

Impact of Foreign Direct Investment on Income Distribution in Malaysia: Social Accounting Matrix Framework

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This paper presents the construction of Malaysia's SAM to analyze foreign direct investment impact on income distribution in Malaysia. The paper will describe the structure of SAM with its detail aggregation and disaggregation of accounts related to the above issue. In this SAM the detail framework of the component of foreign direct investment in various sectors, production sectors and household groups are essential to analyze different effects from different components of foreign direct investment on the household's income distribution among different household groups. This structure of SAM would answer the question of either and which component of foreign direct investment will benefit the most to the poor. Other accounts such as accounts for companies, accounts for government, and account for the Rest of the World are at the aggregate form.

JEL Codes: H5, I38 and O15

1. Introduction

Foreign direct investment (FDI) has recently been linked to income inequality within societies and quite substantial literature exists in developed countries, for example, Berman and Machin (2000), Caves (1996), Taylor and Driffield (2000), Robertson (2000);, Rodrick (1997). Comparatively little attention has been paid to the effects of FDI on income inequality in developing countries including Malaysia. Among others, studies such as Ishak (2000) and Rasiah and Ishak (2001) point to the possible cause over the rising trend of income inequality in Malaysia as being a government policy reversal towards liberalization, deregulation and privatization since the late 1980s. They suggest that international openness and foreign direct investment (FDI) benefit most to the domestic residents who are already well-off in the sense that rich groups are better able than others to take advantage of the opportunities offered by trade expansion.

Since the 1990s, FDI has been an important source of economic growth for Malaysia, bringing in capital investment, technology and management knowledge needed for

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economic growth. FDI had increased almost twenty-fold from the 1970s to the 1990s, from \$94 million dollars in 1970 to \$2.6 billion dollars by 1990. The financial crisis of 1997 reduced the FDI into Malaysia. Since the early of 2000s, the FDI flows in Malaysia tend to be inconsistent and fluctuate randomly, however, it also achieves an average inflow of US\$3 billion per year.

For the period 2003-2007, manufacturing, financial intermediation, mining and services were the main four sectors of FDI recipients. The manufacturing sector remained dominant and accounted for more than half of the total FDI. This was followed by financial intermediation. Although the FDI in the agriculture sector surged tremendously during 2005-2007, FDI in this sector is still extremely low recorded at 3.7% of total FDI as compared to 52.6% in manufacturing and 15.6% in financial intermediation.

While it is agreed that the most important benefit of FDI for Malaysia is that FDI could improve the standard of living by creating more employment, the FDI concentrated in a few sectors could have a significant impact on the increase in income inequality; particularly low FDI in agriculture sector as the poor, mostly Malay, are living in rural areas and are involved in the agricultural sector. In other words, the FDI is located in few skill-intensive sectors or skill-intensive segments within sectors and causes a relative expansion of skill-intensive sectors that will improve the relative position of skilled workers and raise wage inequality. The points here show that FDI can be expected to increase wage inequality in contrast to the prediction by traditional trade theory (Heckscher Ohlin model) that FDI reduces wage inequality in developing countries because FDI would allow developing countries to specialize in less-skilled intensive activities.

To study the impact of FDI on income distribution this study will construct a Social Accounting Matrix (SAM) framework for Malaysia. The study will describe the structure of SAM with its detailed aggregation and disaggregation of accounts related to the above issue. In this SAM the detailed framework of the different FDI in various sectors, production sectors, labour and household groups are essential to analyze different effects of FDI on the income of the households among different groups. This structure of SAM would answer the questions of whether and which components of the FDI expansion will benefit the poor.

The applying of SAM in income distribution analysis is a method always suggested by policy makers and academic economists. The continuing problem of income inequality not only in Malaysia but also in other developing countries makes policy makers and academic economists amend existing macro-economic policy tools and develop new ones in order better to understand the channels through which adjustment policies affect the poor. They believe SAM can provide a complete picture of the impact of any adjustment policies on the economic system, particularly the impact on income distribution. This method could provide answers to the questions: at the present, who gets what as a result of economic activity? And who generates this income? What do the poor get from the economic activity?

