Monetary Policy and Long-Term Growth*

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Distinguished speakers, ladies and gentlemen,

This morning we have heard an insightful discussion on the economics of long-run growth and in my remarks I would like to keep with this theme. But since I'm not an expert on growth theory, my aim for today is quite modest. I will begin with some observations on long-term growth before moving on to the more familiar territory of monetary policy. And here, I will argue that the current mainstream thinking has put too little emphasis on the role of monetary policy in long-term growth. In doing so, I highlight specific problems with prevailing conceptual paradigms. In all this, as you enjoy your lunch, I hope to give you some food for thought and not cause any indigestion.

Achieving and sustaining growth in the long run

Let me start with some personal views on the issue discussed this morning. In my mind, there is no question that Thailand is stuck in the middle income trap. Our GDP per capita has hovered at around 15-20% of US levels for over 10 years, reflecting average growth rates that have fallen substantially after the 1997 crisis. From 1980-1996, average growth was 7.8%, in the decade following the 97 crisis, it was 4.4%. The question really is whether we can get out of the middle income trap and how to do it?

Experience of countries such as Korea, Taiwan, and Japan indicate that sustaining growth to push through the middle-income barrier requires a strong drive towards economic diversification and structural change from low-productivity activities to higher-productivity ones. The growth drag from suboptimal allocation of resources can be large. As we know from elementary micro, resource misallocation results in unequal marginal rates of return. Recent studies have shown, for example, that if capital and labor in Indian and Chinese manufacturing sectors were reallocated to achieve a dispersion in the level of marginal products as that in the US, productivity would be 30-60% higher. And as we know, large differences in output per worker between rich and poor countries have been attributed, in no small part, to differences in total factor productivity.

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In this respect, a key facet to lifting our growth potential is better utilization of our resources. A good example is to consider that the agriculture sector employs about 40 percent of our labor force, uses roughly the same percentage of our land, yet only accounts for 10 percent of total production. Since 1993, GDP growth has averaged at 3.8 percent, of this, agriculture's average contribution has been only 0.2 percent. It has been estimated that the services sector is some 5 times more productive than agriculture, while manufacturing is 8 times more productive. Clearly there is much potential growth from either reallocating resources away from agriculture or from seriously taking efforts to improve productivity there through investment and more efficient production technology.

This is of course only one element of the growth story. As we can gather from this morning's discussion, the challenge in sustaining growth lies in the fact that it's not any one particular factor that is crucial, but a combination of ingredients that have to be in place. Having world-class highways and railways won't help to increase efficiency much if corruption is endemic and people spend much of their effort seeking rent. A strong legal system and enforcement of property rights won't boost innovation much if the education system fails to produce a skilled workforce. A first-rate education system is no use if graduates face limited economic opportunities in a depressed economy because macro policy has been mismanaged. The ingredients of growth complement each other in such a way that the whole is greater than the sum.

We too know, roughly, what is needed. We know that the determinants of growth include things such as the rate of capital accumulation, the amount of effort devoted to R&D, the rate of human capital accumulation and so forth. Economists have also identified a set of factors that influence these key determinants such as political stability, financial development, macroeconomic stability, and competition policy. Overall, economists have done a very good job of *explaining* growth.

The problem is how to achieve it. It's all very well to say that we need a rocket to go to the moon. But that's a whole different thing than actually building one. Given that I'm not a growth economist, I'm afraid I can't offer much either in this respect. But let me nonetheless touch on one aspect that to me has important bearing on all this. And that is the role of attitudes and mindset. In particular, I want to highlight three things:

1. *Attitude towards corruption*

   The first is society's attitude towards corruption. We all know the enormous costs to economic growth and efficiency that result from corruption. Yet the degree of stigma as well as the legal penalties attached to corruption varies greatly across societies. It is not that countries that have achieved high income status are free of corruption. Crooks can be found everywhere. But the key is that in these countries, corruption is viewed by the public as highly scandalous, shameful, and accompanied by harsh legal punishment and social sanction.

