The other half of macroeconomics and the three stages of economic development[1]

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The discipline of macroeconomics, which was started in the late 1940s and was based on the assumption that the private sector is always maximizing profits, considered only one of the two phases an actual economy experiences. The overlooked other phase, in which the private sector may instead seek to minimize debt, can help explain why economies stagnate and why the much-touted policies of quantitative easing and zero or even negative interest rates have failed to produce the expected results. With stagnant economic and wage growth becoming a major issue in most developed countries, it is time for the economics profession to leave its comfort zone and face the other half of macroeconomics head on.

The failure of the vast majority of economists in government, academia and the private sector to predict either the post-2008 Great Recession or the degree of its severity has raised serious credibility issues for the profession. The widely varying opinions of these "experts" on how this recession should be addressed, together with the repeated failures of central banks and other policymakers to meet their inflation or growth targets, have left the public and political leaders rightfully suspicious of economists. This paper seeks to elucidate what was missing in economics all along and what changes are needed to make the profession relevant given the economic challenges of today.

Human progress is said to have started when civilization sprang up in China, Egypt and Mesopotamia over 5,000 years ago. The Renaissance, which began in Europe in the 13th century, accelerated the search for both a better understanding of the physical world and better forms of government. But for centuries that progress affected only the few who had enough to eat and the leisure to ponder worldly affairs. Life for the masses was not that much better in the 18th century than in the 13th century when the Renaissance began. Thomas Piketty noted in his book *Capital in the 21st Century* that economic growth averaged only 0.1 percent per year[2] in those centuries – it was basically at a standstill. To understand how we got from centuries of economic stagnation to where we are today, when economic growth is taken for granted, we need to review certain basic facts about the economy and how it operates.

Basic macroeconomics: one person's expenditure is another person's income

One person's expenditure is another person's income. It is this unalterable linkage between the expenditures and incomes of millions of thinking households and businesses that makes the study of the economy both interesting and unique. This relationship means that at a national level, if one group is saving money, another group must borrow and spend that money to keep the economy running. If everyone is saving and no one is borrowing, all of the saved funds will leak out of the economy's income stream, resulting in less income for all.

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[1] A longer version of this paper is here at the WEA online conference Capital Accumulation, Production and Employment

[2] Piketty, Thomas (2014) *Capital in the Twenty-First Century.*

For example, if a person with an income of $1,000 decides to spend $900 and save $100, the $900 that is spent becomes someone else's income, which means it is already circulating in the economy. Typically, the $100 that he saved is deposited with a financial institution such as a bank, which then lends it to someone else who can make use of the money. When that person borrows and spends the $100, total expenditures in the economy amount to $900 plus $100, which is the same as the original income of $1,000, and the economy moves forward.

In a normal economy, this function of matching savers and borrowers is performed by the financial sector, with interest rates moving higher or lower depending on whether there are too many or too few borrowers. If there are too many borrowers for the saved funds, interest rates will go up and some of those borrowers will drop out. If there are too few borrowers, interest rates will come down and prompt potential borrowers who stayed on the side-lines to step forward.

The government also has two types of policy, known as monetary and fiscal policy, to help stabilize the economy by matching private-sector savings and borrowings. The most frequently used of the two is monetary policy, in which the central bank raises or lowers interest rates to help the matching process along. Since a state of too many borrowers is usually associated with a strong economy, a higher policy rate might be appropriate to prevent overheating and inflation. Similarly, a state of too few borrowers is usually associated with a weak economy, in which case a lower policy rate might be needed to avert a recession or deflation.

In fiscal policy, on the other hand, the government itself borrows and spends money to build social infrastructure such as highways or airports. Compared with monetary policy, which can be decided very quickly by the central bank governor and his or her associates, fiscal policy tends to be very cumbersome in a democracy during peacetime because elected representatives must agree on how much to borrow and where to spend the money. Because of the political nature of these decisions and the time it takes to implement them, most recent economic fluctuations have been dealt with using monetary policy.

The paradox of thrift as a macroeconomic phenomenon

Now that we have covered the basics, consider an economy in which everyone wants to save but no one wants to borrow even at near-zero interest rates. There are at least two sets of circumstances where such a situation might arise. The first is one in which private-sector businesses cannot find investment opportunities that would pay for themselves. After all, the private sector will not borrow money unless it believes it can pay back the debt with interest. And there is no guarantee that such opportunities will always be available.

In the second set of circumstances, private-sector borrowers sustain huge losses and are forced to rebuild savings or pay down debt to restore their financial health. Such a situation may arise following the collapse of a nationwide asset price bubble in which a substantial part of the private sector participated with borrowed funds. When the bubble bursts, borrowers are left with huge liabilities but no assets to show for the debt. With a huge debt overhang, these borrowers have no choice but to pay down debt or increase savings regardless of the level of interest rates in order to restore their financial health.

If there are no borrowers for the saved $100 in the above example, total expenditures in the economy drop to $900 while the saved $100 remains in financial institutions or under mattresses. This means the economy has shrunk 10 percent, from $1,000 to $900. That $900 is now someone else's income. If that person decides to save 10 percent and there are still no borrowers, only $810 would be spent, causing the economy to contract even further to $810. The economy will then contract to $730 if borrowers remain on the side-lines. This is what is called a deflationary spiral.

The $100 that is left in the financial sector could still be shifted among various asset classes. It could even create mini-bubbles from time to time. But without real-economy borrowers, it will not be able to support transactions that add to GDP.

The contractionary process does not continue forever, since the savings-driven leakages from the income stream are eliminated once people become too poor to save. For example, if an income of $500 makes it impossible for a person to save any money, that person will naturally spend the entire $500. If the person receiving that $500 as income is in the same situation, she will also spend the entire $500. The result is that the economy finally stabilizes at $500 in a situation that we would call a depression.

Keynes had a name for this state of affairs, in which everyone wants to save but is unable to do so because no one is borrowing. He called it the paradox of thrift. It is a paradox because if everyone tries to save, the net result is that no one can save.

Disappearance of borrowers finally recognized after 2008

Until 2008 the economics profession considered a contractionary equilibrium (a $500 economy) brought about by a lack of borrowers to be an exceptionally rare occurrence – the only recent example was the Great Depression, which was triggered by the stock market crash in October 1929 and during which the US lost 46 percent of nominal GNP in the $1000-$900-$810-$730 process described above. Although Japan fell into a similar predicament when its real estate bubble burst in 1990, its lessons were almost completely ignored by the economics profession until the Lehman shock of 2008[3].

Economists failed to consider the case of insufficient borrowers because when macroeconomics was developing as a separate academic discipline starting in the 1940s, investment opportunities for businesses were plentiful: new "must-have" household appliances ranging from washing machines to televisions were being invented one after another. With businesses trying to start or expand production of all these new products, there were many borrowers in the private sector and interest rates were quite high, at least in comparison with the post-2008 world.

With borrowers never in short supply, economists' emphasis was very much on the availability of savings and the use of monetary policy to ensure that businesses got the funds they needed at interest rates low enough to enable them to continue investing. Economists also disparaged fiscal policy – i.e., government borrowing and spending – when inflation became a

[3] One exception was the National Association of Business Economists in Washington, D.C., which awarded its Abramson Award to a paper by the author titled "The Japanese Economy in Balance Sheet Recession," published in its journal *Business Economics* in April 2001.

problem in the 1970s because they were worried the public sector would squander the private sector's precious savings on inefficient pork-barrel projects.

During this period economists also assumed the financial sector would ensure that all saved funds are borrowed and spent, with interest rates moving higher when there are too many borrowers relative to savers and lower when there are too few. It is because of this assumed automaticity that most macroeconomic theories and models developed prior to 2008 contained no financial sector.

However, the advent of the Great Recession in 1990 for Japan and in 2008 for the West demonstrated that private-sector borrowers can disappear altogether in spite of zero or negative interest rates when faced with daunting financial problems after the bursting of a debt-financed bubble. In both post-1990 Japan and the post-2008 Western economies, borrowers disappeared completely due to the specific sequence of events described below.

First, people tend to leverage themselves up in an asset price bubble in the hope of getting rich quickly. But when the bubble bursts and asset prices collapse, these people are left with huge debts and no assets to show for them. With their balance sheets underwater, these people have no choice but to pay down debt or rebuild savings to restore their financial health.

For businesses, negative equity or insolvency implies the potential loss of access to all forms of financing, including trade credit. In the worst case, all transactions must be settled in cash, since no supplier or creditor wants to extend credit to an entity that may seek bankruptcy protection at any time. In order to safeguard depositors' money, many depository institutions such as banks are also prohibited by government regulations from extending or rolling over loans to insolvent borrowers. For households, negative equity means savings they thought they had for retirement or a rainy day are no longer there.

Since these conditions are very dangerous, both businesses and households will focus on restoring their financial health *regardless of the level of interest rates* until they feel safe again. With survival at stake, businesses and households are in no position to borrow even if interest rates are brought down to zero. There will not be many lenders either, especially when the lenders themselves have balance sheet problems. That means these households, businesses and financial institutions are effectively in *debt minimization* mode instead of the usual profit maximization mode.

No name for recession driven by private-sector debt minimization

Although it may come as a shock to non-economist readers, the economics profession never envisioned a recession driven by private-sector debt minimization until quite recently. Economists simply ignored the whole issue of financial health or the need to restore it when building their macroeconomic theories and models because they assumed the private sector is always maximizing profits. But two conditions must be satisfied for the private sector to be maximizing profits: it must have a clean balance sheet, and there must be attractive investment opportunities. By assuming that the private sector is always maximizing profits, economists assumed, mostly unconsciously, that both of these two conditions are always satisfied. And that was in fact the case for over 50 years – until the asset bubbles burst in Japan in 1990 and in the Western economies in 2008.

When that happened, not only did the surplus of borrowers disappear suddenly, but many borrowers also started paying down debt in spite of record low interest rates. Flow-of-funds data show the US private sector has been saving (including debt repayments) an average of 5.9% of GDP since the third quarter of 2008, with corresponding figures of 7.3% for Spain's private sector, 8.6% for Ireland's, and 4.6% for Portugal's. Businesses and households should be borrowing massively given today's ultra-low interest rates, but instead they have been *saving* huge amounts in an attempt to repair their balance sheets. And they will not start borrowing again until they feel comfortable with their financial health.

Yet economists continue to assume that there are many borrowers because that assumption is built into their models and theories. Their forecasts for growth and inflation based on those models and theories have completely missed the mark because that assumption is no longer valid in the post-bubble world. Moreover, because a profit-maximizing private sector is such a fundamental assumption in their theories, most economists failed to suspect that their models failed because this basic assumption about private-sector behavior is no longer warranted.

The economics profession not only neglected to consider the type of recession brought about by a debt-minimizing private sector, it never even had a name for the phenomenon. Indeed, the author had to come up with the name *balance sheet recession* in the late 1990s to describe this ailment, and the term is finally entering the lexicon of economics in the West in the wake of the 2008 collapse of Lehman Brothers and the subsequent global financial crisis. Economists' inability to understand that borrowers can actually disappear from the economy has already resulted in some very bad outcomes in modern history, including the Great Depression in the US and the rise of the National Socialists in Germany in the 1930s, as well as the emergence of similar groups in the Eurozone after 2008.

Paradox of thrift was the norm before industrial revolution

Looking further back in history, however, we can see that economic stagnation due to a lack of borrowers was much closer to the norm for thousands of years before the industrial revolution in the 1760s. As shown in Exhibit 1, economic growth had been negligible for centuries before that. There were probably many who tried to save during this period of essentially zero growth, because human beings have always been worried about an uncertain future. Preparing for old age and the proverbial rainy day is an ingrained aspect of human nature. But if it is only human to save, the centuries-long economic stagnation prior to the industrial revolution must have been due to a lack of borrowers.

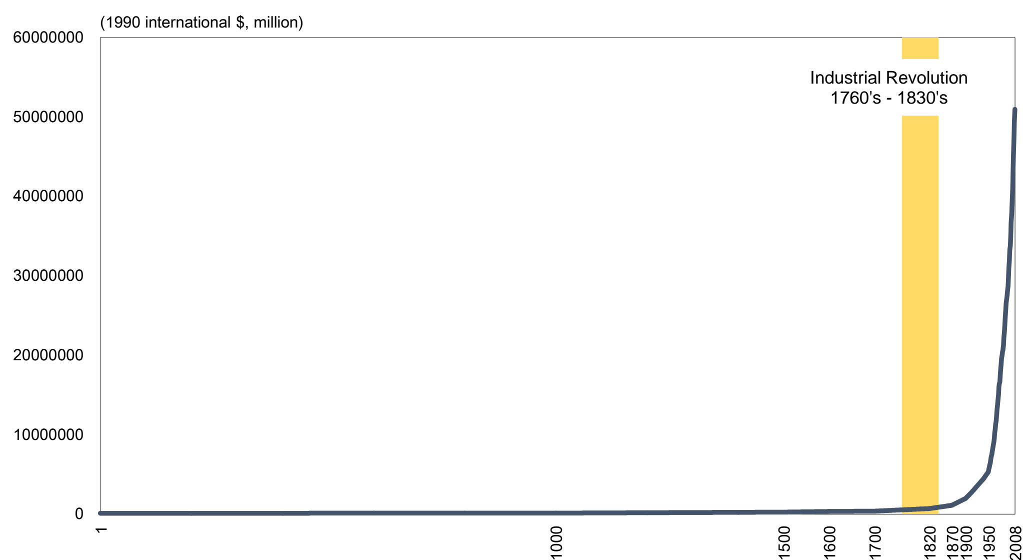
For the private sector to be borrowing money, it must have a clean balance sheet and promising investment opportunities. After all, private-sector businesses will not borrow unless they are sure they can pay back the debt with interest. But with little or no technological innovation before the industrial revolution, which was essentially a technological revolution, there were few investment projects capable of paying for themselves. Businesses also tend to minimize debt when they see no investment opportunities because the probability of facing bankruptcy is reduced drastically if the firm carries no debt. Given the dearth of investment opportunities prior to the industrial revolution, it is easy to understand why there were so few willing borrowers.

Because of this absence of worthwhile investment opportunities, the more people tried to save, the more the economy shrank. The result was a permanent paradox of thrift in which

people tried to save but their very actions and intentions kept the national economy in a depressed state. This state of affairs lasted for centuries in both the East and the West.

Powerful rulers sometimes borrowed the funds saved by the private sector and used them to build social infrastructure or monuments. On those occasions, the vicious cycle of the paradox of thrift was suspended because the government injected the saved funds (the initial savings of $100 in the example above) back into the income stream, generating rapid economic growth. But unless the project paid for itself – and politicians are seldom good at selecting investment projects that pay for themselves – the government would at some point get cold feet in the face of a mounting debt load and discontinue its investment. The whole economy would then fall back into the paradox of thrift and stagnate. Consequently, many of these regimes did not last as long as the monuments they created.

Exhibit 1. Economic growth became norm only after industrial revolution



Source: Angus Maddison, "Historical Statistics of the World Economy: 1-2008 AD", http://www.ggdc.net/maddison/Historical_Statistics/vertical-file_02-2010.xls

Countries also tried to achieve economic growth by expanding their territories, i.e., by acquiring more land, which was the key factor of production in pre-industrial agricultural societies. Indeed, people believed for centuries that territorial expansion was essential for economic growth. This drive for prosperity was the economic rationale for colonialism and imperialism. But both were basically a zero-sum proposition for the global economy as a whole and also resulted in countless wars and deaths.

Four possible states of borrowers and lenders

The discussion above suggests an economy is always in one of four possible states depending on the presence or absence of lenders (savers) and borrowers (investors). They are as follows: (1) both lenders and borrowers are present in sufficient numbers, (2) there are borrowers but not enough lenders even at high interest rates, (3) there are lenders but not enough borrowers even at low interest rates, and (4) both lenders and borrowers are absent. These four states are illustrated in Exhibit 2.

Of the four, only Cases 1 and 2 are discussed in traditional economics, which implicitly assumes there are always borrowers as long as real interest rates can be brought low enough. And of these two, only Case 1 requires a minimum of policy intervention – such as slight adjustments to interest rates – to keep the economy going.

