is both a cause and consequence of volatility. I have described the multiple channels through which volatility adversely affects human development—adverse direct impacts as well as (often reinforcing) effects through impacts on inequality and growth.
- While I have noted the self-reinforcing ‘political economy’ effects of increased inequality, there are broader societal effects—evidenced in a sense of social cohesion, which can adversely impact individual and societal well-being as well as economic performance more narrowly gauged.
- There are alternative paths to an eventual recovery. Some may be quicker than others. Some may be more robust than others. Some may be associated with a slower restoration of employment than others. Some may lead to more inequality than others. But I have also emphasized that the effects of the policies adopted to respond to a recession—like the effects of a recession—may be long-lived, especially when it comes to human development.
- The policy implications of this analysis are clear. Even if one was not directly concerned with social justice and the distributive consequences of policy, if governments seek to promote a more stable economy with a smaller likelihood of a downturn, then they need to be attentive to inequality. So too, once a downturn occurs, if governments seek a robust recovery—a robust recovery within the fiscal constraints that were thought to apply most acutely to developing countries but now seem to be widespread—monetary and fiscal policies need to be designed in ways that pay very careful attention to impacts on employment and equality.⁵⁶
- Since developing countries are more vulnerable to shocks, efforts should be made to insulate them. The trade-offs that they face are different from those facing more developed countries. This suggests particular caution with respect to capital and financial market liberalization.
- Finally, time may be of the essence. It may be the case that the economy might eventually recover from a downturn. But delay in responding to a

downturn, a lack of a forceful response, may not only be costly in the short run, but may also have long-run consequences.

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Notes

- 1 For a critique of this paradigm, see, for instance, Stiglitz (2011a, 2011b) and the references cited there, including Stiglitz (2010c).
- 2 In particular, the UN Commission on Reforms of the Global Monetary and Financial System (United Nations 2009) emphasized the role of inequality as a major contributing factor to the current crisis. This work has spawned considerable research, including some cited elsewhere in this paper. For an excellent survey, see Jayadev (forthcoming) and the papers cited there. For a discussion of some empirical evidence, see Atkinson and Morelli (2010). Note that we are not claiming here that all financial crises are caused by inequality, or that inequality necessarily leads to a financial crisis. It is also important to note that the Gini coefficient may not adequately capture the appropriate notion of inequality for purposes of my discussion of economic fluctuations. If, for instance (as is in fact the case, see Dynan *et al.*, 2004), there are marked differences in the marginal propensities to consume of the bottom 80% and the top 20%, then a better measure might be provided by the share of national income accruing to the top 20%. To the extent that fluctuations result from the ability of the financial elite to ‘capture’ the political process, to strip away regulations, then what matters is the share of income of that sector, or the share of income at the very top. See Acemoglu (2011).
- 3 There is a much older literature relating economic fluctuations to the functional distribution of income (which in turn is broadly related to inequality), growing out of the Kaldorian tradition. Akerlof and Stiglitz (1969) show, for instance, in a simple model that this can give rise to fluctuations of regular periodicity. For a more comprehensive discussion of the Kaldorian literature and subsequent related developments, see Jayadev (forthcoming).
- 4 Berg and Ostry (2011).
- 5 Breen and García-Peñalosa (2005) identified the cross-country linkage between inequality and volatility. They point out that their results are not driven by the high correlation of the two in Latin America.
- 5 There is even evidence that America’s foreclosure crisis is having adverse effects on health. See Currie and Tekin (2011).
- 6 The absence of good insurance markets for these risks—which are among the most important that individuals face—is a major market failure. The explanation of this market failure is only partially accounted for by information asymmetries. See Stiglitz (1993).
- 7 These are some of the reasons that GDP is not a good measure of societal performance. See Fitoussi *et al.* (2010).
- 8 United Nations (2009).
- 9 This analysis focuses on the impact of the change in inequality, and focuses on the link through the accumulation of debt, which in turn is linked to credit crises. As we commented earlier, there are other links, such as that explored in Akerlof and Stiglitz (1969).

Although we do not pursue the question here, it may also be the case that the level of inequality is related to instability. For instance, at any given level of average income, more inequality may be associated with higher levels of consumption of durables, and purchases of durables are more volatile than purchases of food.

10 Thus, the build-up in debt is based partially on the basis of policy and partially on the basis of irrationality (as is the case implicitly in the work of Minsky). Deregulation, in particular, did not prevent the irrational build up of excessive risk. While it is true that the increased indebtedness enabled average Americans to avoid the decline in their standard of living that otherwise would have ensued, it is hard to reconcile the bubble itself with ‘rationality,’ and especially some of the extreme practices in the credit market.

For a recent paper attempting to construct an inequality induced credit cycle within a Dynamic Stochastic General Equilibrium (DSGE) framework, see Kumhof and Ranciere (2010).

