ABSTRACTS OF DOCTORAL THESES
ON THE INDONESIAN ECONOMY

Competition, Trade and Industrial Policy, and Rent-seeking Behaviour:
The Case of Indonesian Manufacturing Industry 1987–1996

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Between 1987 and 1996 Indonesia went through successful major policy reforms that involved trade liberalisation and deregulation. Rapid economic growth, increased productivity and a reduction in poverty were among the successes. Despite these extensive reforms, domestic competition and trade were still subject to regulations and restrictions imposed by the government and by industry associations sanctioned by the government. At the same time, the problems of cronyism, nepotism and rent seeking increased substantially.

This thesis examines the effect of rent seeking and government involvement in the economy on entry barriers and domestic competition in the Indonesian manufacturing sector during the policy reform period. It shows that rent seeking and government involvement in the economy through state enterprises contributed significantly to the creation of entry barriers and restrictions on domestic competition. It also examines the effect of foreign investment on entry barriers, to test the perception that liberal foreign investment policy has intensified domestic competition, and finds that foreign investment has different competition effects in different industries.

The novelty of the thesis lies in its measurement of entry barriers. In contrast to the traditional approach in which the presence of entry barriers is inferred from the empirical relationship between a proxy variable for entry barriers and market performance, this study measures entry barriers rather more directly, by comparing actual concentration with the lower bound concentration curve. I argue that the deviation of an industry’s actual concentration from its lower bound function reveals the extent of entry barriers in that industry. The lower bound concentration curve is estimated as a stochastic frontier function. Drawing from the public choice literature, I use donation expenditures as a proxy for rent-seeking activities.

In the second part of the thesis, I look at how rent seeking and the presence of state enterprises have contributed to the existence of collusive behaviour in Indonesia’s manufacturing industries. I find that collusion can be sustained in moderately low-concentration industries if these industries engage in extensive rent-seeking activities.

Panel data for Indonesia’s manufacturing industries between 1987 and 1996 are used to estimate the lower bound concentration function. My estimate of this
function is consistent with the predictions of theory. I show that policy reforms between 1987 and 1997 did not significantly increase the intensity of domestic competition. I find support for the proposition that rent seeking and the presence of state enterprises increase entry barriers. The study’s findings show that the effect of foreign investment on domestic competition was industry specific, promoting competition in some industries while reducing competition in others. I find that industries identified in other studies as prone to rent-seeking behaviour also have high entry barriers. In addition, I identify a number of other industries with high entry barriers which were not exposed by earlier studies. My study shows that instability in estimated market share falls in industries with extensive rent-seeking activities, suggesting that government support can sustain collusion.

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Trade Expansions and Rising Skill Premium in Developing Countries
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Even though there are gains from trade, there is still a concern that trade opportunities have significant distributional consequences. The conventional trade theorems predict that an increase in trade in developing countries will increase demand for unskilled labour-intensive goods, which in turn reduces the skill premium. It seems that these theorems have failed to explain the recent rising skill premium in developing countries (including Indonesia) as their trade expands.

I consider the argument that trade expansion driven by tariff reductions and technological catch-up affects the skill premium. I use the North–South trade framework and a continuum good model that includes skilled and unskilled labour in production to show that trade expansion affects the skill premium. The North–South trade framework is used to explain trade between the generally skilled labour-abundant developed countries (the North) and the generally unskilled labour-abundant developing countries (the South). The continuum good model is used (a) to determine the ‘trade margin’ in North–South trade based on the ratio of skilled to unskilled labour productivity; and (b) to examine the movement of that margin in response to tariff reductions and technological changes, and the effects of the latter two factors on the skill premium.

To test the hypothesis, I conduct empirical studies of 27 developing countries (including Indonesia) across 134 manufacturing industries from 1980 to 2005. I use two proxies of trade expansion, the ratio of exports (imports) to GDP and the range of exports (imports). The study classifies manufactures as either unskilled or skilled labour intensive. To examine the effects of trade liberalisation and technological catch-up on the skill premium, I analyse first the direct effect of trade liberalisation (represented by tariff reductions) on imports, and second, the indirect effect of trade liberalisation (represented by the terms of trade) and technological catch-up on exports. Finally, I analyse the effect of exports and imports on the skill premium.

