ASSESSING THE LEVEL OF UNiTY AND INTEGRATION IN MALAYSIA USING THE SYSTEM DYNAMICS SIMULATION MODEL

Associate Professor Yap Yin
yappunyayin@yahoo.com

Abstract

Social capital plays an important role in enhancing the efficiency of political institutions, and the economic performance of nations. Malaysia is a multiracial country with a population of 22,2 millions. The four main ethnic communities are the Malay, Chinese, Indian and the indigenous people of Sabah and Sarawak. The indigenous people account for only about 12 per cent of the population but they comprise of nearly 37 ethnic groups and sub-ethnic groups. As such the importance of maintaining close social bond which encompasses national unity and integration is an important social agenda needed for a successful transformation of the Malaysian society both economically and politically. This study attempts to assess the level of unity and integration among the diverse ethnic communities of Malaysia on the basis of the hard economic variables extracted from the 1991 and 2000 Population and Housing Census Reports of Malaysia and a sample survey on the social capital of the ethnic communities. A System Dynamic which integrates both the hard economic variables and the perceived social capital of the ethnic communities is constructed to simulate the scenarios based on different policy options on the government in terms of affirmative action plan.

The hard economic variables comprise of highest educational attainment, occupational hierarchy and participation in the industrial sectors, while the soft variable or the social capital component that include seven dimensions - trust, reciprocity, community efficacy community integration, sociability and quality of life. The former is based on secondary data analysis while the latter is captured through the field survey via structured questionnaires. The weighted aggregated selectivity ratios are computed for both the hard variables and the soft variables. These two ratios are aggregated to obtain the composite weighted aggregated selectivity ratios (CWAS) for each ethnic community. From the results obtained, strategies are suggested to address issues relating to unity and integration in Malaysia

INTRODUCTION

There is increasing recognition among policy makers and the public that conventional inputs such as investment in human and physical capital, and technology determine only partially the process of economic growth. This is because these three types of capitals do not consider the effects of interactions among themselves on growth and development. The missing link in the equation of development is the social capital which is used by many in explaining the economic performance of nation states and communities (Knack. S. et. al, 1997). As such, the traditional components of inputs need to be broadened to include social capital. Social Capital refers to the internal social and cultural coherence of society, the norms and values that govern interactions among the people and the institutions in which they are embedded. Social Capital is the glue that holds society together without which they can be no economic growth and human well being and thus society at large will collapsed.

Recent interdisciplinary studies suggest that social capital, or the extent to which citizens are willing to cooperate with each other on the basis of interpersonal trust, plays an important role in explaining both the efficiency of political institutions, and the economic performance of contemporary societies (Whitley, 2004, Putnam, 1993:83-116, Coleman, 1990: 149-255). The basic literature of social capital states that social organization such as network norms and trust play an effective role in facilitating the coordination of actions within and among groups. This contention seems to concur with the widespread adage " it is not what you know, but who you know". Social capital literature tends to support the contention that social capital reduces the cost of business transactions and facilitates cooperation, collective action and coordination of action. It also improves the flow of information in social networks
(Haralambos and Holborn, 2000). The network of communication promotes the flow of correct information, shared cognitive capabilities and the understanding of information. There is also evidence that shows that close cooperation between government and industry can enhance efficiency which is crucial for continual growth and sustainable development. However, in regions or communities where the level of social capital is low as indicated by the World Bank Social Capital Initiatives, many economic development projects are not sustainable. For instance, in Gujarat, India, violent confrontations between local people and government officials over the way forest were managed led to economic stagnation. After the communities were mobilized and joint forest management was instituted, conflicts declined which resulted in the increase of land productivity and village income (Path an & others 1993).

In Malaysia, over the past three decades or so, the government has introduced several major development policies in an effort to bring about rapid social and economic changes to the country. These policies among others include the New

Economic Policy (NEP, 1971-1990), the National Development Policy (NDP1991-2000) and the current National Vision Policy (NVP, 2001-2010) as well as the various Five -Year National Development plans initiated by the Government to promote national unity and integration while pursuing the developed nation status as spelt out under the Vision 2020 Policy. These policies are being further entrenched in the Third Outline Perspective Plan OPP3, 2001-2010) and have resulted in significant progress in the socio-economic well being of Malaysia. Hence, it can be seen that the model of development adopted by Malaysia under the various development plans was based on a philosophy of growth with equity or " growth with equitable distribution". Growth has to benefit all groups in society in an equitable manner. The government emphasizes that steps must be taken to ensure this even if it might lead to a slower growth. This is seen as particularly crucial for a heterogeneous society like Malaysia's wherein the potential for inter-group conflict is inherent.