The causes of Case 2 (insufficient lenders) may be found in both financial and non-financial factors. Non-financial factors might include a culture that does not encourage saving or a country that is simply too poor and underdeveloped to save. A restrictive monetary policy may also qualify as a non-financial factor that weighs on savers' ability to lend. (If the paradox of thrift leaves a country too poor to save, this would be classified as Case 3 or 4 because it is actually due to a lack of borrowers.)

Financial factors weighing on lenders might include an excess of many non-performing loans (NPLs), which depresses banks' capital ratios and prevents them from lending. This is what is typically called a credit crunch.

When many banks encounter NPL problems at the same time, mutual distrust among lenders may lead to a dysfunctional interbank market, a state of affairs typically known as a financial crisis. Over-regulation of financial institutions by the authorities can lead to a credit crunch as well. An underdeveloped financial system may also be a factor.

Cultural norms discouraging savings, as well as income (and productivity) levels that are simply too low for people to save, are developmental phenomena typically found in pre-industrialized societies. These issues can take many years to address.

Exhibit 2. Borrowers and lenders: four possible states

		Borrowers (=investors)	
		Yes	No
Lenders (=savers)	Yes	1	3
	No	2	4

Textbook world (private sector maximizing profits) — Yes column

Overlooked world (private sector minimizing debt) — No column

world economy today → 3

1. Lenders and borrowers are present in sufficient numbers (textbook world)
   ⇒ **Ordinary interest rates**
2. Borrowers are present but not lenders due to the latter's bad loan problems (financial crisis, credit crunch)
   ⇒ **Loan rates much higher than policy rate**
3. Lenders are present but not borrowers due to the latter's balance sheet problems and/or lack of investment opportunities (balance sheet recession, "secular" stagnation) ⇒ **Ultra-low interest rates**
4. Borrowers and lenders both absent due to balance sheet problems for the former and bad loan problems for the latter (aftermath of a bubble burst) ⇒ **Ultra-low interest rates, but only for highly rated borrowers**

Non-developmental causes of a shortage of lenders, however, all have well-known remedies in the literature. For example, the government can inject capital into the banks to restore their ability to lend, or it can relax regulations preventing financial institutions from performing their

role as financial intermediaries. In the case of a dysfunctional interbank market, the central bank can act as lender of last resort to ensure the clearing system continues to operate. It can also relax monetary policy.

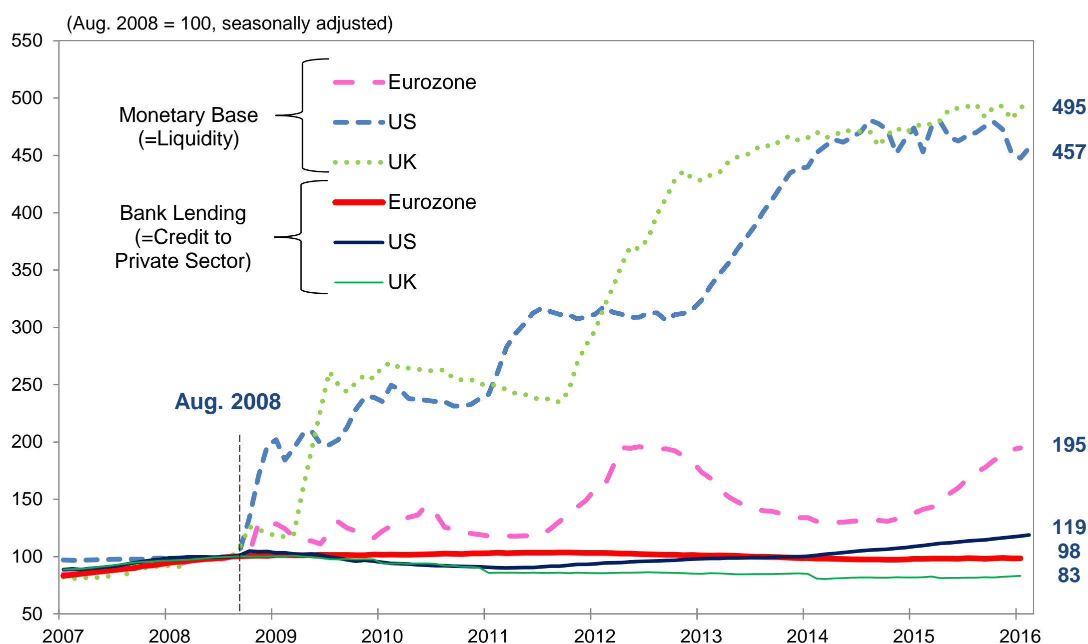
The conventional emphasis on monetary policy and concerns over the crowding-out effect of fiscal policy are justified in Cases 1 and 2, where there are borrowers but (for a variety of reasons in Case 2) not enough lenders.

A shortage of borrowers and the other half of macroeconomics

The problem is with Cases 3 and 4, where the bottleneck is a lack of *borrowers*. This is the other half of macroeconomics that has been overlooked by traditional economists.

As noted above, there are two main reasons for an absence of private-sector borrowers. The first is that they cannot find attractive investment opportunities that will pay for themselves, and the second is that their financial health has deteriorated to the point where they are unable to borrow until they repair their balance sheets. An example of the first case would be the world that existed prior to the industrial revolution, while examples of the second case can be found following the collapse of debt-financed asset price bubbles.

Exhibit 3. Massive liquidity supply and record low interest rates after 2008 failed to increase credit to private sector



Notes: 1. US monetary base and UK's reserve balances data are seasonally unadjusted.
2. UK's bank lending data exclude intermmediate financial institutions.
3. Base money's figures of Eurozone are seasonally adjusted by Nomura Research Institute.
Source: Nomura Research Institute, based on FRB, ECB and Bank of England data.

Borrowers who have absented themselves because their balance sheets are underwater will not return until their negative equity problems are resolved. Depending on the size of the bubble, this can take many years even under the best of circumstances. Furthermore, the economy will enter the $1,000–$900–$810–$730 deflationary scenario mentioned earlier if

the private sector as a whole is saving money (or paying down debt) in spite of zero interest rates.

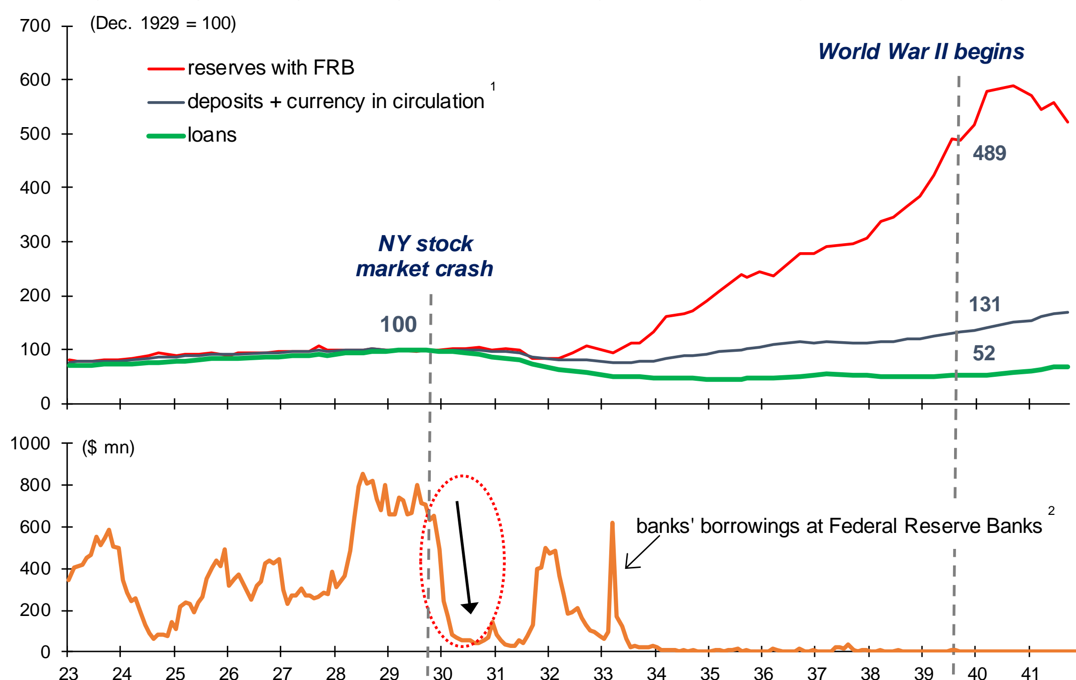
When borrowers disappear, there is very little that monetary policy, the favorite of traditional economists, can do to prop up the real economy. Exhibit 3 shows that the close relationship between central-bank-supplied liquidity, known as the monetary base, and growth in private-sector credit seen prior to 2008 broke down completely after the bubble burst and the private sector began minimizing debt. This exhibit makes it clear that the monetary base and credit to the private sector were closely correlated prior to 2008, just as economics textbooks teach. In other words, the private sector was utilizing all the funds supplied by the central bank, and economies were in Case 1 of Exhibit 2.

But after the bubble burst, forcing the private sector to repair its balance sheet by minimizing debt, no amount of central bank accommodation could increase borrowings by the private sector. The US Federal Reserve, for example, expanded the monetary base by 357 percent from the time Lehman went under. In an ordinary (i.e., textbook) world, this should have led to similar increases in the money supply and credit, driving corresponding increases in inflation.

Instead, credit to the private sector increased only 19 percent over seven and a half years. A central bank can always add liquidity to the banking system by purchasing assets from financial institutions. But for that liquidity to enter the real economy, banks must lend out those funds: they cannot give them away because the funds are ultimately owned by depositors. A mere 19 percent increase in lending means new money entering the real economy from the financial sector has grown only 19 percent since 2008. Similar patterns have been observed in the Eurozone and the UK. This explains why inflation and growth rates in the advanced economies have all failed to respond to zero interest rates or astronomical injections of central bank liquidity since 2008.

Unsurprisingly, the same decoupling of monetary aggregates was observed in the US during the Great Depression and in Japan after 1990. Exhibit 4 shows the monetary base, the money supply, and credit to the private sector before and after the October 1929 stock market crash. It shows that the three were moving together until the crash, just as textbooks teach, but diverged sharply afterwards as the US private sector sought to repair its battered balance sheet by minimizing debt. This can be seen from the fact that loans to the private sector fell the farthest, by as much as 54.7 percent from the 1929 peak, a phenomenon that was also observed in the post-2008 recessions.

Exhibit 4. Decoupling of monetary aggregates observed in 1930s US

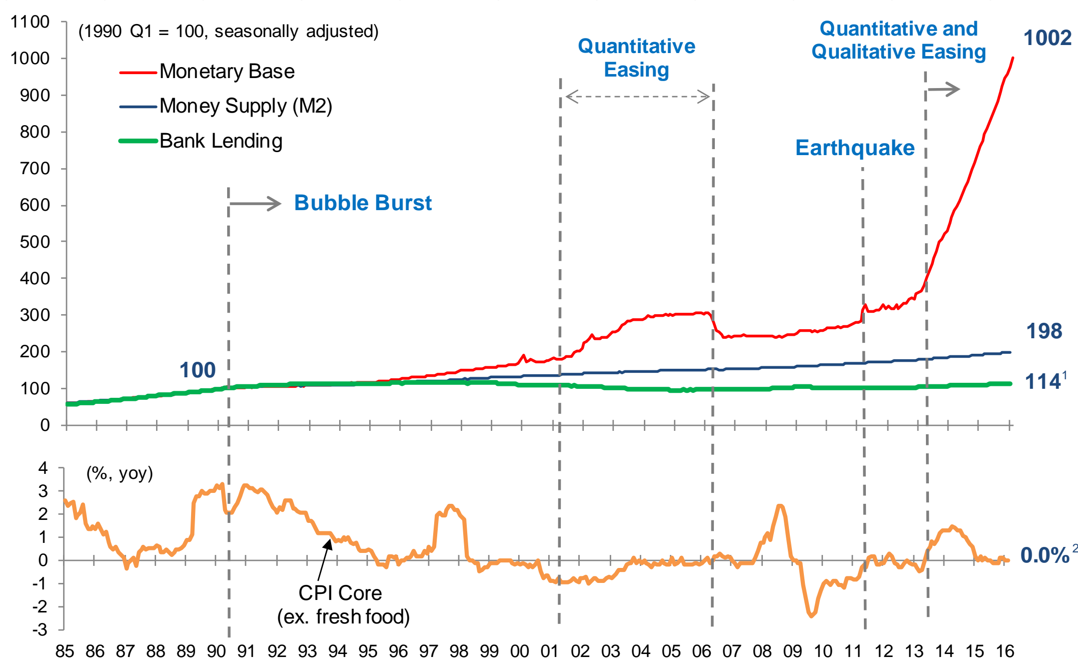


Notes: 1. deposits = demand deposits adjusted + other time deposits
2. Only this data series is based on member banks in 101 leading cities. All other data series are for all membr banks.
Source: Nomura Research Institute, based on the data from Board of Governors of the Federal Reserve System (1976), *Banking and Monetary Statistics 1914-1941*, pp.72-75 pp.138-163 and pp.409-413

Believers in monetary policy might argue that in the 1930s the Fed did not expand the monetary base as quickly as it did post-Lehman, and that this lack of early action contributed to the severity of the subsequent depression in the 1930s. A close look at the reserve data, however, indicates that American banks were actually paying borrowed reserves back to the Fed at a rapid pace immediately after the stock market crash, as shown in the bottom of Exhibit 4. Between June 1929 and March 1930, bank borrowings from the Fed fell 95 percent, from $801 million to just $43 million. This was probably because the collapse in loan demand left banks with no reason to hold borrowed reserves. And with lenders so eager to return reserves back to the Fed, there was no reason for the Fed to *increase* reserves.

The same decoupling of monetary aggregates was also observed in Japan after its bubble burst in 1990, as shown in Exhibit 5. Here, too, the Bank of Japan's massive injections of reserves to the banking system failed to increase lending to the private sector or boost inflation (shown at the bottom of Exhibit 5).

Exhibit 5. Decoupling of monetary aggregates observed in post-1990 Japan



Notes: 1. Figures for bank lending are seasonally adjusted by Nomura Research Institute.
2. Excluding the impact of consumption tax.
Source: Bank of Japan

The behavior of monetary aggregates following a bubble's collapse suggests that monetary policy loses its effectiveness when the private sector is minimizing debt, i.e., when the economy is in Cases 3 and 4 in Exhibit 2. Central banks have continued to miss their inflation targets since 2008 because private sectors in the developed economies are all minimizing debt. And they are doing so because their balance sheets are impaired. The fact that a number of central bank governors continue to insist that further monetary easing will enable them to meet their inflation targets suggests they still do not understand why their models have failed, a disturbing thought indeed.

Once the bubble bursts and investors are left facing debt overhangs, no amount of monetary easing by the central bank will persuade them to borrow money. These businesses and households will not resume borrowing until their balance sheets are fully repaired. Some may never borrow again – even after their balance sheets are restored – if they were badly traumatized by the painful deleveraging experience. When the private sector as a whole is not borrowing money even at zero interest rates because it has to repair its balance sheet, the economy will fall into the deflationary spiral described above because an absence of borrowers prevents saved funds from re-entering the economy's income stream.

Self-corrective mechanism of economies in balance sheet recessions

When private-sector borrowers disappear and monetary policy stops working, the correct way to prevent a deflationary spiral is for the government to borrow and spend the excess savings in the private sector ($100 in the example above). In other words, the government should mobilize fiscal policy and serve as *borrower of last resort*. If the government borrows and

spends the $100 left unborrowed by the private sector, total expenditures will amount to $900 plus $100, or $1,000, and the economy will move on. This way, the private sector also has the income it needs to pay down debt or rebuild savings. The government should attempt fiscal consolidation only after the private sector is ready to borrow again. Otherwise it risks restarting the deflationary spiral.