My findings show that while tariff reductions do not necessarily increase imports, expanded exports are significantly affected by technological catch-up.
Exports and imports affect the skill premium, as predicted in the theoretical framework. The rising skill premium in developing countries is significantly affected by an increase in skilled labor-intensive exports, which is driven by a resource shift away from unskilled labor-intensive exports or from skilled labor-intensive imports. Exports from developing to developed countries mainly comprise skilled labor-intensive intermediate goods (parts and components) that developed countries use for their final goods, rather than unskilled labor-intensive goods. In fact, since the mid-1980s, the value of unskilled labor-intensive exports such as footwear, textiles and clothing has been surpassed by that of skilled labor-intensive exports such as telecommunications equipment, office equipment, automatic data-processing machines and road vehicles. Nonetheless, the findings for Indonesia show that increased exports of unskilled labor-intensive goods do not reduce the skill premium. This unexpected effect can be attributed to the implementation of a low-wage policy in Indonesia for the purpose of attracting foreign investment.

The main value added of the study is its contribution to the trade theorem framework; its empirical studies of the effects of trade expansion on the skill premium; the development of an index to measure trade expansion; and the construction of comprehensive data sets on the skill premium and on exports (imports) disaggregated by skill level.

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This dissertation is a collection of three papers that cover contemporary issues at centre stage in the development of Aceh. The first, ‘Testing the resource curse hypothesis in Aceh’, empirically tests the resource curse hypothesis in this oil and gas-rich region. Using data from 1975 to 2006, the models reject the hypothesis of a resource curse. The empirical models indicate that the boom in the mining sector in Aceh from the late 1970s until the mid-1980s did not reduce the output of the non-mining manufacturing and agricultural sectors as predicted by the resource curse theory. On the contrary, the increase in mining output actually had a positive impact on the other two sectors’ output. Conflict, on the other hand, although not significant in the model, shows a negative relationship with output in non-mining manufacturing and in agriculture. The Asian economic crisis, interestingly, is also found to have had a positive impact on the non-mining manufacturing and agricultural sectors.

The second paper, ‘Determinants of inflation in Aceh’, examines inflation behaviour in Aceh before and after the 2004 Indian Ocean tsunami. The wild increase in inflation in post-tsunami Aceh was assumed to be influenced by two ‘shocks’: the tsunami and the nation-wide fuel price increase in 2005. Multivariate time-series regression models are developed to describe the inflationary process. I find that Aceh’s inflation is determined mainly by inflation expectations and the
exchange rate, in a way similar to Indonesia’s national inflation behaviour. Productivity is also significantly associated with inflation, but with a contradictory sign when decomposed into productivity based on oil and gas and non-oil and gas GDP. Additionally, contrary to a common assumption, a structural change test indicates that it was the oil price increase, rather than tsunami-driven factors, that changed the structure of Aceh’s inflation. This paper also incorporates an analysis of the output and price relationship in Aceh’s economy to examine further policy implications of inflation. Using structural vector autoregression with Blanchard–Quah restrictions, I find that shocks based on aggregate supply policy would have been more effective than those based on aggregate demand policy in stimulating growth while maintaining moderate inflation in Aceh.

The third paper, ‘Social capital as determinants to return among women IDPs of the 2004 tsunami in Aceh’, investigates the determinants of the decision of female internally displaced persons (IDPs) in post-tsunami Aceh to return to their original settlements. Data from the 2005 survey by the UN Development Fund for Women on the situation of women after the tsunami are used to explore the existence and use of social capital in post-disaster communities. Although the paper is based on migration literature, its approach differs in looking at the role of ‘resource/origin’ as a pull factor, rather than ‘host/destination’, as generally found in that literature. Using logistic regression analysis, the study finds that women IDPs who have strong associations with friends in temporary settlements and acquaintances from original villages are more likely to return than those with few or no such friendships. Indirect associations with a community through shelter type, shelter size and land ownership are also found to be significant factors in the decision to return. Understanding the determinants of the decision to leave temporary shelter among women IDPs is expected to help refine post-disaster shelter management so it can be more gendered and culturally sensitive.

