20

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The Socio-economic Impact of the Asian Financial Crisis on Indonesia

Introduction

The Asian Financial Crisis had a devastating impact on the Indonesian socio-economic structure.[1] The tidal wave that hit Indonesia in 1997 was as unexpected as it was devastating. For a quarter of a century prior to 1997 the Indonesian economic performance had been truly remarkable. The agricultural sector reached near self-sufficiency in rice production. Real output growth between 1970 and 1996 averaged almost 7 percent per year and the average yearly inflation rate during this period was kept below 10 percent. The manufacturing sector in the decade before the crisis expanded at an annual rate of about 10 percent per year. Exports of labor-intensive commodities were booming. Perhaps an even more remarkable achievement was that the incidence of poverty dropped drastically with the population living below the poverty line falling from about 60 percent in 1970 to 11 percent in 1996. Indonesia was a proud partner in the small set of countries to have achieved the "East Asian Miracle". Even though there had been a few signs of institutional weakness in the financial and banking sectors, the economic fundamentals at the start of 1997 appeared strong.

[1] This paper is based on Thorbecke (2001) and Azis, Azis, and Thorbecke (2001).

Over the next few years, however, the Indonesian economy imploded. Real output fell 13 percent in 1998 and three years later still had not regained its pre-crisis level. Consumer prices increased 80 percent in 1998. The exchange rate depreciated from 2,400 Rupiah to the dollar in June 1997 to 16,000 Rupiah to the dollar at its low point in June 1998, and at the beginning of 2002 still hovered around 10,000. Twenty-five years of progress in eradicating poverty seemed threatened by the economic downturn.

Economists trying to understand the crisis have emphasized the importance of credit factors. Krugman (1999), for instance, has discussed how a decline in the confidence of foreign investors can weaken the exchange rate. The depreciating exchange rate then has a negative effect on the balance sheets of corporations laden with foreign currency-denominated debt. As firms' balance sheets worsen, their ability to obtain credit also declines and they are forced to curtail spending. The tightening of monetary policy and higher interest rates also contribute to a decline in spending leading to a recession, a further decline in confidence, and further depreciation. In turn, depreciation further worsens the balance sheets of firms, and the downward spiral continues.

In the next section, we describe briefly the evolution of the crisis and in Section 3 we outline the major features of a general equilibrium model that was built and used to understand better the channels through which the crisis affected socio-economic variables, and to simulate alternative policies that might have alleviated somewhat the negative impact of the crisis. Section 4 concludes.

The Evolution of the Indonesian Economic Crisis

The initial shock that started the crisis may have been a decrease in export demand. Thailand, Malaysia, Indonesia, and the Philippines all had currencies linked to the dollar. As the dollar appreciated 45 percent against the Japanese yen between the second quarter of 1995 and the first quarter of 1997, these countries' currencies also appreciated and their exports became less competitive. Exports in East Asia were also hurt by the 1996 slowdown in the semiconductor and electronics markets. This fall in exports contributed to current account deficits ranging from 3.5 percent of GDP in Indonesia to 8 percent of GDP in Thailand.

Investors perceiving Thailand's fragile financial system, slowing exports and large current account deficits launched a speculative attack on the Thai baht on 14 May 1997. The Bank of Thailand squandered its foreign currency reserves trying to maintain its peg before finally allowing the baht to float on 2 July 1997. The currency immediately fell more than 15 percent.

The financial contagion spread to Indonesia. Indonesia also had a currency linked to the dollar, a current account deficit, and a banking sector that had loaned too much to property developers.

The monetary and fiscal authorities took several steps to deal with the currency shock.[2] In July 1997 it widened its exchange rate band to 12 percent. As the rupiah continued falling Bank Indonesia (BI) spent $1.5 billion in July and early August trying to defend the rupiah. When this did not succeed, Indonesia let the rupiah float on 14 August 1997. In mid-August, it also raised the interest rate on one-week BI certificates (SBIs) from 10.5 percent to 20 percent and on three-month certificates from 11.5 percent to 28 percent. The Minister of Finance reduced government spending and directed state enterprises to transfer 3.5 trillion of bank deposits to SBI certificates.