The bond market will also encourage the government to act as borrower of last resort during this type of recession by keeping government bond yields very low. This happens because the government is the only remaining borrower in a balance sheet recession. Fund managers at life insurers and pension funds who must earn an investment return but are not allowed to take on too much foreign exchange risk or principal risk (i.e., they cannot invest all their money in stocks) have little choice but to buy government bonds. Their rush into government debt pushes yields to exceptionally low levels and encourages the government to act as borrower of last resort in what may be called the self-corrective mechanism of economies in balance sheet recessions.

It is a self-corrective mechanism because the government should be able to find projects that can earn enough to pay those exceptionally low yields. To the extent that those projects are self-sustaining, additional borrowing by the government will not burden taxpayers. And the government's fiscal action will support the economy and provide the private sector with income to repair its balance sheet.

Exceptionally low government bond yields were first observed in post-1990 Japan and since 2008 can be seen in Western economies as well. It is also hoped that modern governments will be better than the emperors and kings of the past at selecting projects that will ultimately pay for themselves.

Borrowers may remain traumatized by the long and painful experience of deleveraging even after they have repaired their balance sheets. Under such conditions, which were observed in the US for decades after the Great Depression and in Japan more recently, the authorities may need to provide incentives to borrow and invest, such as accelerated depreciation allowances.

Economies do not stay in Case 4 for long

When a bubble bursts, the economy typically finds itself facing an absence of both lenders and borrowers (Case 4). Lenders disappear from the scene because during the bubble they lent money to now-insolvent speculators, and the resulting non-performing loans have eroded their capital. In fact, many lenders may be effectively bankrupt themselves.

The whole society suffers when impaired balance sheets leave banks unable to function. That is why the government and the central bank respond to banking sector problems with the kinds of policies described in the discussion of Case 2 on page 7. Even though some of these policies, such as capital injections to the banks, are not always popular, the necessary remedies are well known and, once implemented, will usually resolve lenders' problems within two years. Once banks are functioning again, the economy moves from Case 4 to Case 3.

In contrast to lender-side problems, there are no quick fixes for problems at borrowers, whether they are due to balance sheet difficulties or a lack of technological innovation. An economy in Case 3 can therefore remain there for years if not decades.
It should be noted that if the debt overhang at borrowers is small enough for the rest of the society to absorb, debt forgiveness, debt-for-equity swaps, and similar measures can be used to address the problem. But if a large part of the society is facing the same overhang problem, which is usually the case when a nationwide asset price bubble bursts, such measures merely transfer the problem from one part of society to another without solving it. When the problems are broad-based, therefore, measures to help all borrowers rebuild their balance sheets are needed, and this process takes time.

When a lack of investment opportunities deters borrowers

If borrowers are absent because businesses cannot find attractive investment opportunities, which was the cause of the economic stagnation that lasted for centuries before the industrial revolution, a very different mind-set is needed to solve the problem. To begin with, there are many different potential causes for this problem depending on the stage of economic development, each requiring a different policy response.

Today's developed economies all started out as agrarian societies, and the centuries-long paradox of thrift finally ended with the arrival of the industrial revolution. The invention of new products and the machines needed to make them produced a huge number of investment opportunities for the first time in history. Private-sector businesses that would not borrow money unless they were sure they could pay it back found many promising projects and started borrowing. The financial sector also developed to meet the newfound demand for funds. This self-financing process could continue as long as the debt-financed projects were sound enough to pay for themselves.

Thus began a virtuous cycle in which investments created more jobs and income, which in turn created more savings to finance more investments. Unlike the government-financed investments in earlier centuries that eventually ran into financing difficulties, private-sector-led investments could sustain themselves as long as attractive new products were continuously brought to market. The result was the rapid economic growth observed since the industrial revolution.

At the beginning of the industrial revolution, constraints to growth included a lack of social infrastructure (e.g., transportation networks), insufficient savings to fund investments, an illiterate work force, and the slow pace of technological innovation. But some of these constraints were soon transformed into investment opportunities in the form of railways and other utilities. The urbanization of the population alone created massive investment opportunities as rural workers moved to the cities to work in factories. As new household appliances, cars, cameras and airplanes were invented and developed in rapid succession, a lack of investment opportunities was seldom a constraint to growth during this period.

Household savings also became a virtue instead of a vice from a macroeconomic perspective, and economies where people felt responsible for their own future and saved more tended to grow more rapidly than those where people saved less.

Borrower availability and the three stages of economic development

The availability of investment opportunities, however, is never guaranteed. It depends on a myriad of factors including the stage of economic development, the pace of technological innovation and scientific breakthroughs, the ability of businesspeople to uncover such opportunities and their willingness to borrow, the availability of financing at reasonable interest rates, the protection of intellectual property rights, and the state of the economy and world trade.

The importance of each of these factors also depends on a nation's stage of economic development. The pace of innovation and breakthroughs is probably more important for countries already at the forefront of technology, while the availability of financing and the protection of intellectual property rights might be just as important for emerging economies.

When Germany was emerging as an industrial power, for instance, the UK accused the Germans of copying its products and demanded the use of "Made in Germany" labels to distinguish imports from the British originals. Japan faced similar accusations from Western countries, as did China from both the West and Japan. Today many Chinese businesses are demanding that the Beijing government implement stronger intellectual property rules because they worry that any product they develop will be quickly copied by domestic competitors, rendering their research and development efforts worthless. Thus the ability to copy goes from being a huge positive at one stage of economic development to a major negative later on.

In terms of the availability of investment opportunities, it may be useful to divide the industrialization process into three stages: urbanizing economies, which have yet to reach the Lewis Turning Point (LTP), maturing economies, which have already passed the LTP, and pursued economies, which are in the final stage. The LTP refers to the point at which urban factories have finally absorbed all the surplus rural labor. (In this paper, LTP is used only because it is a well-known term for a point in a nation's economic development and does not refer to the economic growth model proposed by Sir Arthur Lewis.)

At the beginning of industrialization, most people are living in rural areas. Those with technical knowledge of how to produce goods and where to sell them are limited to the educated elite, who are very few in number. Families whose ancestors have lived on depressed farms for centuries have no such knowledge. Most of the gains during the initial stage of industrialization therefore go to the educated few, while the rest of the population simply provides labor for the industrialists.

The pre-LTP urbanizing economy is extremely lucrative for those few business owners, since they can secure a boundless supply of labor from rural districts simply by paying the going wage. In this world, capitalists need not worry about a shortage of labor and can expand their businesses essentially without limit as long as they have the necessary production facilities and a market for their products. Capitalists who grasp such investment opportunities before the LTP is reached can earn huge profits, further increasing their incentive to expand.

Exhibit 6. Three phases of industrialization/globalization

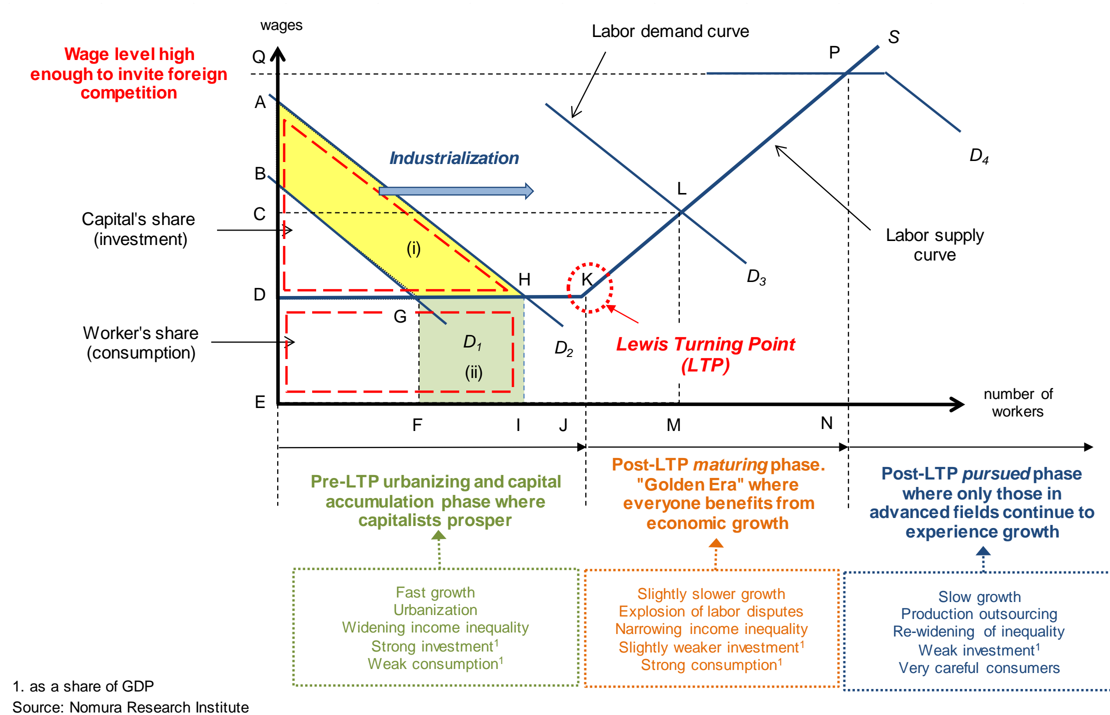


Exhibit 6 illustrates this from the perspective of labor supply and demand. The labor supply curve is almost horizontal (DHK) until the Lewis turning point (K) is reached because there is an essentially unlimited supply of rural laborers seeking to work in the cities. Any number of such laborers can be assembled simply by paying the going wage (DE).

In this graph, capital's share is represented by the area of the triangle formed by the left axis, the labor demand curve, and the labor supply curve, while labor's share is represented by the rectangle below the labor supply curve. At the time of labor demand curve D_1, capital's share is the triangle BDG, and labor's share is the rectangle DEFG. During this phase of industrialization, the capital share BDG may be shared by a few persons or families, whereas the labor share DEFG may be shared by millions of workers.

Successful businesses in this world will continue to invest in an attempt to make even more money. That raises the demand for labor, causing the labor demand curve to shift steadily to the right (from D_1 to D_2) even as the labor supply curve remains flat. As the labor demand curve shifts to the right, total wages received by labor increase from the area of the rectangle DEFG at time D_1 to the area of rectangle DEIH at time D_2 as the length of the rectangle below the labor supply curve grows. However, the growth is linear. The share of capital, meanwhile, is likely to increase at more than a linear rate as the labor demand curve shifts to the right, expanding from the area of the triangle BDG at D_1 to the area of the triangle ADH at D_2.

Growth exacerbates inequality during pre-LTP stage

Until the LTP is reached, GDP growth is likely to increase the portion of GDP that accrues to the capitalists, exacerbating inequalities. A key reason why a handful of families and business groups in Europe a century ago and the zaibatsu in Japan prior to World War II were able to accumulate such massive wealth is that they faced an essentially flat labor supply curve (wealth accumulation in North America and Oceania was not quite as extreme because these economies were characterized by a shortage of labor). Some in post-1979 China became extremely rich for the same reason.

During this phase, income inequality, symbolized by the gap between rich and poor, widens sharply as capitalists' share of income (the triangle) often increases faster than labor's share (the rectangle). Because capitalists are profiting handsomely, they will continue to borrow and re-invest profits in a bid to make even more money. Sustained high investment rates mean domestic capital accumulation and urbanization also proceed rapidly. This is the take-off period for a nation's economic growth.

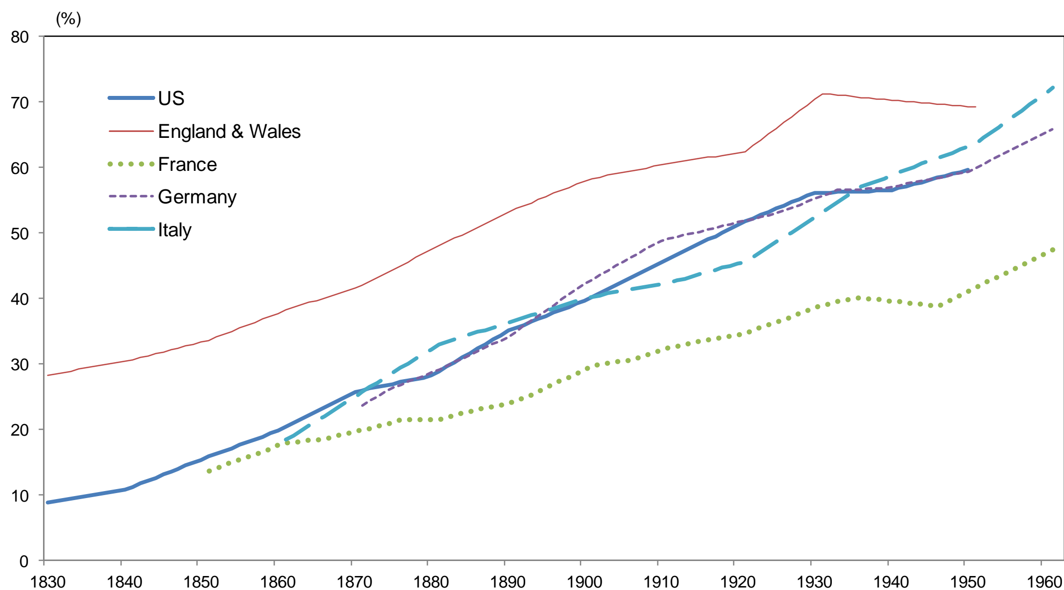
Until the economy reaches the Lewis turning point, however, low wages mean most people will still lead hard lives, even though the move from the countryside to the cities may improve their situations modestly. For typical workers this was no easy transition, with 14-hour workdays not at all uncommon until the end of the 19th century. According to the OECD, annual working time in the West in 1870 was around 2,950 hours, or double the current level of 1,450 hours[4]. Business owners, however, were able to accumulate tremendous wealth during this period.

Stage II of industrialization: the post-LTP maturing economy

As business owners continue to generate profits and expand investment, the economy eventually reaches its LTP. Once that happens, urbanization is largely finished and the total wages of labor – which had grown only linearly until then – start to increase much faster since there is no more surplus labor in the rural areas and any additional demand for labor pushes wages higher. In other words, the post-LTP labor supply curve will have a significant positive slope. In Exhibit 6, even if labor demand increases only modestly, from J to M, total wages accruing to labor will rise dramatically, from the area of rectangle DEJK to the area of rectangle CEML.

[4] Maddison, Angus (2006) *The World Economy. A Millennial Perspective (Vol. 1). Historical Statistics (Vol. 2)*. OECD, p. 347.

Exhibit 7. Western urbanization* continued until 1960s



* Percentage of population living in urban areas with 20,000 people or more in England & Wales, 10,000 or more in Italy and France, 5,000 or more in Germany and 2,500 or more in the US.
Sources: U.S. Census Bureau (2012), *2010 Census*, Peter Flora, Franz Kraus and Winfried Pfenning ed, (1987), *State, Economy and Society in Western Europe 1815-1975*

Once the LTP is reached, labor has the bargaining power to demand higher wages for the first time in history, which reduces the profit share of business owners. But businesses will continue to invest as long as they are achieving good returns, leading to further tightness in the labor market. It is at this point that the inequality problem begins to correct itself.

A significant portion of the US and European populations still lived in rural areas until World War I, as shown in Exhibit 7. Even in the US, where – unlike in Europe – workers were always in short supply, nearly half the population was living on farms as late as the 1930s. The mobilizations for two world wars then pushed these economies beyond the LTP, and standards of living for average workers began to improve dramatically. With workers' share of output increasing relative to that of capital, inequality diminished as well, ushering in the so-called Golden Sixties in the US. With incomes rising and inequality falling, this post-LTP maturing phase may be called the *golden era* of economic growth.