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External Shocks and Exchange Rate Policy in Indonesia: 1978.4–2004.3

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The aim of the thesis is to examine the effects of innovations – specifically external shocks – on the Indonesian economy. One way to achieve this aim is to build macroeconomic models and then to conduct policy simulation exercises with them.

The thesis begins with a discussion of the key economic features and stylised facts of the Indonesian macroeconomy. The discussion covers the sample period from 1978:Q4 to 2004:Q3. The study identifies the following as key macro variables: the world price of oil; foreign interest rates; a foreign price index; the rupiah exchange rate; foreign reserves; monetary aggregates; the domestic consumer price index; and aggregate output.

The thesis adopts the Structural Vector AutoRegression (SVAR) approach. However, a Vector Error Correction (VEC) model is used to determine the structural relationships among the variables. The VEC model is applied to test for the
presence of a long-run economic relationship between the variables. The SVAR representation is then estimated using the information from the VEC analysis.

Next, a Robust Optimal Control (ROC) model is built. A reduced form (‘quasi’) version of the SVAR model is recast in a State–Space (SS) structure and embedded in the ROC model. A ‘what if’ analysis is then performed to enhance our understanding of the likely effects of various types of policy reactions and impulse responses on the Indonesian economy.

I find that the ROC estimates of the policy reaction functions are as expected in the sense that changes in foreign and domestic variables are followed by the expected depreciation or appreciation of the rupiah. For example, the rupiah appreciates following an increase in the world price of oil or in foreign reserves, and depreciates following an increase in foreign interest rates, the domestic price level and the monetary aggregates. The reaction to a change in the foreign price level is mixed, because it contains at least two effects: an imported inflation effect, which should result in a depreciation, and a favourable export effect, which should result in an appreciation.

The ROC model also generated two dynamic impulse responses based on an optimal and a worst-case scenario. These impulses showed the extent to which uncertainty could affect outcomes and explained how ‘over’ and ‘under’ policy behaviours influence key macroeconomic variables. I found useful lessons: for example, when reacting to an increase in a foreign interest rate, the rupiah over-depreciates. Also, in reacting to an increase in the world oil price, an over-appreciation of the rupiah can cause the domestic price to fall by more. In other words, if the authorities attempt to counteract the actions of an imaginary ‘evil agent’ (whose objectives are diametrically opposed to those of central bankers), by appreciating or depreciating the rupiah by more than expected, this will yield larger consequences for the Indonesian economy.

These findings can be used to inform the authorities (Bank Indonesia and the Ministry of Finance) and help to improve the implementation of stabilisation policy for the Indonesian economy.

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Indonesian Food Demand System: An Analysis of the Impacts of the Economic Crisis on Household Consumption and Nutritional Intake
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As a result of the 1997–98 economic crisis in Indonesia, real household incomes fell, the price of food rose relative to non-food prices, and the price of rice rose relative to that of other foods. This dissertation uses Indonesian household budget survey data from the National Socio-economic Survey (Susenas) triennial module surveys from before and after the crisis (1996 and 1999). The Susenas core and Village Potential (Podes) data sets are merged with the Susenas module data to incorporate characteristics of household members, households and communities in the analysis. These combined data sets are then used to examine the effects of the economic crisis on food consumption and nutritional intake, to estimate
a food demand system that allows simulation of the sensitivity of demand for nutrients (calories, protein, fats and carbohydrates) to household expenditure and food prices, and to simulate the effects of alternative food policies on nutritional intake.

The food demand system is a linear approximation of the ‘almost ideal demand system’ (LA/AIDS). The estimation procedure follows a two-step (Heckman) estimation procedure in order to avoid problems of selectivity bias. The first step involves probit estimation of the decision equations for nine food groups. The second step involves a least squares estimate of nine food demand equations with correction for selectivity. This step also imposes homogeneity and symmetry conditions across equations. The standard error in the second step is not minimal, owing to a contemporaneous correlation problem; this is corrected using a bootstrapping method. Price variables in both steps are corrected for price variations due to quality effects and quantity premiums. This latter correction removes the risk of simultaneity bias in the estimated variables. Finally, the quantity elasticities are converted to nutrient content elasticities using nutrient content proportions.

