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Abstract

Global imbalances refer to current account surpluses and deficits. This is a form of international intertemporal trade, and the neoclassical approach suggests that there are gains from trade, and hence there may be no problem created by global imbalances. This paper presents qualifications to this argument. A crucial concept is the "return journey", namely the need for borrowers to pay interest (or dividends) and eventually to be able to repay. Thus savings must lead to investment, which provides the future resources to enable the return journey.

If borrowing is used to finance current consumption, wars, or unwise ("unfruitful") investment, such as excessive housing construction, the result will be a crisis. In this way the high net savings of some countries actually led to the recent crisis. This is a new version of Keynes' "paradox of thrift" The central issue on which this paper focuses is the failure of high net savings by the "savings glut" countries to lead to fruitful investment in other countries, both in the United States and in developing countries. Hence a crisis was caused by the lack of provision for the return journey.

JEL classification: F32, F34
Keywords: Global imbalances, paradox of thrift, financial crisis, instability of capital flows, world savings glut, quantitative easing

The Global Imbalances are fashionably and officially perceived as a problem, especially by the US government and US economists. There have been proposals that they should be internationally regulated and, above all, reduced. These "Imbalances" are national current account surpluses and deficits offset by net capital flows between countries, such flows including changes in foreign currency reserves. It is often stated that they are a cause – possibly even the principal cause – of the global financial crisis that began in 2008. Particular criticism is directed at surplus countries. The aim of this paper is to analyse these views rigorously.

I start with the simple proposition that such imbalances reflect *international intertemporal trade*, an idea developed in Obstfeld and Rogoff (1996, chapter 1) and Corden (2007). Since one normally assumes that trade has benefits and possibly that "free trade is best" (subject to well known qualifications) one needs to ask: what is so special and bad about cross-border flows of capital and hence international intertemporal trade? Since we are dealing here with a particular kind of "trade" an insight into the issues can be obtained by applying ideas from normative trade theory.

In sections I and II below I expound in some detail the international intertemporal trade argument and how international equilibrium is obtained, leading to the provisional conclusion that there is no problem about the Global Imbalances, this being parallel to the argument that "free trade is best". I shall call this *the neo-classical approach*. The rest of the paper develops some qualifications which help to explain why there is a widely held concern about actual or at least "excessive" global imbalances. This analysis is parallel to various well-known arguments that qualify the case for free trade. The whole of this paper is concerned with making explicit what is often just left implicit.

I
Intertemporal Trade and the Return Journey

The countries with current account surpluses are net exporters of goods and services in exchange for imports of financial instruments (call them "bonds" for short), while deficit countries are net importers of goods and services and exporters of "bonds". But such trade is not sustainable because the surplus countries are foregoing goods and

services today but expect, in return to receive net goods and services tomorrow. This is, what I shall call, "*the return journey*". They expect a return in the form of interest and dividends, and possibly, return of capital. The required return journey is integral to the intertemporal feature of this kind of trade. In the case of a country that has been a net exporter of capital, like Japan or China, this return journey involves eventually a shift from a surplus in ordinary (non-interest) trade to a deficit.

The exports of capital (purchases of bonds) by the surplus countries are not foreign aid. It is thus quite reasonable that some of the surplus countries – the net capital exporters, like China or the oil exporters – are relatively poor while deficit countries, notably the United States, are rich. Furthermore, flows of capital reflect not only differences in savings propensities but also differences in investment opportunities, and these depend on many factors, including differences in *total* factor productivity. Thus a capital-rich country may well have a higher marginal productivity of capital even though the ratio of capital to labour is much higher than in capital-poor countries. Hence a capital-rich country like the US is importing capital from capital-poor countries.