The high interest rates and fiscal tightening damaged the banking sector. Many banks experienced a mismatch between liabilities and assets, with short-term liabilities and long-term assets. When interest rates on interbank loans increased from 22 percent to 80 percent, the banking sector experienced distress. As Djiwandono (2000) discusses, depositors reacted by a "flight to safety," withdrawing funds from "suspect" banks.

At the same time Indonesian corporations were hurt by the fall in the rupiah. Many corporations had short-term dollar-denominated debt. The offsetting assets generated revenue streams in rupiahs. Since the rupiah had fluctuated within a narrow band for several years, much of the dollar-denominated debt was not hedged against exchange rate risk. When the rupiah fell, Indonesian corporations scrambled to cover their exposure by selling rupiah and buying dollars. The fact that the maturity of the debt was short-term increased the urgency of firms to sell rupiah. This selling pressure caused the rupiah to plunge.

On 8 October, after the rupiah had fallen from its pre-crisis value of 2,400 to the dollar to 3,600 to the dollar, Indonesia sought help from the International Monetary Fund (IMF). By the end of October, Indonesia

[2] This section draws on Djiwandono (2000).

and the IMF had reached an agreement. The IMF and other donors would provide Indonesia with loans exceeding $40 billion dollars. In return the IMF demanded that Indonesia keep interest rates high and immediately close 16 banks. As the *Economist* magazine reports, the IMF insisted on the closures because troubled banks in Thailand were not being liquidated as quickly as the IMF wanted following an agreement signed there on 5 August 1997.[3]

This demand for bank closures decimated the banking sector. Banks were already shaky because of excessive property lending, rising amounts of non-performing loans, and high interest rates. When depositors heard that the banks were being closed they panicked. Not being protected by deposit insurance, they started a bank run.[4] Large amounts of both rupiah- and dollar-denominated deposits were withdrawn from local private banks in October and November 1997. The crisis was exacerbated by a lack of transparency in the banking system.[5] As Stiglitz (1998) and Yellen (1998) discuss, under conditions of limited information investors were unable to distinguish between healthy and unhealthy institutions and shied away from them all.

The loss of deposits forced banks to restrict loans, and other sources of credit dried up also. Ghosh and Ghosh (1999) report that in November and especially December 1997 the demand for loans by Indonesian firms far exceeded the supply of loans by banks. Firms facing deteriorating balance sheets due to the depreciation of the rupiah were also unable to continue borrowing from abroad. In addition the fall in stock prices raised the cost of equity capital to prohibitive levels. Thus within a matter of months business borrowers lost their credit lifelines, destroying business confidence and forcing them to curtail spending.

The confidence of international investors was also undermined by the evolving crisis, and the rupiah became vulnerable to rumors. In December 1997 it fell 11 percent in one day on reports that Indonesian President Soeharto was gravely ill. In January 1998 it fell 26 percent in one session amid rumors that Indonesia was considering a debt

[3] *The Economist*, 8 November 1997.

[4] The IMF's own studies conclude that their conditions sparked a bank panic in Indonesia. This fact is discussed in press release number 105-112 of the Congress of the United States, Joint Economic Committee. The release is dated 13 February 1998.

[5] Examples of the lack of transparency include the fact that Indonesian banks could treat bad loans as confidential information and the fact that they did not have to publish financial reports quarterly. This is discussed in *The Washington Post*, 31 October 1997.

moratorium. Its level at this point was 9,500 rupiah to the dollar, compared to 2,400 to the dollar before the crisis.

The IMF, witnessing the instability, negotiated a new agreement. It signed a second letter of intent with Indonesia in January 1998. The IMF and Indonesia agreed to break up several cartels and monopolies. The accord further stipulated that bank capitalization be increased, the M2 money supply growth rate be targeted at 16 percent, and government subsidies of basic commodities be phased out.