This is not the mindset we have in Thailand. If a corrupt minister is seen as less corrupt than his predecessor, he is commended. Corrupt politicians who display good leadership skills and are able to deliver on promises are given the benefit of the doubt. A little kickback for myself here and my friends there is ok if the project gets completed. But corruption is like cancer which eventually grows to consume everything. Having a little cancer is ***not*** ok. As long as we cannot change our attitudes toward corruption, I'm pessimistic as to our chances of ever escaping the middle-income trap.

2. *Meritocracy*

Related to the previous point, a society that rewards based on merit, or meritocracy, is a critical element. Having the best people in positions of leadership should improve the chances that society as whole takes the right choices and encourages the promotion of efficiency. The notion that the best people are recognized and rewarded helps to ensure that the best ideas should win out. A culture where the reward structure and economic opportunities are instead based on who you know and who you are creates incentives for rent-seeking and inefficiency.

3. *Scientific Attitude*

Finally, my third point is that much can be attributed to the extent to which a society has a ***scientific attitude***. R&D is cited as a leading driver of growth but effective R&D that yields tangible results does not only rely on funding but on a critical mass of researchers with highly inquisitive minds and the ability to think outside the box. To a large extent, this depends on the way society evaluates knowledge on an ongoing basis. Is something true because our teachers told us? Or because it is written in textbooks? Or because it has been practiced for a long time? Or because everyone say so? No! Having a scientific attitude implies an unrelenting quest to search for answers based on impartial evaluation of data and an open mind. It involves constant verification and updating to make the most informed choices.

My personal impression is that in Thailand, scientific attitude is somewhat lacking. One striking observation that I have is that since the time I returned to work in Thailand over 10 years ago, the leading local economic figures whose every remark always make headlines have been pretty much the same. There is this tendency to rank the importance of a statement based on who says it rather than what is being said. This reflects a lack of scientific attitude. In contrast, for example, in the US what is striking is not that statements by Nobel Laureates like Krugman and Stiglitz garner attention, but that rebuttals and critiques of the ideas get equal attention. Ideas are evaluated more on their merits as opposed to who says them.

As a society, I think there are important growth dividends to be had if we can improve our scientific attitude in the way we farm our land, educate our children, formulate our

policies, and even the way we vote. This should not be too much to hope for in Thailand. After all, a scientific attitude basically reflects the principles of Kalama Sutta, a central element of Buddhism.

The factors I have highlighted can be viewed as the soft-side of growth. These are the intangibles behind the tangibles of capital accumulation, R&D expenditures and so forth. You may even call them the culture of growth. And as we know, changing culture involves changing how we think and behave. Anyone with management experience will tell you that these soft-skills are at the same time critical to success and also extremely hard to change. The fact that changing the permanent growth rate is exceedingly hard may reflect the difficulties of changing ingrained culture.

On that rather pessimistic note, let me turn to the role of monetary policy. Here too, ingrained culture and mindset looms large.

Monetary policy and long-run growth

Notice that so far I have not mentioned anything about demand factors or economic fluctuations more broadly. This partly reflects the division of macroeconomic research into two largely separate parts: i) the analysis of long-run growth, which is linked to structural elements of the economy; and ii) the short term analysis, which emphasizes the effects of various shocks and how macroeconomic policies should be conducted to stabilize the economy. A key assumption in all this is that money is neutral. That is, monetary policy has no lasting impact on real output but only on prices. And given that inflation is detrimental to long-run growth, the standard conclusion is that the best contribution that monetary policy can make to long-run growth is to maintain price stability.

I must stress that I do not disagree with this conclusion. Plenty of evidence exist that show a clear negative link between inflation and long-run growth. And no country has achieved sustained rapid growth without low inflation. Easy monetary policy is not the route to long-run growth and may actually hinder it. There is little disagreement on this point. I will argue, however, that this view may be incomplete. The conventional view is that the best that can be done is to make sure monetary policy does not get in the way of the growth engine. To do no harm as doctors would say. But this view neglects the possibility that the conduct of monetary policy, beyond its impact on inflation, can be improved.