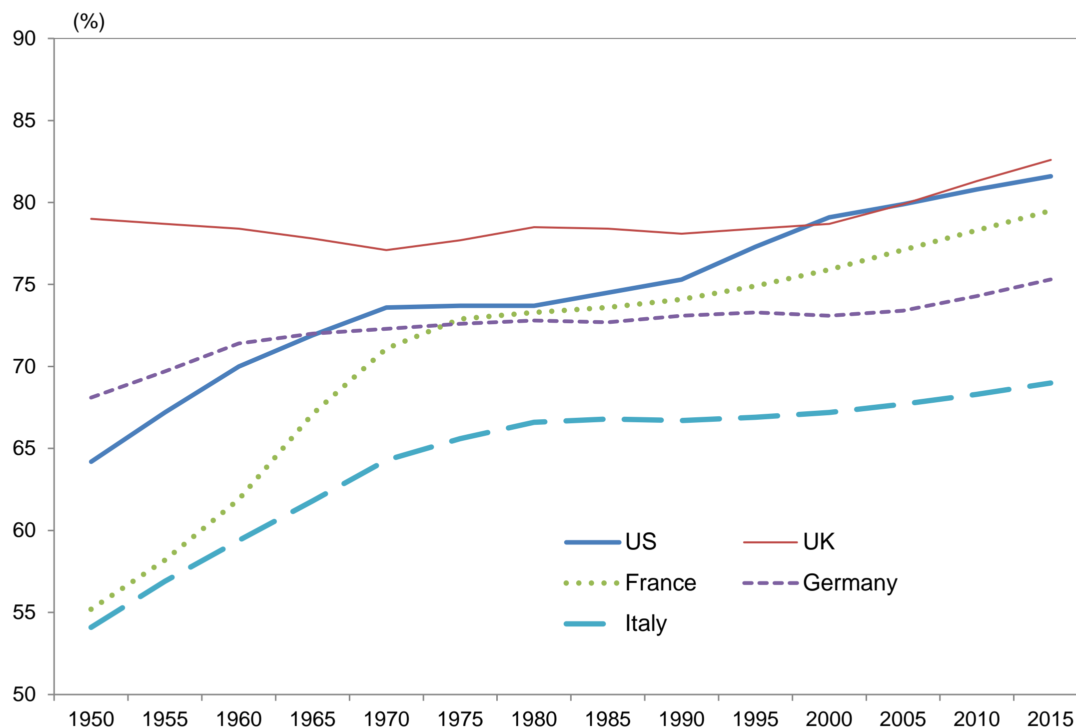
As labor's share increases, consumption's share of GDP will increase at the expense of investment, and with reduced capital accumulation, growth will slow as well. At the same time, the explosive increase in the purchasing power of ordinary citizens means most businesses are able to increase profits simply by expanding existing productive capacity. From that point onward the economy begins to "normalize" in the sense in which we use that term today.

Once the economy reaches its LTP and wages start growing rapidly, the workers begin to utilize their newfound bargaining power. The huge number of strikes many countries in the West experienced from the 1950s to the 1970s reflects this development.

Capitalists initially resist labor movements with union busters and strike busters. But as workers grow increasingly scarce and expensive, the capitalists must back down and start

accepting some of labor's demands if they want to keep their factories running. After about 20 years of such struggles, both employers and employees begin to understand what can be reasonably expected from the other side, and a new political order is established. The political order dominated by center-left and center-right political parties now in place in the West and Japan reflects this learning process.

Exhibit 8. Western urbanization slowed in 1970s



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, custom data acquired via website.

With rapid improvements in the living standards of most workers, the post-LTP maturing phase is characterized by broadly distributed benefits from economic growth. Even those with limited skills can make a good living, especially if they belong to a strong union.

Higher wages force businesses to look harder for profitable investment opportunities. On the other hand, the explosive increase in the purchasing power of ordinary workers who are paid ever-higher wages creates major investment opportunities. Businesses invest heavily in productivity-enhancing equipment to meet this demand from increasingly rich consumers at a time of rising wages. Even if workers' skill level remains unchanged, their productivity increases during this period because of such investment made by businesses, which is necessary for them to remain competitive.

Government tax receipts also increase rapidly during this period, allowing the government to offer an ever-expanding range of public services. That, in turn, reduces the sense of inequality among the population. In the West this golden era lasted until around 1970.

Stage III of industrialization: the post-LTP pursued economy

This golden age does not last forever. The first signs of a serious threat to Western economic growth appeared when businesses in the US and Europe encountered Japanese competition in the 1970s. Initially this was blamed on the wage gap between Japan and the Western economies. But the wage gap had always existed. The real reason was that Japanese businesses were approaching and, in some cases, surpassing the technological and marketing sophistication of the West while at the same time benefiting from lower wage costs.

Many in the West were shocked to find that Japanese cars required so little maintenance and so few repairs. The Germans may have invented the automobile, and the Americans established the process by which they could be manufactured cheaply, but it was the Japanese who created cars that do not break down. The arrival of the Nikon F camera in the 1960s also came as a huge shock to the German camera industry because it was so much more rugged, adaptable, easy to use and serviceable than German Leicas and Exaktas, and professional photographers around the world switched to the Japanese brand. For the first time since the industrial revolution, the West found itself being pursued by a formidable competitor from the East.

Once a country is being chased by a technologically savvy competitor, often with a younger and less expensive labor force, it becomes far more challenging for businesses in the pursued country to find attractive investment opportunities at home. This is because it often makes more sense for them to buy directly from the "chaser" or to invest in that country themselves. Indeed, many US and European companies happily bought Japanese products to add to their product lines or sell through their dealerships. These products carried proud American or European brands but were actually made in Japan. By the mid-1970s, for example, General Motors was buying cars from Toyota, Ford from Mazda, and Chrysler from Mitsubishi. In the "German" camera industry, Leicas were increasingly made with Minolta components – if not produced entirely by the Japanese company – and cameras with such venerable names such as Exakta and Contax were made entirely in Japan.

Businesses in the pursued country no longer have the same incentive to invest in productivity-enhancing equipment at home because there is now a viable alternative – investing in or buying from lower-cost production facilities abroad. In other words, capital invested abroad often earns a higher return than when it is invested at home. Productivity gains made possible by investments in productivity-enhancing equipment at home therefore slow down significantly.

According to US Bureau of Labor Statistics data compiled by Stanley Fischer at the Fed[5], productivity growth in the non-farm business sector averaged 3.0 percent from 1952 to 1973. Average productivity growth then fell to 2.1 percent for the 1974 to 2007 period, and to 1.2 percent from 2008 to 2015. These numbers not only confirm the trend mentioned above, but also suggest that worker productivity in the future will depend increasingly on the efforts of individual workers to improve their skills instead of on corporate investment in productivity-enhancing equipment.

[5] Fischer, Stanley (2016) "Reflections on Macroeconomics Then and Now," remarks at "Policy Challenges in an Interconnected World" 32nd Annual National Association for Business Economics Economic Policy Conference, Washington D.C., March 7, 2016.
https://www.federalreserve.gov/newsevents/speech/fischer20160307a.htm

In terms of Exhibit 6, labor demand curve D_4 in a post-LTP pursued economy becomes largely horizontal at wage level EQ, where outsourcing to foreign production sites becomes a viable alternative. This means real wage growth will be minimal from this point onward except for those with abilities that are not easily replicated abroad.

With domestic investment opportunities shrinking, economic growth also slows in the pursued countries. This is very much the reality of Western economies today, with a steadily increasing number of emerging countries joining the chasers.

Japan's ascent forced changes in the West

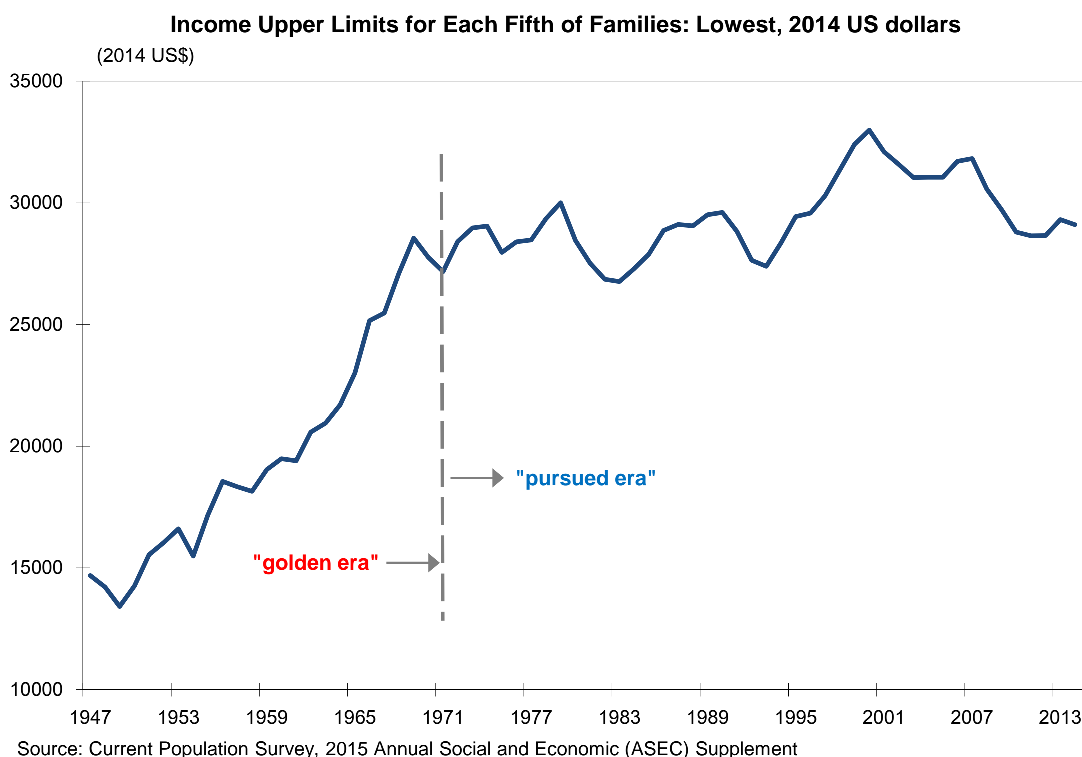
The Japanese ascent disturbed the US and European industrial establishments in no small way. As many workers lost their jobs, ugly trade frictions ensued between Japan and the West. This marked the first time that Western countries that had already passed their LTPs had been chased by a country with much lower wages.

Many well-known US companies such as Zenith and Magnavox folded under the onslaught of Japanese competition, and the West German camera industry, the world's undisputed leader until around 1965, had all but disappeared by 1975. While Western companies at the forefront of technology continued to do well, the disappearance of many well-paying manufacturing jobs led to worsening income inequality in these countries.

There was initially tremendous confusion in the West over what to do about the Japanese threat. As the Japanese took over one industry after another, many industry and labor leaders sought protection via higher tariffs and non-tariff barriers. France, for example, ruled that all Japanese video recorders must clear customs in the remote countryside village of Poitiers, which had few customs officers, to discourage their entry into the country. This was done even though France had no local manufacturers of video recorders. Others argued for exchange rate realignments that were realized in the Plaza Accord of 1985, which halved the dollar's value against the yen.

Still others said the West should study Japan's success and learn from it, which resulted in a Western infatuation with so-called "Japanese management." At the time, many well-known business schools in the US actively recruited Japanese students so they could discuss Japanese management practices in the classroom. Some even argued that eating fish – and sushi in particular – would make them as smart as the Japanese. All in all, Western nations' confidence in being the most technically advanced economies in the world was shattered.

Exhibit 9. Incomes of lowest 20% of us families shot up until 1970 but stagnated thereafter



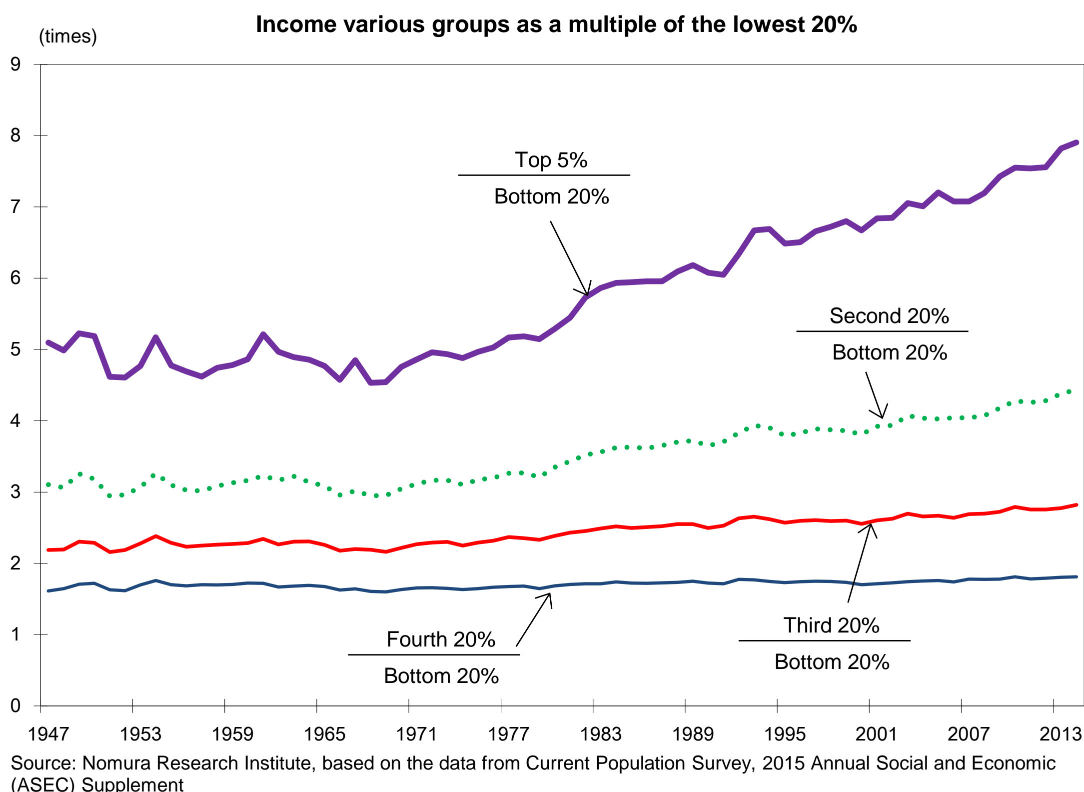
Source: Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement

Some of the pain Western workers felt was naturally offset by the fact that, as consumers, they benefited from cheaper imports from Japan. And businesses with advanced technology were still doing well. But it was no longer the case that everyone in society was benefiting from economic growth. Those whose jobs could be transferred to lower-cost locations abroad saw their living standards stagnate or actually fall.

Inequality worsens in post-LTP pursued stage

Exhibit 9 shows the real income of the lowest quintile of US families from 1947 to 2014. It shows that even for this group, incomes grew rapidly in the post-LTP maturing stage lasting until around 1970. Since then, income growth has stagnated as the country entered the post-LTP pursued phase. Exhibit 10, which shows the income growth of other quintiles relative to the lowest 20 percent, demonstrates that the ratios remain remarkably stable until 1970 but diverge thereafter.