The condition that subsidies be eliminated caused further trouble. In May 1998, when subsidies on fuel, electricity, and public transportation were lifted, riots broke out in Indonesia. These riots brought economic activity to a standstill for several days. Stores were looted, distribution networks broken up and shopping centers burned. Chinese citizens suffered physical harm and material loss. Many left the country and withdrew their assets. Foreign investment ceased, and the rupiah fell to 11,000 to the dollar. By the end of May President Soeharto resigned and was replaced by Vice-President Jusuf Habibie. Habibie then lost in a democratic election to Abdurraham Wahid in 1999.

The crash of the rupiah, the banking crisis, and the erosion of confidence decimated the real economy. Output declined almost 14 percent in 1998 and was stagnant in 1999. Despite 5 percent growth in 2000, confidence has yet to be restored.

A Computable General Equilibrium Model of Indonesia

Azis, Azis and Thorbecke (2001) built a Computable General Equilibrium (CGE) model of the Indonesian economy. The model was built in an attempt to answer two crucial questions, first, what are the main mechanisms and channels of influence through which the Asian Financial Crisis and the prevailing political instability affected the Indonesian socio-economic system in the short run (e.g. output, employment, income distribution, poverty, and inflation). Secondly, it aimed to simulate alternative counterfactual policies to determine whether the negative effects of the crisis could have been somewhat alleviated through a choice of more appropriate policies.

The CGE model is relatively disaggregated. It includes fourteen production sectors, eight labor skill groups and eight socio-economic household groups.

The model includes the conventional modules reflecting the operation of output and factor markets, price determination, and income distribution. In addition it incorporates two important novel modules for this type of model i.e. an elaborate financial sector and a poverty module.

The financial module is described briefly next. The initial contagion effect is modelled through a decrease in the amount of equity in Indonesian companies held by foreign investors. This accords with the fact that initially mainly foreign investors (rather than Indonesian citizens) withdrew funds from Indonesia. This decline in the amount of equity held by foreign investors in turn led to capital outflows and a depreciation in the exchange rate. To stabilize the exchange rate, policy makers (strongly prompted by the IMF) raised interest rates, which in the model would reduce investment and output. The decline in investment reduces the capital stock and thus production.

The exchange rate shock affects investment not only directly by bringing about higher interest rates, but also indirectly by worsening firms' balance sheets. As the exchange rates fell the rupiah value of firms' foreign currency loans increased, making firms less creditworthy. This decrease in credit-worthiness hindered firms' ability to raise funds and further reduced investment.

The high interest rates and deteriorating economy combined with the bank runs also reduces the net worth of the banking sector. In the model, a fall in the wealth of the banking sector lowers the supply of bank loans. This reduction in the supply of loanable funds further constrains the ability of firms to invest.

The deepening recession, combined with higher interest rates and a depreciating exchange rate further affects the confidence of foreign investors leading to a subsequent decline in equity holding by the rest of the world, continuing capital outflow, and further depreciation. One key mechanism in the model leading to this continuing depreciation is captured by a political risk variable, which reflects the increase in the risk of holding Indonesian assets resulting directly from the rising foreign debt and foreign debt service.

The political risk variable was made dependent on the fluctuations in the currency risk premium as determined by the foreign exchange market, the idea being that the risk premium reflects the prevailing political situation at any one point in time.

The model can then shed light on important issues, by incorporating credit factors within a comprehensive general equilibrium framework. It can illuminate the linkages between an exchange rate shock and output, employment, and income. It can illustrate why certain sectors (e.g., construction) bore the brunt of the downturn. Finally, it can help explain the resulting distribution of poverty across socioeconomic groups. These issues are discussed in more detail in Azis, Azis, and Thorbecke (2001).