For evaluating FDI impact on income distribution, development macro-economists and policy analysts, in general, use a variety of policy tools including econometric models, cost-effectiveness analysis, multi-criteria analysis, investment tracking and social cost benefit analysis. These existing tools relied on estimation procedures that have not accounted for the complex interactions among FDI, income distribution and other variables and the endogeneity of the income distributions.

2. Literature Review

The use of SAM in income distributions gained momentum some thirty years ago. This surge was closely related to the growing dissatisfaction with the results of growth policies in developing countries. The frustrating results of such policies, in particular with regard to their distributional impact, shifted attention to questions concerning the processes and mechanisms by which the production of goods and services, income formation and income distribution relate to each other. To examine these kinds of question, data would be required that would enable a comprehensive analysis of these aspects of the economic process. The existing data framework such as the conventional national accounts and input-output tables, however, provided only part of the data required for such analysis.

Among the initial efforts to incorporate the distribution of income in the SAM framework are Pyatt and Round (1977) for their development planning for the World Bank, Adelman-Robinson (1978) for his study in Korea and Ahluwalia and Lysy (1979) for their study in Malaysia. The SAM framework has had a relatively short history in Malaysia. Among the pioneers of SAM in Malaysia were Ramesh et al. (1980) who studied the distribution of income for the Malaysian economy in 1970. About the same time, the equilibrium model was introduced by Ahluwalia and Lysy (1979). The model, however, is mainly theoretical issues, a huge and complex structure. In collaboration with EPU, the World Bank experts, Pyatt, Round and Denes constructed a national SAM for the Malaysian economy in 1970 which distinguished between the Peninsular Malaysia (West) and States of Sabah and Sarawak (east) in 1984. More recent work was done by Zakariah (2005) which discussed the theoretical issues on the SAM applications in policy formulation in Malaysia.

SAM strength over the other tools lies in the modeling of the distribution of income in a consistent way and its ability to trace out chains of linkages from changes in demand to changes in production, factor incomes, household incomes and final demands. Probably, more than any other issue, the distribution of income results from a complex set of relationships that requires a general equilibrium model analysis such SAM.

SAM incorporates all major transactions within a socio-economic system (Thorbecke, 2000). It draws on the architecture of general equilibrium models. Therefore, what happens at one point on the transaction will have implications on other transactions. This translates into the notion that, at some point, there is a need for being equally concerned with all the different aspects of technology and behaviour that together describe the circular flow and connections that characterize an economy (Pyatt, 1991). The SAM therefore offers a disaggregated view of value flows, detailing the direct

linkages between accounts but also pointing out the scope of the underlying indirect interactions (Roland-Host and Sancho, 1995).

Nevertheless, the size and quantitative nature of the SAM model place enormous strain on the data base and limit the number of variables which can be feasibly incorporated and the accuracy of the data. In addition, a high level of disaggregation required in the model can only be assembled from censuses and surveys which are usually conducted infrequently and at different times and from different resources.

There is a growing group of studies which indicate that economic liberalization and globalization tend to cause deterioration in income distribution. Te Velde (2001) found evidence that multi-national activity for US manufacturing sector was biased towards using skilled workers, but Blonigen and Slaughter (2001) found that multi-national activity was not significantly correlated with skill up-grading for the period 1977-1994. Figini and Gorg (1999) found that FDI was associated with skill up-grading and increase wage dispersion in Irish manufacturing over the period 1979-1995. Taylor and Driffield (2000) found significant effects of FDI on wage dispersion in UK manufacturing. Berman and Machin (2000) suggested that FDI could induce faster productivity growth of labour in both foreign and domestic firms. If such productivity growth is skilled- biased, FDI may increase skilled-biased technological change. Caves(1996) argue that multi-nationals firm are different from local firms where they tend to be larger, pay higher wages, are more capital and skill intensive and introduce more up-to-date technology. Some characteristics of multi-nationals relate simply to the size of the firm, which is often related to higher wage, more training and usage of the latest technologies (Tan and Batra, 1997). Te Velde and Morrissey (2002) found evidence for the effects of FDI on wages and wage inequalities in five East Asian countries (Korea, Singapore, Hong Kong, Thailand and Philippines).

