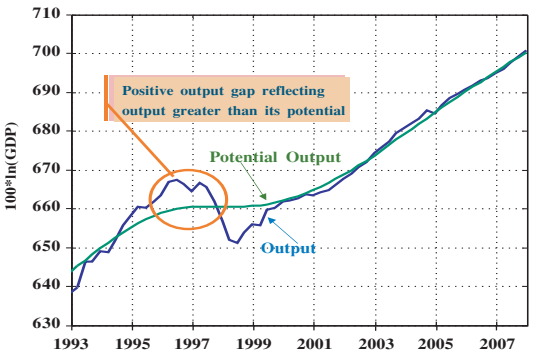
Potential output and the conduct of monetary policy

An important objective of monetary policy is to maintain price stability so that in the long run, aggregate output expands consistently with potential output. The notion of potential output, in the broad sense, refers to the long-term trend component of output, after filtering out transient or irregular components from the output time series. Potential output is also referred to as the maximum sustainable level of output given full utilization of resources. In this sense, potential output is determined by production inputs (i.e., capital and labor, as well as the level of technology with which capital and labor are used in the production process). Although an economy's production can exceed the level of potential output in the short run, such overutilization will strain the economy and possibly result in major economic imbalances, such as the period leading up to the 1997 financial crisis (Chart 1).

Chart 1 Output and potential output



Source: Chuenchoksan, Nakornthab, and Tanboon (2008) , "Uncertainty in the Estimation of Potential Output and Implications for the Conduct of Monetary Policy". Paper presented at the Bank of Thailand Economic Symposium, September 2008

In the context of monetary policy, potential output usually refers to the level of output that an economy is able to produce without resulting in inflationary pressure. This notion of potential output is consistent with the more general notion above, albeit stated in a monetary policy context where price stability – namely low and stable inflation – is the focus of the analysis. That is, if actual output is in line with potential output, inflation will exhibit no tendency to rise or fall as the economy faces neither overutilization nor underutilization of resources. However, if output is above potential, resource utilization will be tight (e.g., labor would need to work overtime or machines would be required to operate over their capacity), raising the costs of production and ultimately creating inflationary pressure. Thus, the discrepancy between output and potential output, known as the output gap, is an important inflation indicator: a positive output gap usually leads to rising inflation, provided that production costs and inflation expectations remain unchanged. Consequently, an understanding and a careful assessment of potential output and the output gap play a crucial role in the monetary policy decision-making process.

Estimation of potential output for the Thai economy

Given that potential output is unobserved, central banks estimate potential output by relying on economic models, which are based on various assumptions, together with data, which are subject to measurement errors. In addition, judgment is required in assessing economic conditions and outlook. While estimates of potential output and the output gap are naturally surrounded by a considerable amount of uncertainty, recent findings on potential output and potential output growth for the Thai economy are summarized below.

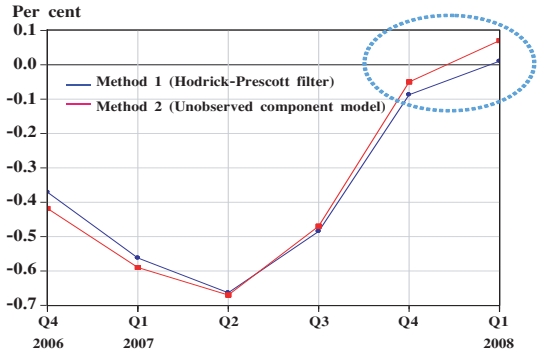
Table: Summary of findings on potential output estimates for the Thai economy[1/]

Definition of potential output	Key findings
Maximum sustainable level of output given full employment of available resources	Potential output growth is projected to be in the range of 5.5-6.1 per cent over 2008-2015.
Trend output obtained from excluding temporary and irregular output components	Potential output growth in the previous year was estimated to be in the range of 5.2-5.3 per cent; while the output gap was estimated to be approximately zero in recent quarters.
Level of output that the economy can produce without generating inflationary or deflationary pressures	

Implications for recent monetary policy decisions

The output gap at the end of 2007 and the beginning of 2008 is estimated to be close to zero (Chart 2).[1/] Compared to previous quarters when the output gap was estimated to be negative, such a narrowing of the gap indicates an increase in inflationary pressures arising from increased resource utilization – coupled with pressures from higher production costs and rising inflation expectations[2/]. This resulted in an acceleration in inflation from end-2007. Moreover, as a high level of inflation begins to adversely affect investment decisions, which would impact potential output going forward, monetary policy has been prudent with emphasis given to price stability. With regards to the output gap in 2008 Q2, the rise in the number of adverse risk factors to the economy are likely to dampen economic output to below potential, to some extent.

Chart 2 Output gap estimate



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One important caveat regarding the use of output gap estimates in monetary policy formulation is uncertainty in the estimation of potential output. Model uncertainty and data uncertainty – the latter arising from the revision of published data and the release of new data, both of which have the potential to alter previous estimates – are inevitable. The MPC is aware of such estimation uncertainty and thus adopts various other economic indicators such as manufacturing sector resource utilization rates and the unemployment rate in the labor market, in addition to conferring with firms in a variety of industries. The MPC also carefully examines its findings and uses judgment to ensure accuracy and reliability in the measurement of inflationary pressures from resource utilization.

[1/] See Chuenchoksan, Nakornthab, and Tanboon (2008), "Uncertainty in the Estimation of Potential Output and Implications for the Conduct of Monetary Policy". Paper presented at the Bank of Thailand Economic Symposium, September 2008.

[2/] See "The study of cost pass-through to prices amidst rising oil and commodity prices". Box article in Inflation Report, July 2008.