 As spelt out in Vision 2020, it is envisaged that by the year 2020, Malaysia can be a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically-just and equitable, progressive and prosperous and in full possession of an economy that is competitive, dynamic, robust and resilient. Achieving national unity and integration of the population of Malaysia as indicated in the second and third dimensions of Vision 2020 is important to Malaysia. This is because to achieve a developed nation status by 2020, the overriding objective is not merely rapid economic growth but also this growth and development must also infuse with it the elements of social cohesiveness and cooperation among the multiracial and pluralistic community that Malaysia has in nation building.

In Malaysia, the diversities in terms of ethnic compositions, linguistics, and cultural and religious differences among others make unity and national integration the core element in the country's dynamic progress in the future. Thus national Unity should be made the ultimate goal of socioeconomic development in the long run in Malaysia.

The NDP, National Vision Policy (NVP), and OPP3 are complementing the overall strategy of Vision 2020 by focusing on social capital issues, with emphasis on creating trust, sustaining norms, building networks, strengthening trust and partnership between the people of diverse ethnic groups between and within, Sabah, Sarawak and Peninsula Malaysia. One of the prime objectives of NVP, for instance was aimed at establishing a progressive and prosperous 'Bangsa Malaysia'(Malaysian race) that lives in harmony in full and fair partnership. This necessitates the need to look at the social capital and how to harness it for the nation's development.

Currently there is no specific model formulated to gauge the level of unity or integration of a country or a state. To measure national unity and integration in Malaysia, it is necessary to consider both the hard economic variables which affect the livelihoods of the diverse ethnic community in Malaysia as well as the level of their social capital. All these values pertaining to social cohesion and quality of life are espoused in the New Economic policy (NEP), Vision 2020, New Development Policy (NDP) and the OPP3. All these strategic plans are formulated with the emphasis on creating trust, sustaining norms, building networks, strengthening trust

and partnership between the people of diverse ethnic groups between and within Sabah, Sarawak, and Peninsula Malaysia   This calls for a study like this one**.** The main aim of this study is to construct a dynamic model comprising both the hard economic variables and the "soft" variables – the perceived level of social capital of the population of Malaysia as an indicator of national unity and integration of Malaysia.

Definition of social capital

The definition of the term "social capital" can be viewed in a progressive way. The narrowest concept of social capital is associated with Putnam (1993) who viewed social capital as a set of horizontal associations between people: social capital consists of social networks (network of civic engagement) and associated norms that have an effect on the productivity of the community. The key feature of this definition is that it facilitates coordination and cooperation for the mutual benefits of the association. On the other hand, Cohen and Prusak, (2001) defined social capital as "the stock of active connection among the people; the trust, mutual understanding and shared values and behaviours that bind the members of human networks and communities and make cooperative actions possible".

A broader concept of social capital was introduced by Coleman (1988), who includes vertical as well as horizontal associations together with other entities such as firms. The vertical association describes the hierarchical relationships and an unequal power distribution among members.

The most encompassing view of social capital includes the social and political environment that enables norms to develop and shape the social structure. This view, as put forward by Woolcock (1998:151-208), includes the more formalized institutional relationships and structures such as government, rule of law, civil and political liberties. He also suggested the three dimensions of social capital, namely:

- *bonding capital: - relationships among family members, close friends and neighbors*
- *bridging capital: the capacity to leverage resources, ideas, information from formal institutions beyond community*
- *linking capital: the capacity to leverage resources, ideas, information from formal institutions beyond the community*

Each dimension can be studied at the micro, meso and macro levels in terms of bonding social capital, bridging social capital and linking social capital respectively. In the case of a state with many ethnic communities, the bonding social capital refers to the cohesion which exist within an ethnic community, while bridging social capital refers to the networks of relations and trust between different ethnic communities. At the macro level, the linking social capital refers to the vertical relation between a community and the government agency or central policy makers. These views on social capital enlarge the concept of social capital from mostly informal and local horizontal associations to include hierarchical associations and formalized national structures. Thus it can be concluded from these studies that there are three common features in social capital as follows:

i.   Any outcome or outcomes from the social, political and economic sectors will result in interaction effects
ii.   All the definitions recognize the potential created by social relationships for improving economic outcome. However, the outcome that prevails would depend on the nature of the relationship (horizontal versus hierarchical) and the wider legal   and political context
iii. Focus on relationships among economic agents and between the formal and informal organization and how these relationships can improve the efficiency of economic activities.

Objectives of the study

1. To do a study on the role of social capital and social cohesion as the main determinants of the national unity and integration of Malaysia
2. To compile and analyse the human capital base and social cohesion of the major ethnic communities of Peninsula Malaysia, Sabah and Sarawak based on secondary data.
3. To conduct a survey to quantify the levels of social capital and social cohesion of all the major ethnic communities of Malaysia, at the micro-level (individual/family/friend), intermediate level (neighbourhood/community) and macro-level (region/division/state).
4. stem Dynamic model will be built to provide the framework and procedures for the qualitative and quantitative description, exploration and analysis of the level of social capital and social cohesion of the three regions of Malaysia
5. The Model will be used to simulate the scenarios of Malaysia in the context of national unity and integration based on current policies as well as the proposed range of policy options.
6. To recommend appropriate strategies and action plans pertaining to national unity and integration.