Exhibit 10. US income inequality began to worsen after 1970



Source: Nomura Research Institute, based on the data from Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement

Exhibit 11. Annualized growth rates of US family income by income quintile

(annualized, %)

	lowest 20%	second 20%	third 20%	fourth 20%	top 5%
Post-LTP maturing phase 1947-1970	2.805	2.854	2.861	2.719	2.496
Post-LTP pursued phase 1970-2014	0.107	0.345	0.657	0.965	1.270

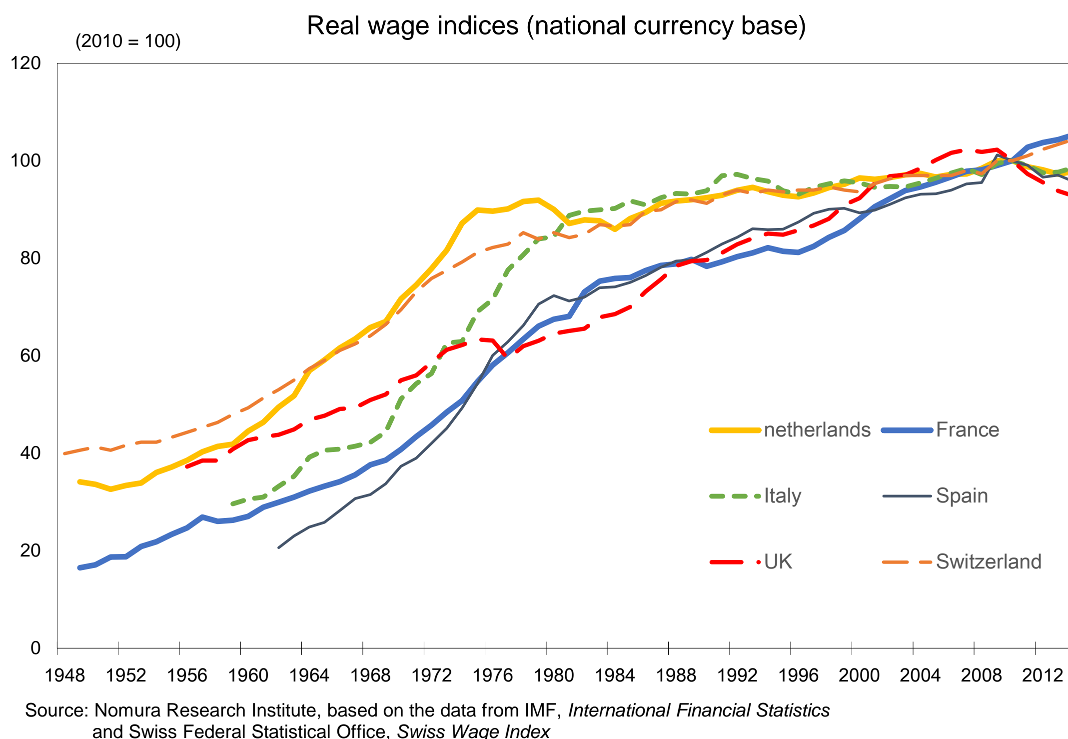
Source: Nomura Research Institute, based on the data from Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement

Exhibit 11 shows annualized income growth by income quintile in the post-LTP maturing phase from 1947 to 1970 and the post-LTP pursued phase from 1970 to 2014. It shows that the lowest 60 percent actually enjoyed slightly faster income growth than those at the top before 1970, indicating a decrease in income inequality. This was indeed a golden era for the US economy in which everyone was becoming richer and enjoying the fruits of economic growth.

The situation changed drastically, however, once Japan started chasing the US. Exhibit 9 shows that the income growth of the lowest quintile stagnated from that point forward, all the way to the present. Exhibits 10 and 11 show that the income growth of other groups was only slightly better – except for the top 5 percent, which continued to experience significant income

gains even after 1970. This group probably includes those who were at the forefront of innovation as well as those who were able to take advantage of Japan's emergence.

Exhibit 12. Real wages in six European countries after WWII



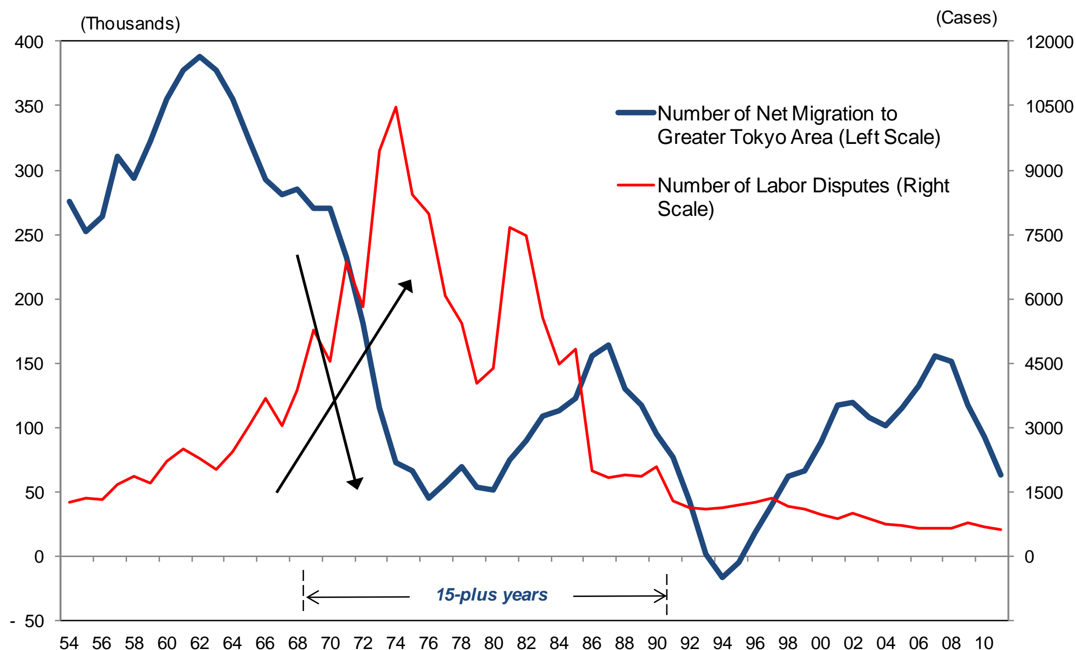
Source: Nomura Research Institute, based on the data from IMF, *International Financial Statistics* and Swiss Federal Statistical Office, *Swiss Wage Index*

Exhibit 11 demonstrates that income growth for different income quintiles was quite similar during the golden era but began to diverge significantly once the country became a chased economy. Income growth for the top 5 percent group dropped from 2.49 percent per year during the maturing stage to just 1.27 percent during the pursued stage, but that is still 12 times higher than the growth rate for the lowest 20 percent.

Similar developments were observed in Europe. Exhibit 12 shows real wages in six European countries. With the possible exception of the UK, all of these countries experienced rapid wage growth until the 1970s followed by significantly slower growth thereafter.

The three stages of Japanese industrialization

Exhibit 13. Labor demand skyrockets after passing Lewis turning point (1): Japan



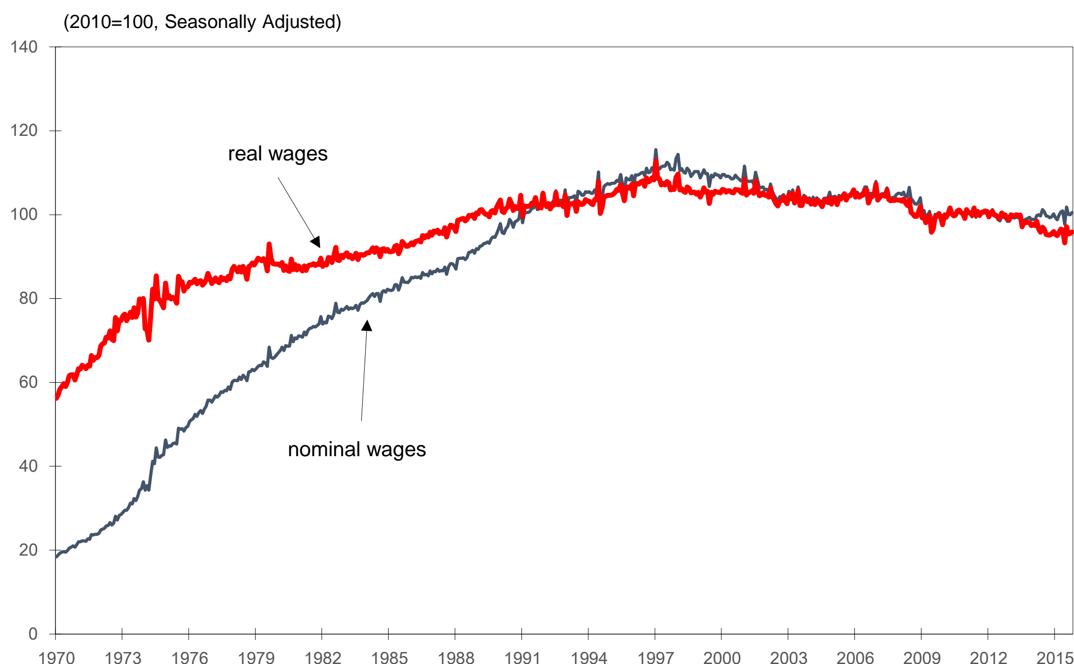
Note: Greater Tokyo Area consists of Tokyo Metropolis, Kanagawa prefecture, Saitama prefecture and Chiba prefecture.
Sources: Ministry of Internal Affairs and Communications, *Report on Internal Migration in Japan*, and Ministry of Health, Labour and Welfare, *Survey on Labour Disputes*

Japan reached its LTP in the mid-1960s, when the mass migration of rural graduates to urban factories and offices, known in Japanese as *shudan shushoku,* finally came to an end. During this period, investment opportunities in Japan were plentiful because the hard work needed to develop new products and processes had been done in the West. All Japan needed to do was make those products better and less expensive, a task the Japanese system was well suited for. Rapid urbanization and the need to rebuild cities devastated by US bombing during the war also offered plenty of “low-hanging” investment opportunities.

Indeed, the main constraint on Japanese growth at that time was on the savings side, i.e., there was not enough savings to meet the investment demand from Japanese businesses. Japan found itself in an extreme variant of Case 1 where the number of borrowers completely overwhelmed the number of lenders. Japanese interest rates in those years were therefore quite high, leading the government to ration savings to high-priority industries. The government and the Bank of Japan also implemented numerous measures to encourage savings by Japanese households.

Once Japan reached its LTP in the mid-1960s, the number of labor disputes began to skyrocket, as shown in Exhibit 13, and Japanese wages began to increase sharply (Exhibit 14). In other words, Japan was entering the post-LTP maturing phase that the West had experienced 40 years earlier.

Exhibit 14. Japanese wages peaked in 1997 when country entered post-LTP pursued stage



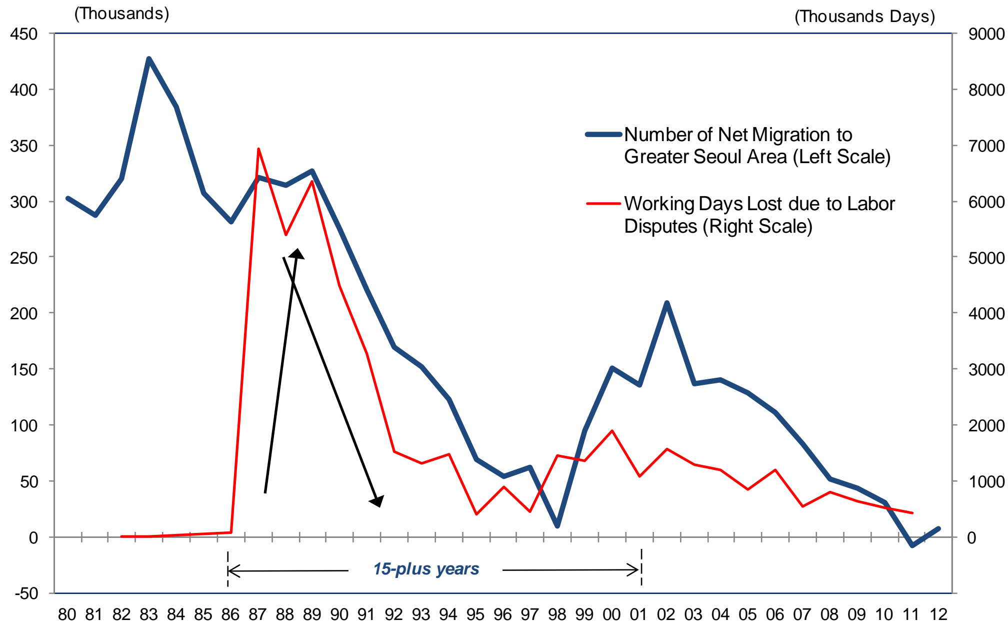
Source: Ministry of Health, Labour and Welfare, Japan, *Monthly Labour Survey*

Japan was fortunate in that it was not being chased at the time, enabling it to focus on catching up with the West. Wages were increasing rapidly, but Japanese companies invested heavily at home to improve the productivity of the work force. As long as productivity rose faster than wages, Japan's golden era of strong growth and prosperity could continue.

Labor's share of profits rose along with wages, and Japan came to be known as the country of the middle class, with more than 90 percent of the population identifying itself as such. The Japanese were proud of the fact that their country had virtually no inequality. Some even quipped in those days that Japan was how Communism was *supposed* to work.

The happy days for Japan lasted until the mid-1990s, when Taiwan, South Korea and China emerged as serious competitors. By then, Japanese wages were high enough to attract chasers, and the country entered its post-LTP pursued stage. As Exhibit 14 shows, Japanese wages stopped growing in 1997 and started stagnating or falling thereafter.

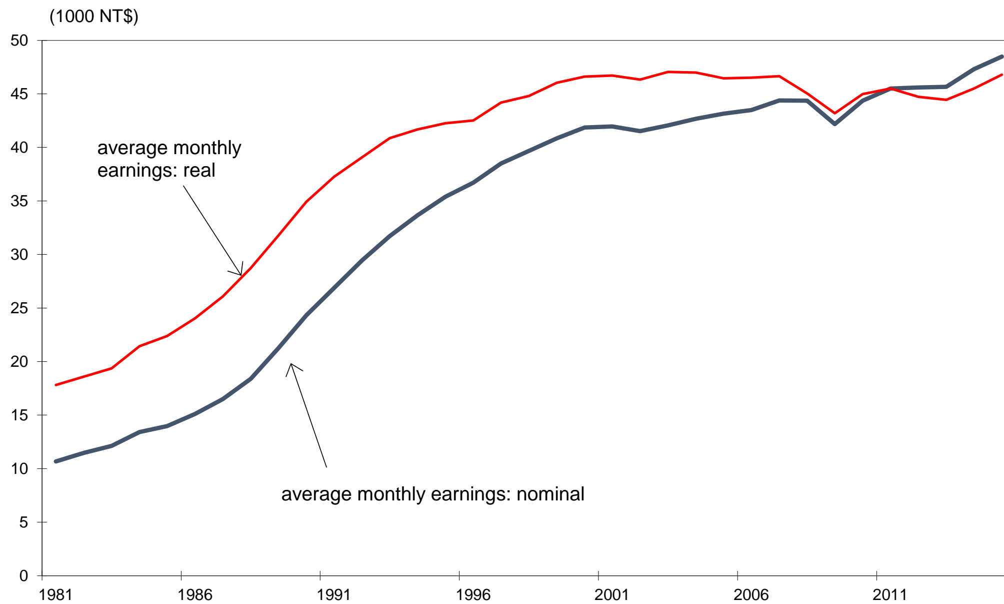
Exhibit 15. Labor Demand skyrockets after passing Lewis turning point (2): South Korea



Note: Greater Seoul Area consists of Seoul city, Incheon city and Gyeonggi-do.
Sources: Statistics Korea, *Internal Migration Statistics* and *Korea Statistical Year Book*

Although these three Asian countries were also chasing the West, the shock to Japan was larger because it was the first time the country had been chased since it opened itself up to the world in the 1868 Meiji Restoration. All of Japan's institutions, ranging from education to employment, were optimized for catching up with the West, not fending off competitors from behind. In contrast, the Europeans and Americans who had experienced the Japanese onslaught 25 years earlier and had made the necessary adjustments to their economies were less disturbed by the emergence of China.

Exhibit 16. Taiwanese wages peaked around 2005 when country entered post-LTP pursued stage



Source: Nomura Research Institute, based on the data from Directorate General of Budget, Accounting and Statistics (DGBAS), the Executive Yuan, Taiwan, *Consumer Price Indices* and *Average Monthly Earnings*

Today the Japanese are worried about the problem of income inequality as well-paying manufacturing jobs have migrated to lower-cost countries. They are also concerned about the appearance of the so-called working poor who used to work in manufacturing but are now forced to take low-end service jobs. Some estimate that as many as 20 million out of a total population of 130 million are now living in poverty[6]. In other words, the country is experiencing what the West went through when it was being chased by Japan.

Similar concerns are being voiced in Taiwan and South Korea as they experience the same migration of factories to China and other even lower-cost locations in Southeast Asia. These two countries passed their LTPs around 1985 and entered a golden age that lasted perhaps until 2005. The frequency of Korean labor disputes also shot up during this period (see Exhibit 15) as workers gained bargaining power for the first time and won large wage concessions. In Taiwan, wages grew rapidly during the post-LTP golden period but peaked around 2005 and stagnated thereafter (Exhibit 16). Now both countries are feeling the pinch as China steadily takes over the industries that were responsible for so much growth in the past.