3. Methodology

The paper constructs a structure of SAM for Malaysia to provide a framework to see the impact of FDI on household income distribution. The SAM will give focus on distribution of income among ethnic groups across regions and different sectors of production which FDI could affect the poor. The incorporation of FDI in different sectors in the SAM, then, is to see the different impacts of FDI on income distribution. Hence, the structure of the SAM will present the initial conditions which prevail in an economy and can trace the channel through which FDI affects various segments in the economy, particularly the poor.

The construction of SAM is basically inspired by the works of Keuning and Thorbecke (1989), Pyatt and his associates (Pyatt, 1991; Pyatt and Round, 1985, 1979, 1977; Pyatt, Round and Denes, 1984), Agenor et al. (2003), Emini (2002), Emini and Fofack (2004) and Kubursi (1973).

Following the objective of the study, ten accounts in the Schematic SAM (Table 1) are identified which can be grouped into five broad categories, i.e., production activities, institutions (household, company and public sector), FDI, indirect tax and other

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accounts. The schematic SAM pictures the inter-relationships among these accounts in the economy within a single accounting framework. The distributional income among economic agents can be traced by looking at the flows around the Schematic SAM which may be viewed as a systematic data system, furnishing initial information on production structure, income distribution among agents, capital distribution, tax structure and external flows. It clearly shows that the Schematic SAM focuses on the production sectors, FDI and household accounts.

The production sectors produce different sectoral goods and services to various categories of intermediate and final users. Each production sector sells its output to other industries as intermediate input (1,1), to the household (1,2) and government as the final consumption of domestic commodities, to the domestic private sector (1,8) and foreign private sector (1,9) as capital and to the rest of the world (ROW) as export (1,10). Production sectors produce outputs by buying intermediate inputs, that is, buying raw materials and intermediate goods and services from other sectors (1,1) and imported raw materials (10,1). These sectors also pay indirect taxes to the government (5,1). The remainder, that is, by definition value added, is distributed to various institutions in the economy; households and companies.

In SAM, households really represent all the people in the society. It is important to consider the household as an institutional unit in SAM. Households are often considered to be behaviourally distinct units that make economic decisions about the supply of labour and consumption expenditure. Furthermore, definitions of poverty or economic welfare are often expressed in terms of per-capita household income and consumption. The household thus becomes the natural focus of SAM analysis. Households receive factor income from the ownership of their services to production sectors in the forms of wages and other labour income (2,1), inter-household transfer (2,2), distributed profits and transfer from companies (2,3), transfer from government (2,6) and transfers from the rest of the world (ROW) (2,10). These amounts of income then are spent on the consumption of domestic commodities (1,2) and consumptions from abroad (10,2), commodities taxes (5,2) and income taxes (6,2) and inter-household transfers (2,2), with residual savings transferred to the private capital account (8,2), (9,2).

Companies are the entities that 'own' the capital stock and, hence, receive profits (3,1) and non-factor income from abroad (3,10). Out of their income, they pay some in commodities taxes (5,3) and corporate taxes to the government (6,3), pay factorial and non-factorial income and net investment abroad (10,3), spend on distributed profits and transfer payments (2,3) to households and savings to the domestic (8,3) and foreign private capital account (9,3).

The approach assumes that FDI in the production sectors ultimately somehow benefits the household sector. Therefore the FDI plays an important role in the redistribution process. The foreign companies invested money on buying the product and services provided by the domestic production activities (1,4).

The public current account receives direct taxes from households (6,2) and companies (6,3), indirect taxes (6,5) and non-factor income from abroad (6,10). The public current

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account allocates its current expenditures on buying the product and services provided by the domestic production activities (1,6), transfers to households (2,6) and imported commodities (2,10). The remaining savings or current account surplus is transferred to the public capital account (7,6). Together with the sources from domestic (7,6) and abroad (10,6), the public capital account allocates its investments on domestic production activities (1,7), capital taxes (5,7) and imported capital goods from the ROW (10,7).

The domestic private sector receives capital from households saving (8,2), company saving (8,3), and from external sources (8,10). This domestic private capital then allocates its investments in production activities (1,8), capital taxes (5,8), domestic capital to public sector (6,8) and imported capital goods (10,8).