What is wrong with international, intertemporal trade? Are there not "gains from trade"? Within countries intertemporal trade goes on all the time. Some regions of a country are net capital exporters (hence have current account surpluses) and others are net capital importers. Individual savers in the form, for example, of contributors to pension funds, are lenders and hence capital exporters while corporations that borrow for investment or issue stock are capital importers. If such a flow of funds crosses international borders it may contribute to the much-maligned global imbalances. There can also be surprising cross-border flows. Corporations in China are high savers and households in the United States have been low savers. Thus funds flow from Chinese lenders to US borrowers. Other cross-border flows are not at all surprising. Funds flow from Japanese households and corporations that are high savers, partly for demographic reasons, to Australia where population growth is higher and where perceived investment opportunities (in the mineral industry or in housing) are greater.

II
Free Intertemporal Trade and International Equilibrium

I use as a reference point the current situation where, with respect to current account imbalances, every country does essentially what it wants – or its government, corporations, and households want – and the countries interact through the international general equilibrium system. Essentially, what I am presenting here is an international neo-classical story.

In each country decisions are made by numerous private agents and by the central bank and the government, the latter two acting through monetary and fiscal policies and often through exchange rate intervention. If a government wishes to reduce a current account deficit, for example, while maintaining the nation's internal balance it can do so through fiscal contraction combined with monetary expansion, one effect being depreciation of the exchange rate. Depreciation can also be brought about by direct intervention in the foreign exchange market, as well as by controls on capital inflows. Mostly governments do not actually target their current account balances. These are by-products of a variety of independent decisions by private and public actors, influenced also by the decisions of other countries.

International equilibrium – which ensures that the sum of current account surpluses equals the sum of deficits – is brought about through the capital market. For example, if country group A increases savings, with investment unchanged, so that its current account surplus is increased, lower world interest rates or increased credit availability will increase spending in country group B and so increase the latter's current account deficits.

This system has two benefits. I use here the same arguments that are used to describe the benefits of a system of free trade. First, decision-making is decentralised, so that the usual problems of central planning – especially international central planning or coordination – are avoided. Since such central planning or coordination is difficult to bring about, it is indeed an advantage that it may not be necessary. Second, the benefits of the "gains from trade" resulting from different comparative advantages, are realised. For example, there are gains from intertemporal trade when Japanese

savings finance, to some extent, investment in Australia rather than Japan because of initial differences in expected investment returns in Australia compared with Japan. Similarly, there may be gains from intertemporal trade when country A has an age distribution that yields a high rate of national savings while country B has a distribution that yields, at least temporarily, a lower rate of saving. Both countries may gain when excess savings are exported from A to B. Market forces, if unrestricted, will bring this about and residents of both countries may gain.

I now turn to the many possible qualifications to this simple free trade or neo-classical argument which I have applied to international intertemporal trade. Here one may find some rationales for the common concern with global imbalances.

III

Borrowing for Consumption, for Wars and for Unwise Investment

Consider the following simplified story which describes what happened internationally in a period beginning approximately in 2003 and culminating with the 2008 crisis. Savings go up more than investment in a group of *savings glut* countries – the group consisting of Japan, China, Germany, the oil exporters, and some other smaller European and Asian countries. In some countries (notably Japan and some other east Asian countries) private investment actually declined. This increase in savings relative to investment lowered world real interest rates and (backed up by central bank policies) made credit more readily available all over the world, notably in the United States. So there was a borrowing boom, especially in the United States. The borrowing was, above all, through mortgages and led to a housing boom. It financed housing construction, which is a form of investment, and it lead to an asset boom which, in turn, stimulated private consumption. Housing construction was excessive, so that it can be described as “unwise investment”. Easy credit also stimulated private demand in other forms. Encouraged and supported by government agencies, “sub-prime” housing loans became common in the United States. In addition, and in fact before this private sector boom, the US government borrowed to finance the Bush tax cuts and the Iraq war. All this is a familiar story by now.

The internationally free flow of capital thus eventually created a debt crisis. This was initially a private sector crisis in the United States and some other developed countries. In the case of the US government, it also helped to finance and thus sustain for a time a potential well-recognised government fiscal problem. Perhaps more important, the eventual recognition of the situation lead to a crisis for the world-wide, but especially the US, financial sector. In the financial sector the low interest rates encouraged a "search for yield", in fact a willingness to run more risks in the hope or even belief that this will yield higher returns.