11 For a more thorough discussion of these issues, see Jayadev (forthcoming).

12 See, for example, Atkinson and Stiglitz (1980), Besley (2004), and Besley and Persson (2009a, 2009b).

13 The US unemployment rate hit a peak of 10.2% in October 2009, while the peak reached by Germany was 7.9% in July 2009 and Sweden 9% in April 2010. In April, 2011, more than a year after the peak, the corresponding numbers were 9.0%, 6.2% and 7.5%. Data are from Eurostat and the US Bureau of Labor Statistics.

This is consistent with earlier empirical work based on cross-country regressions cited below showing that volatility is more associated with financial market problems than labor market rigidities.

14 See Fisher (1933). Greenwald and Stiglitz (1987, 1988a, 1988b, 1990b, 1993a) have revived and extended this theory, which has emphasized the adverse effects on balance sheets of unexpected price declines—or even price increases that are smaller than expected. In this crisis, considerable attention has been centered on these balance sheet effects. (For a review and extension to monetary policy, see Greenwald and Stiglitz, 1993b, 2003a).

15 There is a more general point: economic systems are not necessarily dynamically stable. The fall in wages that results from an increase in unemployment may move the economy away from the full employment equilibrium, rather than toward it. The implication is that it may be desirable for governments to intervene to prevent wage reductions; by contrast, policies of increasing wage flexibility may exacerbate this instability.

16 See Solow and Stiglitz (1968).

17 Theories of information asymmetries have explained why that is the case. See, for example, Greenwald and Stiglitz (1990a) for an analysis of the consequences and references.

18 Because there is an upper bound on employment, economies with greater volatility typically have a higher average unemployment rate (a higher gap between actual and potential output.)

While the notion that when unemployment is high, there is downward pressure on wages might seem obvious, in traditional neoclassical theory, lower employment (at a fixed level of capital) is associated with high real product wages. But such theories begin, in effect, by assuming full employment, and hence are of little relevance to the questions at hand. In efficiency wage theories (for example, Shapiro and Stiglitz 1984) it is easy to see how increased unemployment is associated with lower wages. So too in bargaining theories.

19 Of course, the Federal government could, through a revenue sharing program, offset the impact of the reduction in state and local tax revenues.

20 This is consistent with the empirical findings of Easterly *et al.* (2001a, 2001b).

21 This is a fundamental way in which most of modern macroeconomics has gone astray: in the standard models, the shocks to the economy are assumed to be exogenous.

22 For a broad discussion of these issues, see Ocampo and Stiglitz (2008) and the references cited therein.

23 Detragiache *et al.*, (2006) and Gupta *et al.* (2011). See also Gormley (2007, 2010).

24 Rashid (2005).

25 Kumhof and Ranciere (2010).

26 The empirical significance of this effect remains controversial. See Mike Konczal (2011). One of the reasons that the subject is so controversial is that some are using the argument

- of 'housing lock' to suggest that there is a 'new normal' with a higher natural unemployment rate.
- 27 It is worth noting that some of the proposals being discussed for reducing the deficit in the United States could exacerbate both problems. For instance, removal of mortgage interest deductibility from the income tax (even in the future) will lower real-estate prices and have a particularly adverse effect on middle-income taxpayers. (There are alternative reform measures that might mitigate both problems.)
 - 28 The other major category of cutbacks is investments, the effects of which typically are not felt for a long time.
 - 29 To my knowledge, there is not an extensive literature confirming this conjecture, or identifying to what extent this being so depends on the nature of the political system. In democracies such as America where campaign contributions play a more important role, one might conjecture that the well-off are better able to resist cutbacks that would adversely affect them.
 - 30 The final point differs from the first in that the final point focuses on the 'wealth' of the citizenry, and the first on the financial constraints facing government, recognizing: shifting money from the private sector to the public is costly, because of the distortions associated with taxation; and changes in the rules governing the split between the public and private sector are politically contentious.
 - 31 This includes investments in R&D, with a consequent adverse effect on future growth. See, for example, Stiglitz (1994).
 - 32 For example, see Dynarski and Sheffrin (1987) for a discussion of consumption and unemployment.
 - 33 See Beck *et al.* (2005) among others.
 - 34 See, for example, Besley (2004) and Besley and Persson (2009a, 2009b).
 - 35 The models focused on second-order economic losses associated with relative prices being misaligned, ignoring the first-order losses resulting from prolonged gaps between the economy's actual and potential output.
 - 36 Indeed, adjusting interest rates in response to inflation meant that when the inflation was 'imported' (e.g. when it arose from international prices, say of energy or food), it risked vastly distorting the economy—putting all the burden of adjustment on non-traded sectors, and imposing an even greater burden on the poor, as a result of the increased unemployment and lower wages that resulted.
 - 37 In the United States, the Chairman of the Federal Reserve reportedly weighed in strongly against regulation of derivatives by the CFTC, supposedly an independent regulatory body. The heads of central banks often have influence that extends beyond the realm of their direct responsibility.
 - 38 For a general theoretical discussion of these issues, see Stiglitz (2010a, 2010b).
 - 39 Analyses of the effects from monetary authorities were not always consistent. As the end of QEII approached, they argued that there would be no market disruption, since the market had anticipated the end. But that raised the question, if they anticipated the end at the beginning, why should there have been much effect then? A partial answer was a claim that they believed in the 'stock view,' that prices (interest rates) depended on the stock of government bonds held by the public, which had been reduced by the intervention. Of course, in the meanwhile, during the period of QEII, the stock had been increased (and would increase even more after its end) as a result of the massive government debt. But, more broadly, the stock view is not totally coherent, or at least consistent with the rational expectations models on which some monetary authorities seem to rely. For in the presence of rational expectations, the Modigliani-Miller theorem for public finance says that public debt structure does not matter (Stiglitz, 1983, 1988). In practice, it almost surely does, but that is because markets are not well described by rational expectations and there are credit (liquidity) constraints that are not incorporated into the 'stock' view.
 - 40 Stiglitz (2011).
 - 41 See in particular unpublished work by Miguel Morin.