Finally, transactions between domestic residents and foreign residents and changes in inventory are recorded in the other account. On the other account receipt side, Malaysian households, companies and government expenditures on imported final goods and imported capital goods and factor and non-factor income payment. The economy receives incomes from the other account from exports, factor and non-factor income earned and export and import levy.

Based on this schematic SAM, a macro-aggregate Malaysian SAM is built as shown in Table 3. The Malaysian macro SAM shows an aggregate value of each account which could act as a control value for building up detailed Malaysian SAM. The level of disaggregation of the individual accounts depends crucially on the question that SAM is expected to answer. In this case, for studying the impact of FDI on income distribution bring to the importance of the composition of FDI, different categories of production activities, household inter-ethnic disparity and the urban-rural bias, which capture the different dimensions of income inequality. The disaggregation could capture how changes in FDI that affect various production structures are transmitted to household sectors.

As the treatment of FDI is of particular interest, the framework should incorporate a detailed breakdown of FDI in various sectors. An essential point in this context is not only that larger aggregate FDI today might generate a higher aggregate output tomorrow, but that the pattern and destination of FDI may be more important determinants of future equity and growth.

The account of various production sectors is crucial in this SAM as FDI affects income distribution through transmitting investment to the household sector by investing in various production sectors. For sectors that have higher FDI, companies receive higher profits than from non-FDI and, consequently, stockholders and workers in those sectors, respectively, *ceteris paribus*, will receive higher dividends and higher wages.

Related to the income distribution analysis, the framework emphasizes most notably on the household group differentiation in the transmission of FDI to the poor. The disaggregation of the household sector can capture how changes in various production structures are due to FDI transmission to the household sector. The disaggregation of

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the household sector is based on socio-economic groups rather than on income levels. Being a multi-racial country, it is crucial to distinguish four major ethnic groups for the household, namely, Malay, Chinese, Indian and others¹. This disaggregation is very important as income equality among ethnic groups has been an important government development strategy since independence. Besides focusing on the income distribution among ethnics, due to the fact that the majority of the poor lives in rural areas, the distinction of households between rural and urban areas is also very important. The urban-rural area disaggregation is useful since the distinction captures many aspects of duality. Typically, the urban sector contains the labour force that has relatively substantial skill specificity, good working conditions, high pay and high job security. The rural sector, on the other hand, consists of jobs that relatively do not possess much skill specificity, and have poor working conditions, low pay and little job security. The distinction is also made between citizen and non-citizen categories since it is believed that the number of foreign workers has influenced significantly the pattern of the domestic labour force as most of the foreign workers are employed in plantation and agriculture and construction.

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Table 1: Schematic SAM for Malaysia

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|----|-----------------------------|--|---|---|-----------------------------|----------------|---|--|--|---|-------------------------------|-----------------------------------|
| | | Production sectors | Household | Companies | FDI on domestic commodities | Indirect taxes | Public current | Public capital | Domestic private capital | Foreign private capital | Other account | Total |
| 1 | Production sectors | Raw materials purchase of domestic commodities | Household consumption on domestic commodities | | FDI on domestic commodities | | Public current expenditure on domestic commodities | Public investment in production activities | Domestic Private investment in production activities | Foreign Private investment in production activities | Exports | Gross output |
| 2 | Household | Compensation of employee and other mixed incomes | Transfer | Distributed profit and current transfer | | | Transfer | | | | Income receive from abroad | Total household income |
| 3 | Companies | Business corporate profits | | | | | | | | | Nonfactor income from abroad | Total companies income |
| 4 | FDI on domestic commodities | | | | | | | | | | FDI on domestic commodities | Total FDI on domestic commodities |
| 5 | Indirect tax | Commodity taxes | Commodity taxes | Commodity taxes | | | | Capital taxes | Domestic capital taxes | Foreign capital taxes | Exports/Imports levy | Total indirect taxes |
| 6 | Public current | | Income tax | Corporate tax | | indirect taxes | | | Domestic capital | Foreign capital | Nonfactor income from abroad | Total public current |
| 7 | Public capital | | | | | | Public current surplus | | | | Capital transfer from abroad | Public capital |
| 8 | Domestic private capital | | Household saving | Local companies saving | | | | | | | Capital transfer from abroad | Domestic private capital |
| 9 | Foreign private capital | | | Foreign companies saving | | | | | | | Capital transfer from abroad | Foreign private capital |
| 10 | Other account | Import of raw materials | Household consumption on imported commodities | Factorial and non factor income paid abroad | | | Public consumption on imported commodities and current transfer | Public investment on imported capital | Domestic Private investment on imported capital | Foreign Private investment on imported capital | Balance of goods and services | Total other demand |
| | Total | Gross inputs | Total household expenditure | Total companies expenditure | FDI on domestic commodities | Indirect taxes | Total public current | Total public capital | Total domestic private capital | Total foreign private capital | Total other account | |