I find that nutrient consumption is highly responsive to household expenditure. The calorie elasticities with respect to total expenditure are 0.8 in 1996 and 0.9 in 1999. The estimated calorie–rice price elasticities are –0.22 before the crisis and –0.17 afterwards. Nutrition elasticities are also estimated separately for several household groups on the basis of income, location and job sector. The pre-crisis nutrition elasticities are then used to predict the consequences of the crisis. Declines in calorie, protein and carbohydrate intake are predicted relatively well. The post-crisis nutrition elasticities were used to simulate some food policy schemes, including the rice sector trade liberalisation and subsidies for rice and other commodities. The policy simulations also give direction on the design of short-run food safety net programs and long-run food security policy in Indonesia in order to preserve or improve the nutritional status of particular target groups. This study implies that keeping rice prices stable and affordable to the poor is the most effective policy for promoting calorie and protein intake and raising the welfare of all households, especially poor households. Although rice market liberalisation policy can be used to control the rice price and keep it around the world market price, both economic and non-economic factors need to be considered. This study contributes to an understanding of the economic and non-economic implications of plans to liberalise the Indonesian rice price market. More studies and analyses are still needed.

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Three Essays on Institutions
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The first essay studies how poor institutional quality, as evidenced by corruption in public procurement auctions, for example, can harm welfare. I show how competition effects can improve the cost-efficiency outcome but not the quality outcome of a public procurement auction in which corruption is present. In fact, no
incentive mechanism can be efficient in such an auction if the quality offered by each bidder is non-contractible (that is, either non-verifiable ex post or verifiable ex post but with no legal sanctions against corrupt bidders or public officials). A 2006 study of 1,404 semi-electronic procurement auctions by Indonesia’s Department of Public Works suggests that increasing the number of bidders increases percentage cost efficiency, albeit at a decreasing rate, until a certain number of bidders is reached; thereafter percentage cost efficiency declines.

The second essay, written jointly with Iwan Jaya Azis, studies how endogeneity between welfare and institutions recommends the efficacy of subtle institutional reforms that must be exogenous. We use evidence from a field study conducted in five Indonesian districts, and build a model that illustrates how the initial socio-economic conditions and quality of institutions generate certain institutional attributes, such as a particular level of local capture (that is, gaining of influence over institutions, and hence over policy, by local elites), local leadership and participation. By endogenising the degree of local capture, we show how cooperation between local leaders and local elites could affect welfare positively or negatively, depending on initial socio-economic conditions. These institutional attributes, which evolve with changing welfare, create self-reinforcing processes in the long run that could be vicious, virtuous or neutral. The policy question we investigate is how to break a vicious cycle between low welfare and low institutional quality. We argue that institutional reform must be welfare based and context based to allow adjustments to different institutional complexes, including cultural beliefs, social norms and capacities for reform. Reform must be exogenous and multidimensional, requiring welfare and institutions to be mutually reinforcing. In the context of post-decentralisation Indonesia, any multi-dimensional institutional reform must include not only policies to strengthen local institutions, but also policies to increase welfare.

The third essay examines how economic and political institutions intertwine. A theoretical study of a simple strategic, complementary game among partially informed agents such as central banks with private and public information shows that the quality of initial economic and non-economic fundamentals might give rise to different levels of transparency in revealing information. I also show that a multiplicity of equilibria (that is, either high investment, with most or all players investing, or low investment, with most or all players disinvesting) in this incomplete information game with multiple partially informed agents arises in the case of intermediate fundamentals (fundamentals in which there exists a multiplicity of equilibria in the complete information setting), if the precision of private relative to public information is sufficiently low. An empirical study shows that both economic fundamentals, such as the ratio of broad money to foreign exchange reserves, and non-economic fundamentals, such as the occurrence of a crisis and the level of democracy, affect the transparency of central banks. Applying this analysis to an examination of the coordination effect of information on progress towards regional financial integration among East Asian countries, I find that progress might rely more on political than on economic fundamentals.

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