The heart of the problem to which it gave rise was that borrowing financed increased current consumption, unwise investment (housing) and, in the case of the US government, current warfare. If borrowing had been for sound investment – with good prospects of being fruitful – it would have been expected to provide for the *return journey* – for the payment of interest, dividends and future repayment of debt. For the international neo-classical system which I have described earlier to work smoothly there has to be an expectation that the borrowers will be able to pay interest or dividends, and gradually to repay their loans. Investment in itself is not enough; it must be investment with reasonable expectations of good returns. When the US housing market crashed it became evident that the investment had been largely unsound. Hence a private sector debt crisis resulted, and spread from the United States to other countries, primarily in Europe.

One must add that borrowing for consumption may be acceptable under certain circumstances, notably if it is expected to be temporary and if the borrowing country's savings are expected to increase in due course. Thus borrowing for consumption is sensible if the needs are seen to be temporary (as during 2009-10 when there was a recession), or during a war, or if there is a sufficiently high underlying productivity growth rate.

In this recent episode, culminating in 2008, the effect of borrowing for consumption (or for unsound investments, especially in housing) was to generate an eventual expectation that debt service could not be maintained, and thus caused a debt crisis, with damage especially to the financial sector itself.

The savings glut countries made available more resources to the rest of the world, notably the United States. One might regard this as a benefit to the rest of the world. But these resources were loans and not gifts. Thus their acceptance by the potential borrowers and their financial intermediaries implied an awareness of the required return journey.

IV
Did Global Imbalances cause the Crisis?

The crisis was caused by the interaction of two factors. The first was the sharp but quite prolonged decline in world real interest rates and increase in credit availability. The second was the inadequacy of the US – or perhaps, better, North Atlantic – private financial sector. I would assert that without any one of these two factors there would have been no crisis. With regard to the second, I will elaborate on it shortly. Let me first analyse the first.

It was a *particular* global imbalance that contributed to the crisis. This was the significant excess of the increase in savings over the increase in investment in the substantial group of savings glut countries. This led to the fall in the world real interest rate and increased credit availability that contributed to the crisis.

Suppose there had been a significant group of countries outside the United States where a change had caused investment to *exceed* savings. This would also have led to a global imbalance but this time associated with a *rise* in world real interest rates. It might have led to a reduction in the US current account deficit and possibly even a surplus. That would not have led to a crisis, or at least not a crisis of the kind we have had. Alternatively, suppose that, starting with a US deficit there had been an increase in US savings (as since 2008) with no initial change in other countries This would have actually reduced the global imbalance affecting the United States, but would still have led to a reduction in world real interest rates both within the United States and in the world as a whole. It might therefore still have provided the conditions for a crisis by leading to over-borrowing.

Coming now to the second causal factor of the crisis, namely the inadequacy of the US financial sector this has been widely discussed and I have little to add, except to relate it to the basic trade theory approach in this paper.

Basically the world's financial sector (primarily the US sector) misallocated the additional resources made available by the world's savers. The sector showed inadequate risk aversion, excessive short-term thinking, and (arguably) general incompetence[1]. Perhaps individual agents in the sector were perfectly rational, but faced incentives that led to damaging results for the sector as a whole, and indeed for whole economies. New financial instruments were developed which were barely understood.

If there had been no capital imports (no international intertemporal trade) into the potential deficit countries, notably the United States, savings that originated domestically would still have been poorly allocated, given the financial sector's inefficiency. Restricting capital inflow would have raised domestic interest rates, led to increased domestic savings by some elements in the economy, and these additional funds would still have been misallocated to finance dissaving by others. In addition some gains from intertemporal trade would have been lost.

In trade theory language, this inefficiency of the financial sector was a "domestic distortion[2]". First best policy would require that the distortion or inefficiency in the financial sector be reduced or eliminated. This would have benefited resource allocation of savings originating both from abroad and from home. Just restricting intertemporal international trade would have been second best. The policy focus since the crisis on the reform and improved regulation of the financial sectors in the United States and the United Kingdom has thus been correct and (in trade-theory terms) first best.