- 42 US Census income data, historical tables, Table H-9, [<http://www.census.gov/hhes/www/income/data/historical/household/index.html>], accessed 20 October 2011.
- 43 A Boston Fed research paper by DeRemer *et al.* (2004) finds that the period following the 2001 recession is even a 'job-loss recovery'.
- 44 See, for example, Clark (1973), Fay and Medoff (1985) and Miller (1971).
- 45 Evidence that firms act in a way consistent with an increase in the effective interest rate includes cyclical movements in inventories and mark-ups. See, for example, Greenwald and Stiglitz (2003b).
- 46 The discussion of this section is based on the highly innovative work of Miguel Morin (2011).
- 47 To the extent that a country does not import machine goods (Germany), then the exchange rate effect is not of immediate concern. But even then, for firms that export, the exchange rate at the time of purchasing the capital good relative to that at the time they will be selling the good is also of concern.

The magnitude of these effects depends on the elasticity of substitution (along the *ex ante* production function), which can change over time and differ across sectors, as Morin (2011) has pointed out. As he also notes, this can have implications for differences in patterns of recovery across countries and over time.

- 48 The link between volatility and growth has been extensively discussed. There is a strong presumption that higher volatility raises the risk premium on investment and diminishes growth at least in the short to medium term. (In the standard Solow model, long-term growth is determined by the rate of population growth and the rate of technological progress. Volatility can affect long-term growth only by having an impact on those variables, which it may have.) See the discussion above and Ramey and Ramey (1995), Stiglitz *et al.* (2006), and Imbs (2007).
- 49 There is considerable evidence that firms act in a risk-averse way (Greenwald and Stiglitz, 1990a) and that, especially in downturns, investment is reduced as a result of financial constraints (Greenwald and Stiglitz, 1993a, 2003a; Greenwald *et al.*, 1993).
- 50 The World Bank argues that ending malnutrition is crucial to human development, because of its irreversible effects on individuals' physical and intellectual development. See, for example, World Bank (2006) and the studies cited there.
- 51 US Department of Agriculture Economic Research Service figures, [http://www.ers.usda.gov/Briefing/FoodSecurity/stats_graphs.htm#food_secure].
- 52 See, for example, Atinc and Walton (1998) and Knowles *et al.* (1999).
- 53 Similarly, even in the urban sector in some countries there is a shift from the formal employment to informal employment, with adverse effects on security and possibly human development (less investment in human capital).
- 54 This effect arose in the current crisis even in developed countries: the bailout of the banks in the United States was centered on the largest institutions. The small and medium-sized banks (including community banks) remained with weak balance sheets years after the crisis, resulting in limited lending to SMEs. These SMEs depend, moreover, on collateral-backed loans, and the value of the principal source of collateral, real estate, was down markedly.
- 55 As Fitoussi *et al.* (2010) emphasize, GDP is not a good measure of well-being, and volatility and inequality themselves may lead to distortions in the measure. For instance, more unequal societies may have to spend a larger fraction of their resources on defending property rights—expenditures (like those for paying guards), which, while included in GDP, do not directly contribute to well-being (see Bowles and Jayadev, 2006). As the last crisis made so evident, bubbles are often associated with distorted prices, leading to exaggerated estimates of GDP before the crisis.
- 56 It is worth noting that since the marginal propensity to consume of low-income individuals (and especially the unemployed) is higher than that of upper-income individuals, policies that seek to maximize the bang for the buck are also policies that are egalitarian.

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