Model Simulation

The model was first used to simulate a benchmark run (a form of base run). In this run, the values of all of the exogenous variables (including policy variables) and exogenous events that precipitated the crisis were set equal to their actual (observed) values and the model was solved to derive the resulting values of the endogenous variables. The latter, in turn, were compared with the actual values of these variables subsequent to the crisis. The purpose of this benchmark run was to check the extent to which the model replicates the changes that actually occurred. It can be thought of as a kind of backward validation of the model.

Eight sequential events, starting from the Thai baht's depreciation in July 1997 and ending in March 1999, are used to shock the model. These eight events or stages are based on the evolution of the crisis as described in Section 2 above.

The results of the benchmark run confirmed that the model replicated and tracked relatively accurately the evolution of the crisis on the Indonesian socio-economic system. Overall the generated trajectories of the endogenous variables are close to their actual trends.

The benchmark run revealed that the most immediate impact of the severe economic downfall was on real wages as commodity, and particularly food prices increased. Virtually all-household categories, but particularly the urban groups suffered from declining real income. Results from the simulation also indicate that unemployment rose yet, the process of wage decline combined with labor mobility—characterized by a massive reverse migration from urban to rural areas and from formal to informal sector reflecting a flexible labor market—prevented an even more catastrophic situation from occurring. The combined forces of unemployment, declining real wages and incomes and surging food prices raised the incidence of poverty. The relative

increase was significantly greater in the urban areas than in the rural areas.

Since the benchmark run reflects the actual policies of the government including the tight monetary policies mandated by the IMF an interesting and relevant question to ask is whether alternative policies might have been more successful in alleviating somewhat the negative impact of the crisis—particularly on poverty. To this effect the model was used to simulate the likely impact of two counterfactual policy scenarios: 1) a scenario maintaining a level of interest rate lower than under the actual benchmark IMF-sponsored policy and 2) the same scenario as above, combined with some foreign debt restructuring. Under the two alternative counterfactual scenarios, the impact on output (real GDP) and prices is more favourable than in the "benchmark, IMF" scenario.

A key assumption made was that the political and social repercussions of a more moderate rise in the interest rate, compared to the actual IMF-sponsored policy used in the benchmark run, would have been less severe. Consistent with this assumption the political risk variable was adjusted downwards in the two counterfactual scenarios.

A comparison of these two alternative policy scenarios with the actual policies followed in the benchmark run revealed that generally speaking macroeconomic and social indicators including poverty would not have as negative as under the very tight monetary policy actually followed. In particular, a more moderate increase in interest rates to stem capital outflows and bolster the exchange rate could have reduced somewhat the credit crunch, the deteriorating balance sheets of companies, the extent of bankruptcies, and the stagnation of domestic investment.

Conclusions

The main objective of the model was to incorporate the various channels and transmission mechanisms through which the Asian Financial Crisis and political instability affected the socio-economic system, and ultimately, poverty in Indonesia during the period 1997-1999. Hence, the model contains a detailed financial sector and a poverty module.

The transmission mechanisms were triggered by the initial outflow of capital following the contagion effects of the Thai crisis in July 1997. The outflow of capital led to pressures on the exchange rate and

fuelled expectations of further depreciations. In turn, the impact of the worsening exchange rate affected the socio-economic system through three different channels: 1) a drop in domestic investment; 2) a rise in the price level (mainly through higher import prices) which was further magnified by unfavorable weather conditions and a drop in rice output; and 3) a higher cost of imported intermediate inputs that dampened domestic output. The combined effects of these three mechanisms were to reduce aggregate demand and supply. The depreciation of the exchange rate also affected consumption and poverty incidence negatively through its impact on the price level and household incomes. Along with a high interest rate policy, this also worsened the relative income distribution.

In addition, the crisis was further propagated through the following financial mechanisms: 1) the pessimistic expectations of further exchange rate depreciations and the political instability that induced agents to reallocate their portfolios away from domestic assets towards foreign assets—this reduced the supply of both demand and time deposits and the supply of loanable funds; 2) the relatively high interest rates favored by the IMF.

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