[1] This is a blunt and, perhaps, superficial statement. See Rajan (2010) for a profound discussion of the inadequacies, problems, and possible reforms of the financial sector. See also Aizenman (2010).

[2] See Meade (1955), Bhagwati (1971), and for a full exposition Corden (1997). The term comes from Bhagwati (1971). In the particular case in this paper it might be better described as a "domestic inefficiency".

In arguing for free trade one assumes that buyers and sellers in different countries know what is good for them – or at least one leaves it to them to decide, thus achieving the advantages of decentralised decision-making. Yet here we may have a case where key agents in the borrowing country, especially the United States, did not in hindsight follow optimal policies from the point of view of the country's own aggregate national interest. Thus the standard assumption of the free trade argument does not apply. In the US the private and the public sectors borrowed while inadequately considering the future implications – i.e. the need for a "return journey".

Of course, this is just one possible point of view. Perhaps, on balance, it was sensible to borrow when the interest rate was so low and credit was so easily available. The Bush administration was strongly committed both to a war and to tax cuts – in historical terms an unusual combination – as well as to fostering widespread housing ownership. Perhaps some decision-makers, private or public, expected their employer or even the government to default, in which case the funds provided by the savings glut countries would turn out to be gifts rather than loans. Furthermore, some individuals in the financial sector extracted personal gains at the expense of their employers, their creditors, or their governments.

V
The Paradox of Thrift

I now come to an alternative model, seemingly very different from the neo-classical one I have been using so far. This is Keynes' model or idea of "the paradox of thrift[3]". It makes sense of much popular discussion of the global imbalances and especially of the criticisms of surplus countries The idea was applied by Keynes to a single country. Here it needs to be extended to the world economy.

An increase in savings is motivated by some people, corporations or governments wishing to consume less today, for the sake of more tomorrow. This manifests the admirable Victorian virtue of prudence – providing for the future – a virtue currently very prevalent in East Asia and in Germany. But, Keynes pointed out that, on its own,

[3] Skidelsky (1992), p. 499.

an increase in savings only reduces current aggregate demand. Savings in themselves do not increase a country's capacity to produce, and hence do not supply the resources needed to provide the extra future consumption that the savers expect. This provision for the future requires not just saving but also extra investment, which is induced in the neo-classical model through the decline in the interest rate. Hence savings must be channelled into investment, this being the responsibility of the financial sector.

In Keynes' view investment depended on many factors, notably expectations, "animal spirits", and also current consumption (seen as a guide to future demand), but not much on the rate of interest. Thrift is unlikely to lead to more output in the future, but instead – by reducing aggregate demand – would lead to less output in the present. Thus savings that are expected to make people eventually richer will actually make the nation currently poorer, without any benefit for the future. That is the paradox. The key feature of this Keynesian model is the failure of the interest rate to equilibrate the system by stimulating investment when savings rise. Keynes, of course, was influenced by the situation in the nineteen thirties when a lack of aggregate demand was obvious. During that period animal spirits were lacking

Let us now expand this approach to the world economy, with an international capital market. The paradox of thrift requires two crucial assumptions. The first is that there is no direct link between worldwide saving and investment through the rate of interest or, if there is some link, it is inadequate. Secondly, maintaining aggregate demand is a world-wide problem. One then arrives at the following conclusion. Spending, whether on consumption or investment, is good, while saving (not spent directly on investment) is bad. Spending will increase aggregate demand while saving will reduce it.

From an international point of view, high savers are to be disapproved of, unless they spend their savings on domestic investment. In other words, it is the excess of saving over investment – the current account surplus – that is bad. This explains why there is a concern not just about saving but about "global imbalances." If a country's bad policies (high savings) are offset by good policies (domestic investment), then there is no adverse international effect. Furthermore, if a country's investment exceeds its saving, or indeed if the country dissaves as well as invests, it will have a current

account deficit and that, presumably is a service to the world from this narrow point of view.