Free trade has rendered war obsolete

To understand Asia's emergence and where globalization is headed, we need to understand how the free-trade regime introduced by the US transformed the world economy after 1945. Before 1945, there were many constraints to trade that slowed down industrialization as described above – namely, a lack of aggregate demand and difficulties in accessing markets. In those days, most countries imposed high tariffs on imported products both to raise revenues and to protect domestic industries. If workers constituted the main source of consumption demand in the pre-LTP urbanizing world, they could not have provided enough demand for all the goods produced because their share of income was so low, while capitalists typically had a higher marginal propensity to save. Consequently, aggregate supply often exceeded aggregate demand.

[6] *Nikkei Business* (2015) "Tokushu: Nisen Mannin-no Hinkon (20 Million Japanese in Poverty)," in Japanese, Nikkei BP, Tokyo, March 23, 2016, pp. 24-43.

To overcome this constraint, European powers turned to colonization and imperialism in a bid to acquire sources of raw materials and captive markets where they could sell the goods they produced. It was indeed believed for centuries that national economies could not grow without territorial expansion. That led to countless wars and killings until 1945.

When World War II ended, the victorious Americans introduced a free-trade regime known as the General Agreement on Tariff and Trade (GATT) that allowed any country with competitive products to sell to anyone else. Although the concept and practice of free trade were not new, the US took the monumental lead by opening its vast domestic market to the world. With the US economy accounting for nearly 30 percent of global GDP at the end of World War II, the impact of this game-changing move was huge.

The US was partly motivated by the need to fend off the Soviet threat by rapidly rebuilding Western Europe and Japan, but the free-trade regime allowed not only Japan and Germany but also many other countries to prosper without the need to expand their territories. Indeed, it is difficult to find a country that grew rapidly in the post-1945 world that did *not* make use of the US market.
The advent of free trade made obsolete the whole notion that territorial expansion was a necessary condition for economic growth. While victorious allies after World War II were busy fighting indigenous independence movements in their colonies at enormous expense, Japan and Germany – which had lost all of their overseas and some of their domestic territories – quickly grew to become the world's second and third largest economies. In other words, post-war Japan and Germany proved that what is really needed for economic growth is markets and investment opportunities, not territories. Economic growth will accelerate if markets can be accessed without the expense of acquiring overseas territories.

The relative infrequency of wars after 1945 is often attributed to the Cold War and the deterrent of Mutually Assured Destruction ("MAD"), but the drastic reduction in conflicts between countries that had been fighting since history began may also be due to the fact that territorial expansion was no longer a necessary or sufficient condition for economic prosperity in the free-trade era. Indeed, colonies became more of a liability than an asset for economic growth once the free-trade regime took hold. Today almost no one sees territorial expansion as a prerequisite for economic prosperity, a development which should be seen as one of the greatest achievements of human civilization.

In Asia, it was the Japanese who discovered in the 1950s that their economy could still grow and prosper by producing quality products for the US market. They then put their best and brightest to the task while leaving complicated diplomatic and national security issues to be decided by the Americans. The spectacular success of Japan then prompted Taiwan, South Korea and eventually the rest of Asia to follow the same export-oriented growth formula in a process dubbed the "flying geese" pattern of industrialization.

China is in post-LTP maturing stage of industrialization

The biggest beneficiary of the US-led free trade movement, of course, was China, which was able to transform a desperately poor agrarian society of over one billion people into the world's second-largest economy in just 30 years. The 30 years following Deng Xiaoping's opening of the Chinese economy in 1979 probably qualify as the fastest and greatest economic growth story in history, with the per capita GDP of over a billion people growing

from just over $300 to nearly $8,000. China wasted no time in integrating itself with the global economy, enabling it to attract huge quantities of foreign direct investment, not just from the West and Japan but also from Asian tigers such as Taiwan, Hong Kong, Singapore and South Korea.

More precisely, China's fantastic economic growth was made possible by the US-led free-trade system, which allowed Chinese companies (and foreign companies producing in China) to sell their products anywhere in the world. It was that access to the global market that prompted so many businesses from around the world to build factories in China. It could have taken China far longer to achieve the growth it did were it not for the markets provided by the US-led free-trade regime.

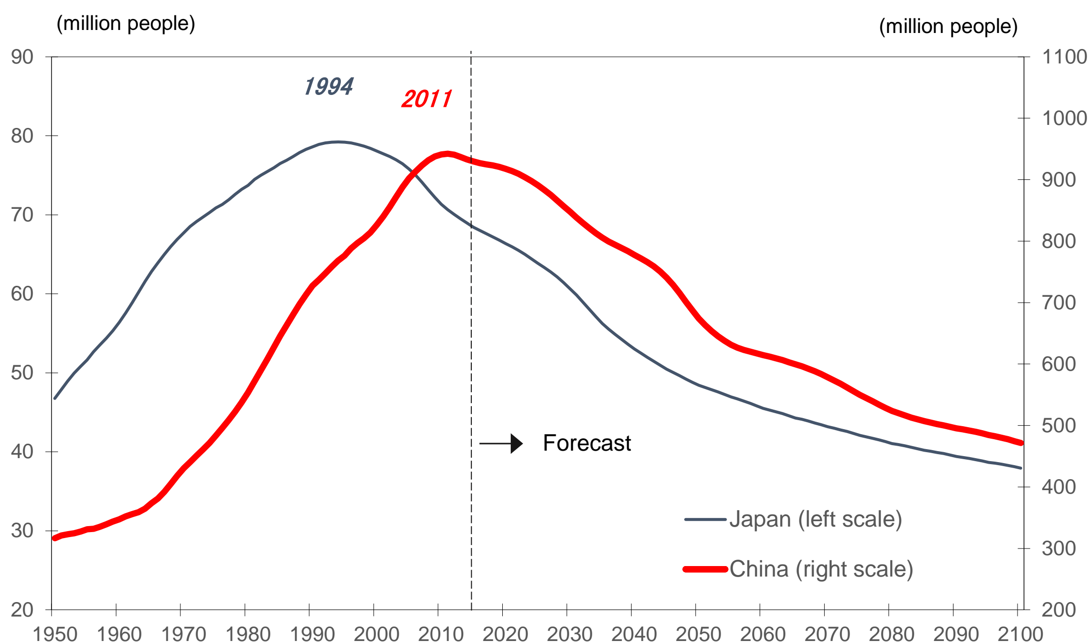
Businesses in the West and elsewhere that were able to take advantage of China found almost unlimited investment opportunities there and operated like the capitalists in their own countries' pre-LTP eras. Those investments added massively to China's economic growth and transformed the country into "the world's factory."

But those in Asia and the West who have to compete with Chinese workers are experiencing zero or even negative income growth. Foreign businesses expanding rapidly in China are also likely to be investing less at home, which has a depressing effect on domestic growth and productivity. Indeed, slow productivity growth in advanced countries is the flip side of the massive productivity growth in China and other emerging markets that was made possible by investments by companies in advanced countries.

Those in the advanced economies who are still wondering what has happened to all the enthusiasm for fixed capital investment need only get a window seat on a flight from Hong Kong to Beijing (or vice versa) on a nice day. They will see below an endless landscape of factory upon factory that stretches in all directions. Most of those plants were started with foreign capital because when Deng Xiaoping opened up the economy in 1979, there were no capitalists left in China: they had all either been killed or driven into exile by the Communist revolution in 1949 and Mao's Cultural Revolution in the 1960s. The point is that businesses in advanced countries are still investing, but not necessarily in their home countries.

Exhibit 17. China may grow old before it grows rich: working age population* has started to contract

The Working Age Population (15-59) in China and Japan, Actual and Forecast



Note: The Chinese National Statistical Office defines the working age population as the people from 15 to 59.
Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

Post-LTP China faces "middle income trap"

China is also subject to the same laws of industrialization, urbanization and globalization as other countries. China actually passed its LTP around 2012 and is now experiencing sharp increases in wages. This means the country is now in its golden era or post-LTP maturing phase. Because the Chinese government is wary of public disturbances of any kind, including strikes and other labor disputes, it is trying to pre-empt such disputes by administering significant wage increases on an annual basis. Businesses are therefore required to raise wages under directives issued by local governments. In some regions these administered wages have been increased at double-digit rates in order to prevent labor disputes. It remains to be seen whether such pre-emptive actions by the government can substitute for a process in which employers and employees learn through confrontation what can reasonably be expected from the other party.

At the same time, the working age population in China actually started to shrink in 2012. From a demographic perspective, it is highly unusual for the whole labor supply curve to begin shifting to the left just as a country reaches its LTP. The huge demographic bonus China enjoyed until 2012 is not only gone, but has now reversed, as shown in Exhibit 17. That means China will not be able to maintain the rapid pace of economic growth seen in the past, and in fact growth has already slowed sharply.

Higher wages in China are now leading both Chinese and foreign businesses to move factories to lower-wage countries such as Vietnam and Bangladesh, prompting fears that China will become stuck in the so-called "middle-income trap". This trap arises from the fact that once a country loses its distinction as the lowest-cost producer, many factories may leave for other lower-cost destinations, resulting in less investment and less growth. In effect, the

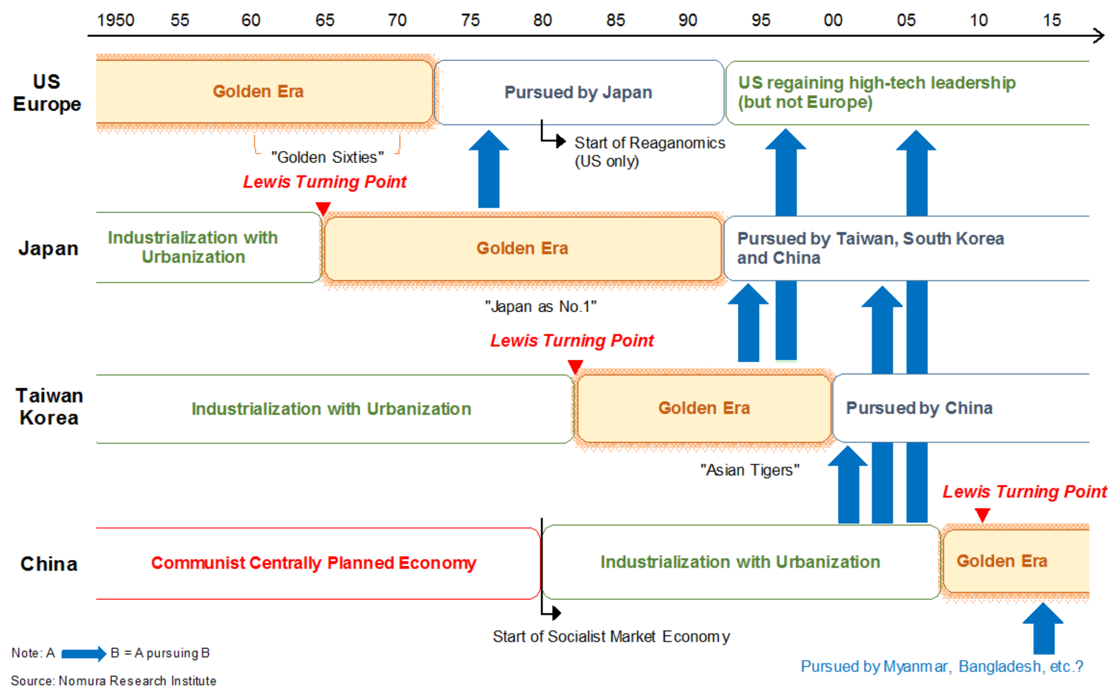
laws of globalization and free trade that benefitted China when it was the lowest-cost producer are now posing real challenges for the country.

The easy part of China's economic growth story is over. The challenge now is how to raise the productivity of each and every Chinese worker to offset higher wages when it is easier for businesses to make money by simply moving factories to lower-cost locations. That is precisely the challenge advanced countries faced when they were chased by the emerging economies, including China, some decades earlier.

Growth, happiness and maturity of nations

The discussion above regarding the stages of economic growth is summarized in Exhibit 18. Here, "Industrialization with Urbanization" refers to the pre-LTP urbanization phase, "Golden Era" to the post-LTP maturing phase, and "Pursued by __" to the post-LTP pursued phase. The bold arrows point in the direction of pursuit.

Exhibit 18. Growth, happiness and maturing of nations



It appears that countries are reaching their "Golden Eras" sooner with the accelerated globalization made possible by free trade and rapid advances in information technology, but the eras themselves are becoming shorter as more countries join the globalization bandwagon. For example, the golden era for the US and Western Europe lasted for about 40 years until the mid-1970s, while Japan's lasted around 30 years, ending in the mid-1990s. The golden era for Asian NICs like Taiwan and Korea was probably around 20 years, coming to an end in 2005 or so. It will be interesting to see how long this era lasts for China, where policymakers are already worried about the middle-income trap.

If the happiness of nations can be measured by (1) how fast inequality is disappearing and (2) how fast the economy is growing, then the post-LTP maturing period would qualify as the period when a nation is at its happiest. With strong demand for workers from a rapidly expanding industrial sector forcing the service sector to offer comparable wages to retain workers, almost all members of society benefit from economic growth as wages rise for everybody. Everyone is hopeful for the future, and inequality is shrinking rapidly.

From a global perspective, this implies that nations are at their happiest – i.e., inequality is disappearing and people are enjoying the fruits of their labor – when they are either well ahead of other nations or are chasing other economies but are not being pursued themselves.

The West was at its happiest until Japan started chasing it in the 1970s because it was ahead of all other economies. It was a French person who said before the Berlin Wall came down that the world would be a much nicer place if there were no Japan and no Soviet Union.

The Japanese were at their happiest when they were chasing the West but nobody was chasing them. The nation's happy days were over when the Asian Tigers and China began

pursuing Japan in the mid-1990s. The Asian Tigers then enjoyed their own golden era for about 20 years until China started pursuing them.

The key issue in most advanced countries now that they are in the post-LTP pursued phase is how a society at this stage of development should re-organize itself. Unfortunately, the policy debate is seldom coached in such terms. Instead, the slogans used by many presidential and prime ministerial hopefuls in these countries suggest that many still long for the return of the golden era they remember from the pre-pursued days. But until they fully appreciate their economic reality in a global context, they are unlikely to do much to improve the lives of ordinary people.

The rise and fall of Communism

The preceding description of how inequality increases and decreases before and after the LTP also explains why so many people found Communism appealing at a certain juncture in history. Marx and Engels, who lived in pre-LTP industrializing Europe, were outraged by the horrendous inequality around them and the miserable working and living conditions for ordinary people. As indicated above, it was not uncommon for people to work 16 hours a day in a dirty, dangerous industrial environment while capitalists rapidly accumulated wealth. Any intellectual with a heart would have been hard-pressed to stand quietly in the face of the social and economic inequality of the time.

Marx responded to this inequality by proposing the concept of Communism, which called for capital to be owned and shared by the laborers. He argued that if capital is owned by the workers, the exploitation of workers would end and workers would enjoy a greater share of the output. Many embraced Communism enthusiastically because for “exploited” workers forced to work long hours in dreadful conditions it appeared to offer the hope of a better life with little to lose. In that sense, the birth of Communism may itself have been a historical imperative of sorts.

Marx and Engels’ greatest mistake, however, was to assume the extreme inequality they witnessed (points G and H in Exhibit 6) would continue forever. In reality, it was just one inevitable step on the path towards industrialization. If capitalists are earning large profits in the period before LTP, they will probably continue to invest in the hope of making even more money. It is that drive for more profits that eventually pushes the economy to reach and pass the LTP, when a totally different labor-market dynamic kicks in.

As soon as the economy reaches its LTP and wages start increasing rapidly, the appeal of Communism wanes as workers begin to realize they can get what they want within the existing framework. Such periods are characterized by frequent strikes and labor disputes of all kinds as workers start to utilize their newfound bargaining power for the first time. After 15 or 20 years of such struggles, employers and employees alike begin to understand what can be reasonably expected from the other side, and a new political order based on that understanding is put in place.

Although the resultant center-left and center-right political parties served advanced countries well in their post-LTP maturing stage, it remains to be seen whether they are the most appropriate arrangements in the post-LTP pursued stage, which is characterized by a very different labor dynamic.