At the heart of the matter is the link between economic fluctuation and long-term growth. Since monetary policy influences how the economy responds in the short-run to various shocks, if there is a link between the economy's performance year by year and its performance in the long-term, then monetary policy may not be neutral. As I will highlight, the neutrality of money follows from the specific modeling choices that have come to dominate macroeconomics. If we move away from such prevailing paradigms, the conduct of monetary policy may have broader long-term consequences.

Fluctuations and long-run growth

Let me begin by discussing fluctuations and long-run growth.

As mentioned earlier, the macroeconomic literature has largely developed in two separate parts. Short-run macroeconomics is mostly about the gap between actual and a given potential output. Long-run analyses focus on the evolution of potential output assuming that the trend in output can be separated from the cycle around that trend.

But this separation does not sit easily with something that most of our parents taught us. And that is what you do today affects where you will be in the future. Maybe this is just a way of tricking kids to study hard, but I also believe it to be true. The underlying idea here is one of path dependence. In the extreme, the future depends on every minute thing that happens today. I'm sure you all have seen one of those sci-fi movies where someone travels back in time and steps on a fly which changes the course of history. Every event has a permanent impact. After all, the long run is simply a succession of short-runs.

An example closer to economics is supposed that we are in 1976 and a tightening of monetary policy by the Fed results in tighter bank lending standards that denies Steve Jobs a chance to fund his start-up company. One can imagine how this would impact on the world today. No Ipods nor Ipads nor Iphones and arguably lower growth (some would say less time wasted and higher productivity!).

All of this, of course, is quite familiar to economists and is reflected in the concept of a unit root. A shock is persistent when its impact does not dissipate quickly. When a variable has a unit root, the effects of a shock lasts forever. A widely known empirical fact that is confirmed across countries is that GDP has a unit root. As a result, after a decline in GDP today, forecasts of GDP are lowered over any possible horizon.

The key implication of this fact is that it is not possible to separate the long-run trend of output from short-run fluctuations. One needs a framework in which movements in the long-run trend is related to short-run movements in output.

One alternative is to start with the neoclassical growth model in which the long-run trend output is determined by exogenous technology shocks. Then assume that these very same shocks are what is driving short-run fluctuations. This is the real business cycle approach. A variation on this approach is to build in some sort of short-term frictions into the model so that other non-technological 'demand' shocks can play a role in short-run fluctuations as well. Modern DSGE models fall into this category. Nonetheless, the only link between short-run fluctuations and long-run trend in these models is through exogenous technological 'supply' shocks.

Personally, I do not like to think of technology shocks as something that drops down from the sky. The invention of cars, computers, and airplanes are indeed shocks to technology

but the world did not wake up one day to discover them. They are the result of years of effort by committed individuals and firms through research, development, and tinkering.

From this endogenous growth perspective, an alternative explanation to the high persistence of business cycle fluctuations is that factors that drive long-run growth, such as technology, respond to business cycles. The intuition is simple. Given that productivity increases with technology, and technology increases with research and development, changes in the amount of resources devoted to research and development can affect the long-run growth process. If the amount of resources allocated to such activities changes with the business cycle, then transitory fluctuations can produce long-lasting effects. Indeed, there is ample evidence of the effects of business cycles on variables related to long-term growth. Productivity, investment, and R&D expenditures, are procyclical.

Under the endogenous growth view, the system propagates transitory shocks into persistent ones. Here all manner of disturbances, including monetary policy, can affect the long-run as long as they impact on the amount of resources allocated to growth enhancing activities. Money neutrality breaks down. The implications for how monetary policy should be conducted when it is embedded in an endogenous growth model may be quite different than those resulting from analysis based on an exogenous growth framework.

All this throws into doubt the prevailing practice of identifying transitory demand shocks from supply ones based on how long-lasting their impact is. It is customary to assume that technology or supply shocks are those that have persistent effects on output. Everything else is called a demand shock. Obviously with such an approach, demand shocks, including those identified as monetary policy, cannot by construction have any impact in the long run. To then argue that this is evidence that only technology shocks matter for long-term growth amounts to a tautology. Technology shocks are those that have long-run impact on output, hence long-run output is driven by technology shocks.