Given this theory or paradigm, current account surplus countries – notably China, Japan and Germany – where people feel virtuous because of their prudent saving for the future – should be told that it is investment, not saving, that raises future output. When they rely on other countries to do their investing for them, they are really outsourcing the difficult part of the story. Of course, these countries, notably China, are also big, indeed very big investors, either now or in the past, and here we are only concerned with the e*xcess* of saving over investment. In China saving has been about 50% of GDP and investment has been about 40%, so that the current account surplus in 2008 was about 10%, which, of course, is a high figure.

This Keynesian "paradox of thrift" theory or set of assumptions makes sense of the popular view – held even by leading economists, notably Martin Wolf and Paul Krugman – that China's current account surplus is harmful to the world economy[4].

How does the paradox of thrift story relate to the story earlier of borrowing for consumption and for unwise investment? During the savings glut period there was no aggregate demand (or Keynesian) problem in the world until the crisis of 2008. High net savings coming from the savings glut countries did lead to reduced world interest rates, and this led to borrowing primarily for housing construction and for consumption in other countries, especially the United States. I shall focus on the consumption increase here. In effect, increases in saving in some parts of the world led, through the adjustment process of the interest rate, to reduced saving or dissaving in other parts of the world. Since aggregate demand was maintained there was actually no paradox of thrift in the strict Keynesian sense.

Nevertheless, something that was required by our basic neo-classical model was indeed missing. Thus the "paradox" model is indeed relevant to our discussion. There was not a sufficient increase in investment, defined as *sound* or *fruitful* investment.

[4] See Paul Krugnan's articles in the New York Times and Martin Wolf's articles in the Financial Times.

There was insufficient provision for the return journey – and a series of debt crises, particularly in the private financial sector, resulted. There was, of course, investment in housing construction, notably in the United States and in Spain, but there was a surprising failure for investment more generally to increase. I shall come back to this crucial matter later. Worldwide aggregate demand was maintained primarily at first by US government fiscal expansion (to finance a war and tax cuts) and then by US private sector growth in consumption demand plus housing construction.

The eventual decline in worldwide aggregate demand – especially in the United States – was caused essentially by the financial sector debt crisis, and this in turn was caused by increased savings in one part of the world being channelled to borrowing for consumption or for unfruitful investment in another part. Thus the initial effect was not for aggregate demand to decline – the Keynesian paradox of thrift – but for a financial sector debt crisis to be incubated.

The blame must be put primarily on the inefficiency of the world's, especially the US's – financial sector. More of the funds saved in the savings glut countries should have gone into equity financing rather than into debt financing, and, above all, more should have financed fruitful investment rather than consumption. Much of financing of housing in the United States must also be regarded as unfruitful. It failed to provide for the return journey because the sub-prime mortgagees would not be able to maintain their mortgage payments.

Thus a version of the paradox of thrift paradigm does remain. One can argue not that greater thrift in the savings glut countries caused a worldwide decline in aggregated demand, but rather that it failed to lead to increased investment – fruitful or sound investment – that would provide for the return journey. Possibly one could argue that this effect represented not a failure of the prudent high savers, such as China, Japan, Germany, and the oil exporters, but rather the inadequacy of the US (or North Atlantic) financial sector as well as of the US government.

With regard to the use of borrowed funds for financing a war by the US government, it might be argued that it has been normal in history for governments to borrow massively during wars. But they have not normally reduced taxes at the same time.

This experience raises a further important historical or counter-factual question. Let us take the savings glut effect as given. Suppose the increase in borrowing in the United States for consumption and for housing had been much less, would the gap have been filled by borrowing for fruitful investment in the United States and elsewhere? Perhaps this is the central question about this historical episode which ended in 2008. Were suitable investment projects, private or public, available, or could they have been developed? Could US and European private corporations have borrowed more? In particular, was there an excessive reluctance to borrow for investment in emerging market countries? I come to this issue now.