Ironically, countries that adopted Communism before reaching their LTPs, such as pre-1979 China and pre-1986 Vietnam, ended up stagnating because the profit motive needed to promote investment and push the economy beyond its LTP was lost.

Interestingly, when labor becomes too powerful and expensive *before* the country reaches its LTP, the economy also ends up stagnating, for both economic and political reasons. First, because the protected workers are too expensive for capitalists to expand production, the economy stops growing and becomes stuck in the pre-LTP phase. Second, unionized and privileged workers end up creating a two-tier labor market with a permanent underclass that is denied meaningful jobs because the economy is not expanding (or at least not fast enough). This two-tier labor market then creates massive political problems that slow down the economy even further, as seen in some Latin American countries since the 1950s.

The discussion above suggests that many if not most inclusive social and political reforms are possible only after a country passes its LTP. Even in advanced countries, most inclusive reforms such as Civil Rights movement in the US took place in the post-LTP era. This suggests that sequencing matters and that, like physics and chemistry, economics has certain laws of growth that must be observed. People in emerging countries who want more inclusive reforms might first need to grow their economies beyond the LTP.

Real driver behind Thomas Piketty's inequality

Income inequality has recently become one of the hottest and most controversial issues in economics, not just in the developed world but also in China and elsewhere. Many are growing increasingly uncomfortable with the divide between the haves and the have-nots, especially after Thomas Piketty's *Capital in the 21st Century* opened up a fresh debate on the optimal distribution of wealth, an issue that had been largely overlooked by the economics profession.

Although the author cannot claim to have understood all the implications of Piketty's enormous contributions, the analysis presented here contradicts one of the key historical points he makes. Namely, he claims that the extreme inequality that existed prior to World War I was corrected by the wealth destruction of two world wars and the Great Depression. He then goes on to argue that the retreat of progressive taxation in the developed world starting in the late 1970s ended up creating a level of inequality that approaches that which existed prior to World War I.

Although he has ample data to back his assertions, the pre-World War I results he obtained may be due to the fact that those countries were all in the pre-LTP industrialization stage, where inequality grows rapidly. The post-World War I results he obtained may also be due to the West entering the post-LTP maturing phase or "golden era" of industrialization where everyone enjoys the fruits of economic growth. Although Piketty attributes this to the destruction of wealth brought about by two world wars and the introduction of progressive income taxes, this was also a period in which urbanization came to an end in most of these countries. The four decades through 1970 were a golden era for Western economies when they were ahead of everyone else and were being chased by no one.

Finally, Piketty's post-1970 results may be attributable to the fact that Western economies entered their post-LTP pursued phase when Japan and others began chasing them. For

Western capitalists able to utilize Asian resources, it was a golden opportunity to make money. But this was not a welcome development for manufacturing workers in the West who had to compete with cheaper imports from Asia.

This also suggests that the favorable income distributions observed by Piketty in the West before 1970 and in Japan until 1990 were *transitory* phenomena. These countries enjoyed a golden era of growing incomes and shrinking inequality not because they had the right kind of tax regime but because the global economic environment was such that nobody was chasing them.

Just because such a desirable state of affairs was observed once does not mean it can be preserved or replicated. Any attempt to preserve that equality in the face of fierce international competition would have required massive and continuous investment in human and physical capital, something that most countries are not ready to implement. It is not even certain whether such investments constitute the best use of resources, since businesses would still be under pressure from shareholders to invest in countries producing higher returns.

It will also be difficult for governments to force businesses to invest at home when the return on capital is much higher elsewhere. This means a much more extreme form of protectionism may be needed to keep cheaper foreign goods out and force businesses to invest at home.

The US experience in fending off Japan

Instead of trying to return to a lost golden era, advanced nations being chased from behind should implement policies that allow them to fend off the pursuers. Assuming that free trade is here to stay, the primary concern of policymakers in most of the developed world today should be how to increase investment opportunities when the economy is in the post-LTP pursued phase. The US experience in fending off Japan is instructive on this point.

When the US began losing industries left and right to Japanese competition starting in the mid-1970s, it pursued a two-pronged approach that tried to keep Japanese imports from coming in too fast while simultaneously making domestic industries more competitive.

The US utilized every means available to prevent Japanese imports from flooding the market. Measures adopted included accusations of dumping, Super 301 clauses, gentlemen's agreements of all kinds, and currency devaluation via the Plaza Accord of 1985.

At the same time, "Japanese management" was all the rage at US business schools in the 1980s and 1990s. Ezra Vogel's *Japan as Number One: Lessons for America*, published in 1979, was widely read by people on both sides of the Pacific. The challenge from Japan, coupled with the aftermath of the Vietnam War, sent US confidence to an all-time low while consumption of sushi went up sharply.

As a resident of Japan who had worked for the Federal Reserve as an economist and also held American citizenship, the author was frequently asked by the US Embassy in Tokyo to explain the US trade position to Japanese TV audiences, as the author was a frequent guest on those programs. Although the author tried his best to explain to the Japanese public why it was in their own interest to find compromises with the US, he will never forget the intense mutual hostility that characterized the US–Japan trade relationship from the mid-1980s to the

mid-1990s. The author not only received his share of death threats, but trade frictions were so bad that it began to resemble a racial confrontation.

After trying everything else, however, the US seems to have concluded that when a country is being pursued from behind the only real solution is to run faster – i.e., to stay ahead of the competition by continuously generating new ideas, products and designs. In this regard the US has been fortunate that the supply-side reforms of President Ronald Reagan – who cut taxes and deregulated the economy drastically starting in the early 1980s – had the effect of encouraging innovators and entrepreneurs to come up with new ideas and products.

Reaganomics itself was a response to the so-called stagflation of the 1970s, which was accompanied by frequent strikes, sub-standard manufacturing quality, and mediocrity all around. It was a reaction against labor, which was still trying to extend gains made during the post-LTP maturing stage without realizing that the US had already entered the post-LTP pursued stage in the 1970s with the arrival of Japanese competition. The fact that the US was losing so many industries and good jobs to Japan also created an urgent sense that it was necessary to break from the past.

When President Reagan lowered taxes and deregulated the economy, people with ideas and drive began to take notice. These people then began pushing the technological frontier of the IT industry, eventually enabling the US to regain the lead it lost to the Japanese in many high-tech areas. In other words, the US learned how to run faster.

More specifically, deregulation and lower taxes helped improve the allocation of resources, especially of human capital, within the US economy. With both money and the best minds flowing toward promising high-tech areas, the US was able to acquire a new engine for growth.

Although the US success in regaining the high-tech lead from Japan was a spectacular achievement, it took nearly 15 years. Reagan's ideas were implemented in the early 1980s, but it was not until Bill Clinton became president that those ideas actually bore fruit. The US economy continued to struggle during Reagan's two terms and the single term of George H.W. Bush, who served as Vice President under Reagan.

The senior Bush achieved monumental diplomatic successes that included the end of the Cold War, the collapse of the Soviet Union, and victory in the first Gulf War. Yet he lost his re-election campaign to a young governor from Arkansas by the name of Bill Clinton who had only one campaign slogan: "It's the economy, stupid!" That Bush lost that election suggests the economy was still far from satisfactory in the eyes of most Americans 12 years after Reaganomics was launched.

Once Clinton took over, however, the US economy began to pick up even though few can remember his administration's economic policies. The economy was doing so well that the Federal government was running budget surpluses by Clinton's second term. The conclusion to be drawn here is that while supply-side reform is essential in encouraging innovation, it will take many years for such measures to produce macroeconomic results that average people can recognize and appreciate. The fact that structural reforms take so long to bear fruit also means they are no substitute for fiscal stimulus if the economy is in a balance sheet recession.

The challenge of finding and encouraging innovators

The problem is that not everyone in a society is capable of coming up with new ideas or products. And it is not always the same group that generates new ideas. It also takes an enormous amount of effort and perseverance to bring new products to market. But without innovators willing to persevere to create new products and industries, the economy will stagnate or worse.

The most important consideration for countries being pursued, therefore, is how to maximize the number of people capable of generating new ideas and products and how to incentivize them to maximize their creative efforts.

On the first point, only a limited group of people in any society is capable of coming up with new ideas. Often they are not in the mainstream, because those in the mainstream have few incentives to think differently from the rest. Some may also show little interest in educational achievement in the ordinary sense of the word. Indeed, many successful start-ups have been founded by college dropouts. Many innovators may actually infuriate and alienate the establishment with their “crazy” ideas. If they are sufficiently discouraged by the orthodoxy, they may withdraw altogether from their creative activities. Consequently, finding these people and encouraging them to continue in their creative pursuits is no easy task.

In this regard, the system of liberal arts education served the West well. In particular, the notion that students must think with their own minds and substantiate their thinking with logic and evidence instead of just absorbing and regurgitating what they have been taught is crucial in training people who can think differently and independently. In some top universities in the US, students who simply reproduce what the professor said may only get a B; an A requires that they go beyond the professor. This encourages them to challenge the status quo, which is the only way to come up with new ideas and products.

This Western liberal arts education has a long tradition starting with the Renaissance and Enlightenment, where the value of the human intellect was finally recognized after being suppressed for centuries by the Catholic Church. This long struggle to free the intellect from church authorities was no easy battle – many brilliant thinkers were burned at the stake. The implication here is that citizens’ creativity may not be fully utilized in societies where the authorities, including educational establishments, continue to act like the Catholic Inquisitors of the past.

The problem, however, is that a true liberal arts education is expensive. It requires first-rate teachers to guide the students, and teachers with such capabilities are usually in strong demand elsewhere. Indeed, tuition at some of the top US universities has reached almost obscene levels. Furthermore, the ability to think independently does not guarantee that students will immediately find work upon graduation. As such, this type of education is usually accorded to a limited few who can afford it, which exacerbates the already widening income gap in post-LTP pursued economies.

The need for the right kind of education

In contrast, the cookbook approach to education, where students simply learn what teachers tell them, is cheaper and more practical in the sense that students at least leave school

knowing how to cook. The vast majority of the population is exposed only to this type of education, where there is limited room to express creative ideas. Many creative minds could be buried in such establishments like the proverbial diamonds in the rough.

The US always had an excellent liberal arts education system that encouraged students to challenge the status quo. As such, it was able to maintain the lead in scientific breakthroughs and new product development even as it fell behind the Japanese and others in manufacturing those new products at competitive prices.

In contrast, many countries in catch-up mode adopted a cookbook-style education system, which can prepare the maximum number of people for industrial employment in the shortest possible time. When a country is in catch-up mode, this type of education system is often sufficient and more practical because the hard work of inventing and developing something new is already being done by someone else in the developed world.

However, these countries will have to come up with new products and services themselves once they exhaust the low-hanging investment opportunities from industrialization and urbanization. The question then is whether they can alter their educational systems to produce the independent, innovative thinkers needed for sustained economic growth. This can be a major challenge if the society has discouraged people from thinking outside of the box for too long, since both teachers and students may be unable to cope with the new task of producing more independent thinkers.

One way to overcome or sidestep this problem is to import creative thinkers and innovators from abroad. The immigrant-friendly US is full of foreign-born innovators competing with each other as well as with native innovators in universities and in the business world. Singapore is also pushing hard to attract foreign talent by inviting not just well-known names but also their entire teams and families to do research in Singapore. Pursued countries should consider implementing and augmenting similar programs to acquire and retain people capable of creating new ideas and products.

For many traditional societies in Europe and Japan, some sort of shake-up may also be needed to open fields to new outside-the-box thinkers. In Japan, long years of economic stagnation and the diminished appeal of established companies are prompting some college graduates to consider starting businesses for the first time in many decades. This is a welcome development in a country where tradition and authority still carry a great deal of weight. Some younger engineers in Japan, for example, find it difficult to challenge the achievements of older engineers in the same company because such actions can be viewed as a sign of disrespect. Such seniority-based rigidity has discouraged innovation in no small way. Some European designers are also migrating to the US and Australia to free themselves from traditional constraints on how and where they can express their creative talents. Tradition-bound societies therefore have a desperate need for new businesses that are open to new ideas and innovations.

Importance of having the right tax and regulatory environment

Regarding the second point – the need for appropriate financial and tax regimes to encourage creative activity – it must be stressed that to create something out of nothing and actually bring it to market often requires insane amount of effort that "any rational person will give up,"

in the words of Steve Jobs. In a similar vein, Thomas Edison famously claimed a new invention is 1 percent inspiration and 99 percent perspiration.

Although some individuals are so driven that they require no external support, most mortals find outside encouragement important during the long, risky, and difficult journey to produce something that no one has seen before. Financial, regulatory, and tax regimes should do everything possible to encourage such individuals and businesses to continue with their pioneering efforts.

Piketty cited the retreat of progressive tax rates as the cause of widening inequality in the post-1970 developed world. But the US, which led the reduction in tax rates, has regained its high-tech leadership while Europe and Japan, which shied away from similar cuts in tax rates, have stagnated. This outcome suggests a tax regime that was reasonable when no one was chasing the country may no longer be appropriate when the country is being pursued.

An advanced economy that is being pursued must run faster if it hopes to remain an advanced economy. And it is the outside-the-box thinkers who will create the innovations and breakthroughs that enable these countries to stay ahead by providing new investment opportunities. Sustained and substantial fiscal stimulus is absolutely necessary during a balance sheet recession, but at all other times the policy priority for a country in the post-LTP pursued phase should be to implement tax incentives and other measures designed to maximize innovation and investment opportunities.

The difficulty of achieving public consensus

Unfortunately for many countries, these sorts of measures are often decried as “favoring the rich” and rejected out of hand. For emerging economies with plenty of low-hanging investment opportunities, such objections may not lead to a noticeable economic slowdown. But in a mature economy that needs to outrun its pursuers, an inability to fully utilize the creative and innovative potential of its people can have detrimental consequences for the entire population. The future growth of developed countries facing this challenge from the emerging world may well depend on how quickly they can achieve a social consensus and develop the necessary infrastructure, such as a liberal arts education system and an innovator-friendly corporate culture and tax system, to maximize their innovative capacity.

This may require a new consensus in which those who are unable to think outside the box understand and appreciate the fact that their wellbeing is dependent on those who can. Indeed, the whole of society must understand that such thinkers are essential to generating the new investment opportunities that will keep the economy out of prolonged stagnation.

This is far from easy, however. As Thomas Piketty noted, inequality in the West began increasing in the 1970s and is reaching “alarming” levels in some countries. This increasingly unequal distribution of income is prompting many developed countries to raise taxes on the rich. But such actions, which represent the opposite of supply-side reforms, could easily backfire by discouraging innovation and risk-taking, the most important drivers of economic growth in a pursued country.

To make matters worse, most Western economies were engulfed in balance sheet recessions when their housing bubbles burst in 2008. This development exacerbated the shortage of

borrowers first seen in the 1970s when these countries entered their post-LTP pursued phases.

Moreover, these countries will be saddled with huge public debt when they finally emerge from their balance sheet recessions because they implemented fiscal stimulus to fight the recession. The natural tendency of orthodox economists and policymakers faced with a large national debt is to raise taxes wherever possible. But such wanton tax hikes may discourage businesses from investing aggressively in new innovation, thus prolonging sub-par economic growth.

In other words, the economies currently emerging from balance sheet recessions need to resist the temptation to raise taxes that may thwart innovation. Only in this way can they gain the escape velocity needed to fend off competitors from behind. This is particularly important in Japan, where debt levels are truly onerous.

Of all the post-LTP pursued economies, the US probably comes closest to having achieved this sort of consensus on a growth-friendly tax regime, which is why it is attracting innovators from around the world. But with the rich getting ever richer while the remaining 80 percent of the population have seen little income growth for the last 20 years, the temptation to raise taxes on the rich is getting stronger even in the US. The real challenge for countries being pursued is how to persuade voters to maintain innovator-friendly tax regimes when the public debt is so large and the vast majority of the population has experienced no income growth for many years.