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Table 2: Malaysia Macro-SAM

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|-----------------------------|-------------------|------------|-----------|-----------------------------|----------------|----------------|----------------|--------------------------|-------------------------|----------------|---------|
| | (RM Billion) | Production sector | Households | Companies | FDI on domestic commodities | Indirect taxes | Public current | Public capital | Domestic private capital | Foreign private capital | Other accounts | Total |
| | | | | | 30.5 | | | | | | | |
| 1 | Production sectors | 271.7 | 116.583 | | | | 34.862 | 10.597 | 10.284 | 30.5 | 422.299 | 896.828 |
| 2 | Household | 152.303 | 3.819 | 22.734 | | | 7.861 | | | 0 | 1.301 | 188.018 |
| 3 | Companies | 192.967 | | | | | | | | 0 | 8.674 | 201.641 |
| 4 | FDI on domestic commodities | | | | | | | | | 0 | | 30.5 |
| 5 | Indirect tax | 8.407 | 9.213 | 0.3 | | | | 0.303 | 0.2945202 | 0.8734798 | 1.086 | 20.477 |
| 6 | Public Current | | 7.015 | 27.263 | | 20.477 | | | | 0 | 0.444 | 55.052 |
| 7 | Public capital | | | | | | 11.557 | | 2.748 | 8.149 | 0.864 | 23.32 |
| 8 | Domestic private capital | | 7.9951277 | 20.163643 | | | | | | | - | 25.38 |
| 9 | Foreign Private capital | | 20.788872 | 52.429357 | | | | | | | - | 75.26 |
| 8 | Other accounts | 271.451 | 22.605 | 78.751 | | | 0.772 | 12.42 | 12.05 | 35.737636 | -5.715 | 428.07 |
| | Total | 896.828 | 188.019 | 201.641 | 30.5 | 20.477 | 55.052 | 23.32 | 25.38 | 75.26 | 428.07 | 1967.52 |

Source: Input-output Table 2000, 2005, DOS; Final National Accounts Statistics Malaysia 2000,2005, DOS; Distribution and Use of Income Account and Capital Account 2000-2002, 2007, DOS;

Economic Reports 2000/2001, Treasury Malaysia; BNM Quarterly Bulletin, Fourth Quarter 2001, Ministry of Finance.

Note: Table based on the Schematic SAM.

4. Concluding Remarks

The purpose of this paper is to construct the Malaysian SAM to study the income distribution impact of FDI in various sectors. The detailed structure of the SAM allows an analysis of the impact of the increase in FDI in the economy; inter-sectoral and inter-institutional income linkages, particularly on household poor.

The framework that incorporates the detailed components of FDI in various sectors is able to show different effects from FDI on income distribution as these different FDI absorb different sectors purchases and, therefore, exhibit differences in income generation and distribution of income. In relation to this, the detailed framework of different sectors that characterize different production sectors in the economy which could exhibit differences in income generation and the detailed framework of different household groups that characterize the income inequality between ethnics and regions which could exhibit a distribution of income are required to complement the framework. Organizing FDI by sectors in SAM represents an improvement over the prevailing literature on this subject which emphasizes the importance of the FDI in various sectors.

Endnotes

ⁱ Other group comprise of minority ethnics who are mostly located in the east Malaysia such as Iban, Kadazan, Bajau, Murut, etc.

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