VI

Aversion to Current Account Deficits: Instability of Capital Flows

Some of the best investment opportunities may well exist in developing countries. Some of these countries should generate the capital inflows and hence current account deficits that would balance the surpluses of the savings glut countries – or they should have balanced them in the period up to 2008. There are two reasons for their reluctance to allow substantial current account deficits to develop. These may explain why such a large counterpart to the surpluses has been the US deficit, rather than the deficits of developing countries, and why the possibility of a worldwide Keynesian lack of aggregate demand problem resulting from an initial savings glut cannot always be ruled out.

The first reason is the sad experience of instability of international capital flows, especially into developing countries. However justified initially the investments that are the reasons for the capital inflows, the inflows tend so often to overshoot and then suddenly come to a stop, creating a crisis. The 1997 Asian crisis is the best example of this story. In particular, bank lending tends to be extremely volatile and subject to herding behaviour. Many governments are now wary of capital inflow booms when such booms can suddenly – and perhaps irrationally – come to an end and force

contraction in demand and real depreciations, all in crisis conditions. These features reflect, again, the inefficiency of the world's financial sector[5].

This instability of capital flows into developing countries also explains why so much of the flows from the savings glut countries went to the United States. The memory of the Asian crisis, and indeed also various Latin American crises, must have encouraged caution in many emerging market countries. By contrast the United States was seen as a safe haven in spite of its obvious potential fiscal problem. There were dire forecasts before 2008 of a likely dollar crisis because of the US current account deficit, but the first reaction to the crisis was for the dollar actually to go up in value. Thus there was indeed a crisis, but not the one that had been widely predicted.[6] The reasons why the United States was seen as a good country to lend money to were discussed in Cooper (2007), a point of view that was criticised in Wolf (2008). Clearly it helped that the US dollar was the world's key currency. Unlike most developing countries it could borrow in terms of its own currency.

VII

Aversion to Current Account Deficits: Unpopular Real Appreciations

The second reason for the reluctance of many countries to allow substantial capital inflows – which would inevitably generate current account deficits – is that such inflows are inevitably associated with real appreciations. These have adverse effects on the tradeable sectors of economies. Real appreciation is particularly undesirable when, as often, it is likely to be short-term owing to the capital market volatility just mentioned, and thus will soon have to be reversed. Real appreciation resulting from private sector capital inflows can be avoided or at least modified by sufficient budget surpluses at the same time. Alternatively capital controls can reduce or slow up the inflows. Exchange rate intervention requires to be sterilized, otherwise inflation

[5] See Aizenman (2010). He develops in some detail the argument that financial opening has not been beneficial to developing countries owing to financial instability. "Inflows of capital and easy access to borrowing have not succeeded in delivering sustainable growth."

[6] In retrospect my scepticism about the likelihood of a dollar crisis in Corden (2007) was justified, but, of course, I did not foresee the very different financial sector crisis which we did get. That one was foreseen in Rajan (2005).

would result, so that there would still be real appreciation even when the nominal exchange rate is kept fixed by the intervention. In practice all these counteracting measures have problems.

The main point is really this. Potential gains from international intertemporal trade may well justify capital inflow. The inflow may finance investment that yields a high rate of return, so that there are mutual gains from intertemporal trade – i.e. from foreign savings financing the country's investments. Both foreign savers and domestic industries where the investments take place gain. Nevertheless, in the capital-importing country there can still be losers from such intertemporal trade. These losers are the industries and workers in the export and import-competing industries adversely affected by real appreciation. This is the Dutch Disease effect.

On the basis of the standard theory of the gains from trade, given the relevant assumptions, the country as a whole does gain from free intertemporal trade, in the sense that gainers could compensate losers, and a net gain would remain. But in the absence of compensation there are inevitably losers, and this applies to intertemporal trade as much as to "ordinary" trade.