Measures of technology shocks derived from Solow residuals also have similar short-comings. Such a measure are really all the stuff that can't be explained by growth in labour and capital. That is, this residual captures all shocks that have long run impact on output growth other than changes in resource endowments. But simply calling something technology shock does not make it so. It is not very useful, from a policy perspective, nor sensible to ascribe all events that have long-lasting effects to technology shocks. This is especially so for economic downturns. What kind of negative technology shock was the 2008-09 crisis? Was the Great Depression a result of a monumental bout of forgetfulness?

The fact is, technology shocks so identified may embody some combination of underlying processes, some of which may reflect factors other than technology. In the example given above about Steve Jobs, even though it is the policy-induced credit crunch that retards technological progress, ex-post identification would attribute the growth slow down to a technology shock. Similarly, Japan's lost decade resulted from a financial crisis and sustained

lack of demand rather than technological regress. Clearly, if one moves towards an endogenous growth framework as discussed above, persistence cannot be used to identify shocks anymore. Rather, the emphasis of the analysis shifts from the origin to the transmission of the shocks.

Benefits of stabilization policy

The importance of fluctuations on long-run economic performance implies that big fluctuations can have big consequences. Recessions, in particular, could be particularly harmful if the output loss is not recovered. In fact, there is much evidence that following a recession, growth rebounds at a rate significantly below that of an average expansion year. If output does not fully recover from a contraction, the proclivity to shocks may be responsible for the absolute divergence of incomes across countries. That is, if poor countries are hit by more shocks than rich countries, the output losses could accumulate over long periods, causing incomes to diverge. The recessions or growth collapses may *themselves* be responsible for lower average long-run growth.

So we should be weary of events that may have big impact on growth. It has become increasingly clear that one type of such events is financial crisis. This brings me to the issue of credit cycles, financial stability and the role of monetary policy.

A growing body of evidence indicates that financial crises often result in very large initial economic contraction followed by a long period in which output is depressed substantially, with no rebound on average to the pre-crisis trend over the medium term. Output losses in many cases are permanent. The experience of Japan and Thailand, for example, where output remains below its pre-crisis trend over the medium term, suggests that a substantial part of the post-crisis growth slowdown reflects lower potential.

Given that financial instability can have long run impact on the economy, then if monetary policy plays a role in influencing the likelihood of a crisis occurring or the magnitude of its impact once one does occur, it follows that monetary policy has long-run implications. The recent global financial crisis has led to renewed interest in the interaction between monetary policy and financial stability. At the very least, the crisis has clearly demonstrated that price stability is not sufficient to guarantee financial stability. More fundamentally, it has reminded us that the critical link between monetary policy and financial stability is credit.

Credit lies at the heart of crises. A key lesson from past financial crashes is that credit booms sow the seeds of subsequent credit crunches. It is hard to ignore the role of monetary policy in all of this. After all, monetary policy sets the price of credit, and hence leverage. Extended periods of very easy monetary policy can contribute to the build-up of debt, typically associated with surging asset prices, which can increase systemic risk. They can also

contribute to resource misallocation by favoring sectors that thrive on low cost of funding, such as real estate and the financial sector.

In the bust phase, monetary policy is again at the heart of how things develop. Crisis policy matters insofar as it influences the depth and duration of the downturn. For example, it is commonly accepted that the actions of the Fed after the stock market crash in 1929 made the Great Depression a lot worse than what it might have been. Similarly, the unprecedented measures undertaken by major central banks in during the global financial crisis clearly have helped to avert complete meltdown in financial markets and hence moderated the depth of the recessions that followed.

Once the crisis has passed and the economy enters the recovery phase, how monetary policy is conducted potentially has long-run consequences as well. Importantly, there is the danger that excessive reliance on monetary policy to support the recovery may inhibit long-term growth by delaying the necessary balance sheet adjustments and debt write downs. The Japanese experience is indicative of this.

Thus monetary policy potentially plays a central role in the dynamics of credit booms and busts, which we know have long-term repercussions. If sound policy reduces the vulnerability to a particular crisis then this surely means higher levels of GDP in the long run. If they do so systematically, then potential growth could be higher. In this respect, the more we understand monetary policy's role in the credit cycle, the greater chance we have of implementing policies that mitigate their negative impact on long-run economic performance. Yet the prevailing intellectual paradigm offers little guidance on this.

