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The dynamics of aggregate demand and supply shocks in ASEAN countries

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ABSTRACT

This paper revisits the issue of identification of aggregate demand and supply shocks in ASEAN countries using an alternative identification scheme where the aggregate demand and supply shocks are allowed to be correlated. Applying the technique of Cover, Enders, and Hueng (2006) within a bivariate Structural VAR model, this paper shows that aggregate demand and supply shocks are interrelated (positively) in ASEAN countries. Unlike most of the previous studies, it is found that changes in the output level are mainly driven by aggregate demand shocks, whereas supply shocks play the dominant role in affecting inflation in ASEAN countries. The correlation of the shocks across the countries is found to be quite small, suggesting that ASEAN is still not set to form a common currency union.

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1. Introduction

For the purpose of designing and implementing appropriate macroeconomic policies, it is essential to identify various shocks and analyse their impacts on the economy. In particular, following the recent financial crisis and the economic downturn in the USA and Europe, it is time to re-assess the conventional beliefs about the nature of the macroeconomic shocks that are playing crucial roles in an economy. This paper revisits the issue of identification of macroeconomic shocks in ASEAN countries using an alternative identification scheme where the aggregate demand (AD) and aggregate supply (AS) shocks are allowed to be correlated. In the wake of the recent global recession (2007–2009), this study has important policy implications. A recession usually originates from an adverse aggregate demand shock and the persistence of a recession, essentially, depends on how the demand shocks affect an economy. If a demand shock does not affect the supply side and has only temporary effects on the employment and output level, then we may expect an economy to recover quickly, even without the realization of any demand management policy. However, an economy may experience long-lasting effects from a recession if the initial demand shocks provoke some supply side shocks and indirectly influence the long-run aggregate supply curve.

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Many previous prominent empirical studies are based on the assumption that the aggregate demand shock has only a temporary effect on output and employment. Blanchard and Quah (1989) first apply this assumption within the Structural VAR (SVAR) framework in order to isolate the demand shocks from the supply shocks. Since then, many studies have utilized the Blanchard–Quah (BQ, henceforth) approach for the purpose of identifying macroeconomic shocks. In addition to a long-run neutrality restriction, the original BQ decomposition further assumes that the aggregate demand and supply shocks are uncorrelated. Cover et al. (2006) question this assumption, and observe that "*the shocks identified in this way may not bear any reasonable relationship to actual shifts in AD and AS curves because such shifts are likely to be correlated*". Using the US data, their study shows that, in the basic BQ model, changes in output are driven mainly by supply shocks and inflation by demand shocks. Cover et al. (2006) demonstrate that the AD and AS shocks are indeed highly correlated, and the AD shock accounts for a large proportion of the variations in the output level when supply shocks are allowed to be affected by the demand shocks.[1]

The main purpose of the current paper is to identify the aggregate demand and supply shocks in the ASEAN region using the technique applied in Cover et al. (2006). In particular, this study analyses the dynamics of the shocks in the five original ASEAN member countries: Indonesia, Malaysia, The Philippines, Singapore, and Thailand. Looking beyond the industrialized economy data to a set of developing Southeast Asian Countries will provide us with more robust conclusions regarding the dynamics and interrelation of the shocks than those implied in Cover et al. (2006). It may be noted that the ASEAN region experienced magnificent, continued growth in the 1980s and 1990s, which was ultimately stopped by the infamous financial crisis of 1997. Examining the dynamics of aggregate demand and supply shocks in ASEAN countries will give us further insight into the growth and recession that this region experienced, and help us explore the relevant issues for other countries. Moreover, the examination of the shocks in ASEAN countries will help us analyse the prospects of forming a common currency union in the Southeast Asian region.

Essentially, the identification scheme used in this paper allows the case where a shift in the aggregate demand curve induces the long-run aggregate supply curve to shift. There exist a few important studies that draw attention to the role of demand in affecting innovation in technology in the production process, and show that an aggregate demand shock that raises the level of output temporarily can, through a number of channels, exert a permanent influence on the supply side. For example, Stadler (1990) argues that "*. . ..changes in the utilization of factor inputs when demand changes can result in reorganization and the acquisition of new skills; or a higher level of output may make innovation more profitable and result in the allocation of more resources to R&D*". With the use of theoretical models with endogenous technology, this study essentially shows that "*Changes in the supply side of the economy are not independent of changes on the demand side*". The empirical work of Utterback (1974) also suggests the same idea, showing that the majority of the innovations in industry take place in response to market demand conditions.

Lucas (1972, 1973) shows how firms' misperceptions about a demand shock that stems from an unanticipated change in money (an aggregate demand shock) can temporarily affect the output level. Blanchard (1991) surveys the literature on the effects of money on output and observes that if the initial misperception about the shock led firms or workers to change a state variable, which affects their decision in subsequent periods, then the initial changes in money or demand would have persistent effects on the output level. For instance, if the initial misperception leads the firms to invest in productivity enhancing technology, we may expect a shift in the long-run aggregate supply curve, which, in turn, will change the output level permanently.

The concept of 'hysteresis in unemployment'[2] may give another explanation as to why the demand shock induces the long-run aggregate supply curve to shift. The main idea of this concept is that the cyclical movement in the unemployment rate, which is mainly caused by demand shocks, may, in fact, cause the natural rate of unemployment to change. As the natural level of the unemployment rate is related to an economy's long-run employment, this, in turn, will shift the long-run aggregate supply curve. Ball (1999), using data from OECD countries, showed that monetary policy and other determinants of aggregate demand have long-run effects on unemployment. This implies that an aggregate demand shock may cause a permanent supply shock by affecting the natural level of unemployment.

There are a few previous studies that attempt to analyse the nature of macroeconomic shocks in Southeast and East Asian countries with a view to examining the suitability of a common currency union in this region (for example, see Bayoumi & Eichengreen, 1994; Bayoumi, Eichengreen, & Mauro, 2000; Ling, 2001; Ng, 2002). Previous relevant papers utilized basic BQ decomposition in order to identify the shocks, and found that each type of shock across one or more sub-groups of countries in Southeast and East Asia is highly correlated.[3] The main drawback of these studies is that they did not take into account the possibility that the aggregate demand and supply shocks can be interrelated. Thus, the findings of these papers can be misleading if the shocks are actually correlated. For example, if the demand shocks induce some shocks to aggregate supply, then the identified supply shocks in the BQ model would contain both the demand and supply components. And, if this is the case, we may see some ambiguity in the effects of an identified supply shock on inflation (as demand and supply shocks affect the inflation rate in opposite directions).

[1] Recently, Bashar (2011) has reported similar findings for the G-7 countries.

[2] This term was first used formally by Blanchard and Summers (1987).

[3] One exception is the study by Genberg and Siklos (2010), which finds small correlations between macro shocks across a number of Asian countries. That paper, however, used a four variable SVAR model based on contemporaneous restrictions rather than long-run restrictions.

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