Through real appreciation capital inflow thus reduces employment in import-competing and export sectors. But there is not necessarily an overall decline in employment but only a redistribution of it. Capital inflow increases employment in the non-tradable sectors. This increase in non-tradable employment is generated by the extra domestic spending brought about by the capital inflow. The crucial mistake is often made to focus exclusively on the adverse effects in the import-competing and export sectors, and to ignore the offsetting favourable effects in the non-tradeable sectors.

This analysis applies not only to developing countries but also to the United States. It was widely, but falsely, believed in the United States that "China" (meaning really all the savings glut countries) caused unemployment in the United States) during a period before 2008 when there was actually no increase in overall unemployment.

I would put the matter differently. As a result of the international general equilibrium adjustment to the savings glut countries the US developed a current account deficit that was, in part, the mirror image of the savings-glut countries' surpluses. The US deficit was financed principally by capital inflow from China and other savings-glut countries. The by-product within the United States was a loss of employment in some sectors and a gain in others. Of course the overall employment effect was also influenced by US monetary and fiscal policy, and other much discussed factors (such as technological advances). The mistake I have just referred to was also made in US discussion. The focus was on the negative employment effects in import-competing industries while ignoring the positive employment effects in areas financed or stimulated by capital inflow.

VIII
US Quantitative Easing and the Complaints from Emerging Markets

So far I have had in mind the effects of the savings glut in the period up to 2008, I have noted the understandable reluctance of some countries to incur current account deficits even though they probably had potential investment opportunities which could have absorbed some of these net savings coming from Japan, China, Germany, the oil exporters and some others. Hence the largest absorber by far was the United States. The crisis that was usually expected during that period was one resulting from a sudden big decline in the dollar. This did not happen. What did happen was a financial sector crisis caused, in part, by the US borrowing for consumption and for unsound investment, especially in housing.

Now in 2011 the tables have turned. The United States is in recession (or at least in a period of excessively high unemployment), essentially because private sector spending has fallen owing to the financial crisis. Now one might say that the United States is the source of a savings glut, which has led to a monetary policy expansion (through quantitative easing) that reduces world interest rates and increases world credit availability. We are now seeing the long-expected decline in the dollar.

Fundamentally it is similar to the earlier savings glut coming from China, Japan, and so on, but this time the absorbers will be both within the United States (hopefully

increasing US private investment), and among mostly emerging market countries, for example Brazil and Indonesia. Thus the latter's exchange rates are appreciating relative to the dollar, and their governments are complaining. Appreciation is never popular. Some are considering controls on capital inflows, and they are complaining about US policy in the same way that earlier the US complained about China. The issues are the same that I have discussed above. I must add here that now, in 2011, the earlier savings glut (from Japan, China etc) is somewhat reduced but has not ended.

IX

Conclusion: Savings too high, or Investment too low?

Let us list the four ways in which an ex-ante excess of world savings over world investment can be resolved.

1. Aggregate demand declines until aggregate savings decline to the given level of investment. This is the Keynesian "paradox of thrift" case. To some extent this has happened, but only since the 2008 financial crisis. It did not happen during the savings glut period.
2. The interest rate falls, and so investment rises, maintaining aggregate demand. This is the hypothetical outcome of the neo-classical model and has not actually happened since the beginning of the "savings glut". (I refer here only to "fruitful" investment).
3. The interest rate falls, leading to increased borrowing for consumption. This thus leads to a decline in the *world* savings propensity which offsets the effects of the initial savings glut. A decline in aggregate demand is avoided. This did actually happen but eventually led to the private sector debt crisis. (I also include "unfruitful investment" under this rubric.)
4. The decline in aggregate demand is moderated by Keynesian fiscal expansion. Thus a Keynesian paradox-of-thrift problem is handled with a Keynesian solution. Depending on the extent of existing public debt and whether public borrowing is used for consumption or investment, this may (or may not) lead to a sovereign debt crisis.

Solutions 1. and 3. are clearly not satisfactory. Solution 2. should have happened, but did not. Solution 4. may be satisfactory in the short-run, and even in the long-run if budget deficits finance sound investment.