State-of-the-art mainstream macro models used to analyze monetary policy are premised on the paradigm of real analysis. This presumes that the functioning of the economy can be sufficiently well understood in terms of real factors such as preferences, population growth, productivity and so forth. Money is simply a veil, money is neutral. Economic processes are analyzed as if they took place in a virtual barter economy, but one in which exchange proceeds costlessly and smoothly, with perfect coordination among trades. Many of you here will be familiar with such a view in reference to the Modigliani-Miller theorem or the Walrasian auctioneer.

But this gives a highly misleading picture of the actual workings of the economy. The world is what it is today and the system functions as it does *only because* there is money. And money exists because there are numerous fundamental obstacles that need to be overcome before people can transact with one another. These include establishing a double coincidence of wants, determining what the fair price is of all goods, and evaluating the trustworthiness of counterparties.

By brushing all this aside, current models do not take seriously the process of exchange. Agents do not trade with each other but only against their budget constraints. With

frictionless exchange there is nothing of coordination failures, or defaults. There is no need for money nor banks. In fact, in the canonical New Keynesian framework, rather paradoxically, when money is introduced, it acts as a "friction", not as the indispensable lubricant in an otherwise inefficient barter-exchange mechanism. The set of allocations that can be supported with money is *smaller* than without money.

Assuming that the world can get by with perfect coordination is not a useful guide to how the 7 billion people in almost 200 countries in the world speaking at least as many different languages actually gets by. And it is unlikely to be informative about the role of monetary policy on long run growth if the very thing that policy controls is *assumed* to have no role whatsoever in the long run. Indeed a striking feature of today's mainstream monetary analysis is that optimal monetary policy is one that makes the economy behaves as if there was no money. But is it reasonable to benchmark central banks' conduct of policy against a world in which the very thing that they control serves no purpose? This is like saying to a race car driver that the theoretical possibility of covering the distance of a race track is 50 seconds, if the track was straight. This is what we will judge your performance by even though the track itself has lots of turns and how you steer the car matters.

As Robert Gordon aptly put it: "The basic problem is that modern macro consists of too much micro and not enough macro. Focusing on individual preferences and production functions misses the essence of macro fluctuations – the coordination failures and externalities that convert interactions among individual choices into constraints at the aggregate level."

A more practical approach to macro theory would acknowledge that the behavior of the aggregate need not correspond to the behavior of the components. Constructing a realistic model of the economy requires consideration of not only the characteristics of the individuals but also the structure of their interactions. Such a view is prevalent in biology, physics and sociology. These disciplines explicitly recognize that it is not possible to deduce the aggregate behavior of systems of particles, molecules, and insects from the individual traits of a 'representative' of the population. A football team full of Lionel Messis may lose to Thammasat University Team. The same applies to economic systems. Fallacy of composition exists that must be recognized and dealt with. This is key to allowing scope for those cross-sectional and inter-temporal coordination failures that lie at the heart of fluctuations and financial instability.

And of course, incorporating financial distress in a meaningful way into macro models would require treating credit risk and default more thoroughly. It is ironic that just at the time when credit mattered more than ever before, the reigning paradigm assigns it no constructive role in monetary policy.

Conclusion

I can see that most of your plates are now empty so I think I'd better come to an end. With no more promise of food I no longer have a captive audience. I have spent much of my talk emphasizing that we should be weary of things we take for granted. Conventional wisdom can be wrong and dangerous. As Will Rogers once said "It isn't what we don't know that gives us trouble, it's what we know that ain't so." This piece of wisdom very much echoes my earlier remarks about having a scientific attitude.

Money neutrality is not something that obtains by force of nature. It has to be achieved. The fact is that we don't know enough to make money neutral in practice, both in terms of normal business cycle stabilization as well as dealing with boom-busts related to credit cycles. There exists a grey area between absolutely bad monetary policy and completely neutral ones. This grey area deserves further study and doing so requires a modeling paradigm that treats money seriously in the context of endogenous growth. I suspect that in this grey area, how monetary policy is conducted will matter for long-term growth significantly more than currently assumed.

Thank you for your time.