Labor's role in three stages of economic development

If incentives are needed for innovators in the pursued economies to maximize their output, what is in store for ordinary workers? It was already mentioned that when the economy is in the pre-LTP urbanizing phase, capitalists can take advantage of workers because there are so many rural laborers willing to work for the going wage in urban factories. Workers really have no bargaining power until the country reaches its LTP. During this stage, the limited opportunities for education and vocational training in rural areas mean most workers are neither well-educated nor highly skilled when they migrate to the cities. And with so many of them competing for a limited number of urban jobs, there is little job security.

Once the economy passes the LTP, however, the tables are turned completely in favor of the workers. The supply of surplus workers in the rural areas is exhausted and the labor supply curve takes on a significant positive slope. As long as some businesses are trying to expand their workforce, all businesses will be forced to pay ever-higher wages. At this stage, businesses also have plenty of reasons to expand because workers' purchasing power is increasing rapidly.

And at this stage, expansion means *domestic* expansion: firms have little experience producing abroad, and domestic wages, while rising, are still competitive.

To satisfy demand while paying ever-higher wages, businesses invest in labor-saving equipment to keep costs down. Domestic demand for cost-saving and productivity-enhancing machinery is therefore very strong during this period, and that manifests itself in the form of heavy capital investment. With strong demand for funds to finance capital investments, the

economy is firmly in Case 1 of Exhibit 2. The new equipment effectively raises the productivity of employees even if the workers themselves are no more skilled or educated than before the country reached its LTP.

With wages rising rapidly, job security for workers also improves significantly as companies try to hold on to their employees. Lifetime employment and seniority-based remuneration systems become more common. The emerging power of unions also forces employers to enhance job security. Working conditions improve as businesses offer safer, cleaner working environments to attract and retain workers.

During this post-LTP maturing period, therefore, businesses are investing to keep labor costs down, which in turn allows them to pay the higher wages dictated by the labor market. In contrast to the pre-LTP period when businesses were effectively "exploiting" workers because there were so many of them, businesses in the post-LTP maturing period were "pampering" workers with productivity-enhancing equipment so they can afford to pay them more.

At some point, however, wages reach point EQ in Exhibit 6, and businesses are forced to look for alternative production sites abroad because domestic manufacturing is no longer competitive, for two possible reasons. One is that domestic wages have gone up too far relative to overseas wages. The other is that, even if domestic wages have not increased, foreign producers may have picked up sufficient technical know-how and marketing savvy to challenge domestic producers. These two factors could also appear simultaneously. Although different industries may reach this point at different times, a country can be said to have entered its post-LTP pursued stage if a meaningful number of industries have reached this point.

The way businesses perceive workers then changes again because they now have the option of using overseas labor resources. Many businesses are likely to find that a unit of capital invested abroad goes much further than if it is invested at home in labor-saving equipment. This means they have fewer incentives to invest at home, and fixed-capital investment, which was such a major driver of economic growth during the post-LTP maturing phase, begins to slow down. As investment slows, growth in labor productivity, which shot up during the post-LTP maturing phase, also starts to decelerate. Wages, too, begin to stagnate.

It is at this point that the ability of individual workers begins to matter for the first time because only those who can do something that overseas workers *cannot do* will continue to prosper. This is in contrast to the previous two stages, where wages were determined largely by macro factors such as labor supply and institutional factors such as union membership, both of which had little to do with the skills of individual workers. Once the supply constraint is removed by the possibility of producing abroad or outright outsourcing, the only reason a firm will pay a high wage at home is because a particular worker can do something that cannot be easily done abroad.

If workers were "exploited" during the pre-LTP urbanization stage and "pampered" during the post-LTP maturing stage, they are entirely on their own in the post-LTP pursued stage. This is because businesses are much less willing to invest in labor-saving equipment to increase the productivity of domestic workers. Workers must invest in *themselves* to enhance their productivity and marketability.

Indeed, job security and seniority-based wages become increasingly rare in industries forced to grow more agile and flexible to fend off pursuers. It is no accident that lifetime employment and seniority-based wages, which were common in the US until the 1970s, disappeared once Japanese competition appeared. The same has happened to the Japanese labor market since China emerged as a competitor in the mid-1990s.

Those who take the time and effort to acquire skills in demand will continue to do well, while those without such skills will be earning close to a minimum wage. Those who benefited from union membership during the post-LTP maturing phase will find the benefits of membership in the new pursued era are not what they used to be. This means inequality will increase again even though *when adjusted for skill levels* it may not change all that much.

Workers in post-LTP pursued economies must therefore think hard about their individual prospects and what skills they should acquire in the new environment if they want to maintain or improve their living standards. The answer to this question will differ depending on the individual, and in that sense they are truly on their own. The “good old days,” when businesses invested to increase workers’ productivity so they could pay them more money, are gone for good.

Summers’ secular stagflation thesis

When Larry Summers first mentioned secular stagnation in 2013, the US was in a midst of balance sheet recession where the private sector was saving over 7 percent of GDP at zero interest rates. He then added later that the return on capital was already falling in the West in the 1970s, long before the advent of the global financial crisis in 2008[7].

The sudden loss of momentum in Western economies after 2008 is obviously due to the fact that they are all suffering from serious balance sheet recessions. Similarly, when Alvin Hansen coined the term “secular stagnation” in 1938, the US was in the midst of the greatest balance sheet recession of all, the Great Depression, and its unemployment rate was 19 percent.

In contrast, in Germany, where sustained and substantial fiscal stimulus needed to fight balance sheet recession was implemented starting in 1933, unemployment rate fell from 28 percent in that year to only 2 percent in 1938, and no-one was talking about secular stagnation.

The fact that both Hansen and Summers mentioned secular stagnation during balance sheet recessions and the fact that Germany which overcame balance sheet recession by 1938 was not suffering from stagnation suggest that the main driver of “secular stagnation” is actually balance sheet recession.

The pre-2008 decline in return on capital, however, may be due to the fact that Western countries reached their post-LTP pursued phase when an increasing number of businesses in these countries found it more attractive to invest in emerging economies.

[7] See Lawrence H. Summers’s webpage on secular stagnation: http://larrysummers.com/category/secular-stagnation/

This pattern of emerging economies taking away investment opportunities from developed countries will continue until all economies have passed their Lewis Turning Points. Although China has already done so, India and many others have a long ways to go. The current transition process is therefore likely to continue for many years to come.

Rethinking macroeconomics

Macroeconomics is still a very young science compared to such disciplines as physics and chemistry. It started when Keynes began taking about the concept of aggregate demand in the 1930s, only 85 years ago. As a very young science, it has achieved only limited coverage of the broad range of economic phenomena and remains prone to fads and influences.

The profession's immaturity was amply demonstrated by the fact that only a handful of economists saw the Great Recession coming, and even fewer predicted how long it would take to recover from it. This is because most macroeconomic theories and models developed during the last 85 years assume that private-sector borrowers will always emerge if only the central bank lowers real interest rates far enough. This kind of thinking led Nobel laureate Paul Krugman to argue that if an inflation target of 2 percent is not enough to bring expectations of real interest rates down far enough, central banks should shoot for a 4 percent target. The assumption here, of course, is that the economy is in Case 2 in Exhibit 2.

This way of thinking implicitly assumes (1) that there are always investment opportunities worth borrowing for and (2) that borrowers always have clean balance sheets. But by presuming that there are always willing borrowers, economists have assumed away the two most critical challenges to economic growth, i.e., the existence of attractive investment opportunities and of businesspeople able and willing to take on the risks entailed in those investments.

Moreover, most economists simply *assumed* a rate of long-term potential growth based on the trend growth of capital, labor and productivity and argued that policymakers should strive to bring the economy back to that growth path. But such "potential growth rates" mean absolutely nothing when businesspeople on the ground are either unable (because of balance sheet concerns) or unwilling (because of a shortage of investment opportunities) to borrow money and invest it. This also suggests that conventional economics has no meaningful theory of economic growth.

When macroeconomics was in its formative years in the 1940s and 1950s, most advanced economies had passed their LTPs and were in the midst of a golden age with no pursuers. New products were being invented one after the other, and people were optimistic about the future. Balance sheets were also strong thanks to the astronomical government spending during World War II that repaired the balance sheet damage wrought by the Great Depression.

Even though the extraordinary effectiveness of fiscal policy in lifting the developed economies out of the Great Depression during World War II was obvious for all to see, Keynes, who argued for such policies, never realized that fiscal stimulus should be used *only* when the private sector is minimizing debt. Because of this critical omission by him and the Keynesians who followed, the post-war fad among economists was to believe that fiscal policy could solve all problems. But with private-sector balance sheets already repaired, the government's

attempt to fine-tune the economy with fiscal policy in the 1950s and 1960s only resulted in more inflation, higher interest rates, and a general misallocation of resources.

When inflation became a problem in the 1970s, the pendulum swung to the opposite extreme, with people like Milton Friedman arguing that monetary policy and smaller government were the answer to most economic problems. Some even tried to rewrite history by arguing that the Great Depression could have been avoided with better use of monetary policy by the Fed[8].

When the private sector lost its head in a bubble and sustained massive balance sheet damage in Japan in 1990 and then in the West in 2008, the economics profession was still beholden to monetary policy fads, and many economists argued for more monetary easing even though fiscal policy is the only tool that can address balance sheet recessions. Fiscal policy was mobilized immediately after the Lehman collapse, but by 2010 the orthodoxy had regained its grip on power, forcing countries at the G20 summit in Toronto to pledge to cut their fiscal deficits and effectively throwing the world economy into reverse.

Policymakers who realized soon afterwards that they were facing balance sheet recessions and that the Toronto agreement had been a mistake, including former Fed Chair Ben Bernanke and current Chair Janet Yellen, issued strong warnings about the fiscal cliff to ensure the government continued to serve as borrower of last resort. That helped keep the US economy from shrinking. Japanese Finance Minister Taro Aso also recognized this danger and made fiscal stimulus the second “arrow” of Abenomics. Their actions went a long way towards supporting the Japanese and US economies, where unemployment rates now stand at the full-employment levels of 3.2 percent and 5.0 percent, respectively.

In the Eurozone, however, no such understanding emerged in policy circles, and millions are suffering from unemployment and deprivation because the Maastricht Treaty, which created the Euro, requires member governments to reduce the deficit to 3 percent of GDP *regardless* of the size of private sector savings. In other words, the Treaty makes no provision whatsoever for balance sheet recessions, where the private sector may be saving far in excess of 3 percent of GDP in spite of zero or negative interest rates. In view of the fact that Spain’s private sector has been saving on average 7.3 percent of GDP since the third quarter of 2008, Ireland’s 8.6 percent and Portugal’s 4.6 percent, it is no surprise that these economies are suffering badly from the limitations imposed by the Treaty.

If the private sector is saving 7 percent of GDP but the government is allowed to borrow only 3 percent, the remaining 4 percent will leak out of the economy’s income stream and become a deflationary gap. As a result, one Eurozone country after another fell off the fiscal cliff with devastating human consequences. Moreover, this balance-sheet-driven deflationary gap cannot be addressed with structural reforms or ECB monetary easing, the two measures employed by the Eurozone authorities to fight the recession. As a result, there are still 5 million *more* unemployed workers in the Eurozone today than when Lehman Brothers collapsed in 2008.

It is truly ironic that it is the Germans who are imposing this fiscal straitjacket on every country in the Eurozone even though they were the first victims of a similar fiscal orthodoxy back in 1929 when Allied governments imposed austerity on the Brüning administration. That devastated the German economy and pushed its unemployment rate up to 28 percent as

[8] See Koo, Richard (2008) *The Holy Grail of Macroeconomics: Lessons from Japan’s Great Recession*, John Wiley & Sons (Asia), Singapore, Ch. 3.

mentioned earlier. But with established center-right and center-left political parties largely beholden to orthodox economics and insisting on a balanced budget, the only choice left for the German people after four years of suffering was to vote for the National Socialists, who argued against both austerity and reparation payments. People voted for the Nazis because the established parties, the Allied governments, and the economists were totally incapable of rescuing them from the four years of deflationary spiral and resultant poverty that followed the crash of 1929.

For better or for worse, Adolf Hitler quickly implemented the kind of fiscal stimulus needed to overcome a balance sheet recession – public works projects undertaken by the Nazis included construction of the nation's autobahn expressway system. By 1938, just five years later, the nation's unemployment rate had fallen to 2%. That prompted Joan Robinson, a famous British economist and a contemporary of Keynes, to say, "I do not regard the Keynesian revolution as a great intellectual triumph. On the contrary, it was a tragedy because it came so late. Hitler had already found how to cure unemployment before Keynes had finished explaining why it occurred."[9]

Germany's spectacular economic success also led Hitler to think he could win a war this time because the German economy was in a virtuous cycle and generating plenty of taxes to support re-armament efforts. In contrast, the US, UK and French economies, still beholden to fiscal orthodoxy, were in a vicious cycle of unattended balance sheet recessions with ever-dwindling tax receipts and military budgets.

That led to the tragedy of the Second World War. Once the war began, however, the democracies were able to carry out the same sorts of policies that Hitler had implemented six years earlier. Allied governments started acting as borrower and spender of last resort to procure tanks and fighter planes, and the US and UK economies jumped back to life, just as the German economy had done six years earlier. The combined productive capacity of the Allies soon overwhelmed that of the Third Reich, but not before millions had perished in the hostilities.

Perhaps the Germans today are so appalled by the utter brutality of the Nazi regime that everything Hitler did is now automatically rejected. This kind of total repudiation of a person or an era can be extremely dangerous because people will be totally naïve and unprepared when the next Hitler comes, since they were never taught all the *right* things that Hitler did to win the hearts of the German people.

With so many Nazi-like political parties gaining ground in countries suffering from balance sheet recessions but unable to do anything about them because of the ill-designed Maastricht Treaty, it is urgent that the people of Europe be made aware of this economic disease as quickly as possible.

More generally, economists must wake up to the fact that the world they have been analyzing, where the private sector is maximizing profits and monetary policy works because there are ample investment opportunities and the private sector has a clean balance sheet, describes only one half of the macroeconomic landscape (Cases 1 and 2 in Exhibit 2). In the other half, the private sector is effectively minimizing debt because of either balance sheet problems or a dearth of investment opportunities (Cases 3 and 4 in Exhibit 2). The economy can also shift

[9] Robinson, Joan (1972) "The Second Crisis of Economic Theory," *American Economic Review* 62(1/2), pp. 1-10.

from Case 1 to Case 3 or 4 very quickly after an asset bubble bursts. Even though government and central banks have the tools to move the economy from Case 4 to Case 3, it may take years if not decades for an economy in Case 3 to return to Case 1.

Only fiscal policy can support an economy in this second half in the short to medium run, while measures to encourage innovation become absolutely essential in the long run. But until university economics faculties start teaching students about the second half, policymakers and the public in general are likely to make mistakes or zigzag through when the economy is in the second half. Some may even backtrack on human rights progress if they feel a Nazi-like government is the only way to break through a policy orthodoxy that makes sense only when the economy is in Case 1 or 2.

The experiences of Japan since 1990 and of the West since 2008 have demonstrated that if balance sheet problems create a shortage of borrowers, the government must act as borrower of last resort via fiscal policy. If the absence of borrowers is due to a lack of worthwhile investment opportunities, the government must consciously implement supply-side reforms to taxes and regulation to maximize the output of private-sector innovators and entrepreneurs.

In the latter case, policymakers should also recognize that tax and regulatory regimes that were appropriate in earlier years, when there were numerous low-hanging investment opportunities and no country was chasing them, may no longer be optimal when those opportunities are exhausted and the country must come up with new products and services to stay ahead of pursuers. In some cases, the government may also have to direct fiscal spending toward the development of cutting-edge technology – in effect serving as innovator of last resort. And the need for these actions is growing larger every day in countries in the post-LTP pursued phase.

At the most fundamental level, the economics profession must realize that, apart from the early stages of industrialization, which are characterized by a surplus of easy investment opportunities, shortages of borrowers have always been a bigger problem for growth than shortages of lenders. Economists need to confront this problem head-on instead of making facile assumptions about “trend growth rates” and ever-present borrowers. The existence of investment opportunities and willing borrowers should never be taken for granted, especially in countries that are in balance sheet recessions or are being pursued from behind, a group that includes every advanced country in the world today.

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