And so we come to Solution 5. It is to urge or pressure some of the high savings countries, above all China, to save less. This has certainly been tried by the US government and US economists, but not with success[7]. It is a policy proposal that seems to follow naturally from Keynes' paradox of thrift and assumes that options 2 and 4 are ruled out.

Here I wish to highlight – without really answering – a central question about recent experience. Why did option 2 (the neo-classical solution) not happen? With interest rates so low and credit so readily available why was there not more private and public investment in both developed and emerging market countries? I refer to the period from roughly 2000 to 2007 or 2008. I am thinking particularly of infrastructure investment. Such investment, financed by foreign borrowing, would have provided the neo-classical solution and perhaps avoided so much "borrowing for consumption". and for "unfruitful" investment (notably for housing) in the United States.

Given the needs for long-term investment for both demographic and environmental reasons, it was an opportunity missed. Part of the answer is contained in sections VI and VII above, namely the aversion of many developing countries to incurring current account deficits. I exclude China from this question since it actually had a massive investment boom (even though domestic investment was less than savings, hence yielding its current account surplus).

[7] The reduction of Chinese savings is possibly happening or is planned, but not in response to international pressure, but rather for good Chinese domestic reasons. The high savings of China can be regarded as a by-product of various domestic policies, rather than as a deliberate policy aimed either at the national savings rate or the current account. See Corden (2009).

X

Conclusion: The Main Point and the four Qualifications

To conclude, the central argument developed at the beginning of this paper must be emphasized. The imbalances represent international intertemporal trade, and normally one would expect this form of trade to yield gains from trade benefiting both the lenders (the saving glut countries, primarily) and the borrowers (above all, the United States). The common view that the imbalances are, in some sense, basically or a priori undesirable, hardly makes sense.

Yet there are qualifications. Firstly, the borrowers must be prepared for the return journey – that is, the inevitable need for repayment, or at least payments of interest and dividends. Otherwise a debt crisis will, or may, result. In effect, most of US private borrowing was to finance consumption, or housing construction in excess of likely demand. On the other hand, to the extent that US borrowing financed a Federal government budget deficit that was politically determined and was not a response to the availability of foreign purchases of Treasury bonds, there was a clear benefit to the United States through having to pay lower interest rates on its bonds than if foreign funds had not been available.

A second qualification is that the inflow of capital into the borrowing or potential borrowing countries would tend to bring about real appreciations of the currencies of the borrowing countries, and this has often been thought undesirable. It has certainly been perceived as a problem. I have discussed this effect at length. There is sometimes a misunderstanding (notably in the United States) that reduced employment in the export and import competing sectors represented a net loss of national employment.

Thirdly, if some countries have current account surpluses others have to run deficits, the latter brought about by capital inflows. But such capital inflows can be very unstable, and quickly reversed. Hence many policy-makers are, for good reasons, averse to deficits, and hence seek to control or limit inflows. The fault here is basically with the international financial sector that creates the instabilities.

A fourth qualification is that high savings may lead to a paradox of thrift, in the sense that reduced interest rates caused by higher savings may fail to stimulate sufficient demand from potential borrowers, so causing unemployment. If the return journey problem is not to arise this demand must be for financing fruitful investment and not consumption. Here I have noted that, for various reasons, in recent years the demand for financing fruitful investment has been inadequate. Perhaps this has been the heart of the problem.

XI
Afterthought: A Moment in History?

The international savings-glut experience that led to very low real interest rates and massive credit availability over a period of less than ten years may have been just a moment in history. In particular, in due course we can surely expect China to save less (and, indeed, there are already signs of that). Together with the inadequacies of the world's financial sector the savings glut led to a crisis. Who knows what will bring the next crisis. Perhaps it will be an excessive rise in real interest rates and a shortage of capital for vitally required new investments (particularly public investments) as the world continues to urbanise and adjusts to climatic catastrophes. In addition, when interest rates rise, the excessive accumulation of debt that has resulted from recent developments may well be the source of a future crisis owing to an inevitable funding problem (Aizenman, 2010). To which I add: Americans may then wish that the Chinese saved more!

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