Diagram 1

CONCEPTUAL FRAMEWORK OF THE STUDY
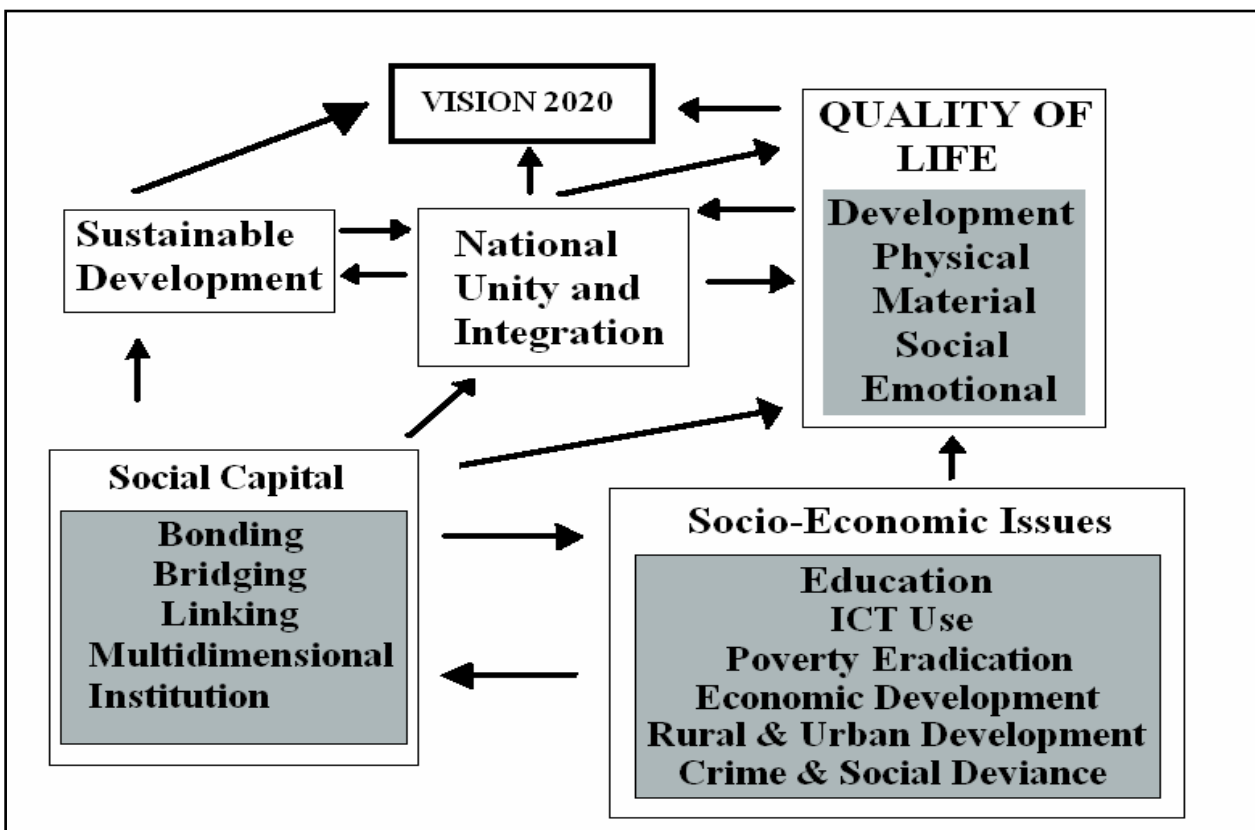
The above schematic diagram shows the inter-connections of the key determinants of attaining vision 2020. The three main dimensions of Vision 2020 are :

- the attainment of GDP per capita comparable to that of a developed nation (using the World's Bank criterion on the minimum GDP per capita of a developed nation)
- the attainment of a high level of quality of life through sustainable economic development
- the attainment of nationality unity and integration

The above diagram shows that national unity and integration are inter-connected with **Quality of life** and **Sustainable Development**. In general, sustainable economic development in terms of the growth of the value of production (GDP) correlates positively to the quality of life.

According to the: Malaysian Report on Quality of Life, 2002[1], Quality of Life is defined as:

" *encompassing personal advancement, a healthy life style, access and freedom to pursue knowledge and attaining a standard of living which surpasses the fulfillment of the basic and psychological needs of an individual, to achieve a level of social well being compatible to the nation's aspiration"*

Sustainability is: *"..development that meets the needs of the present without compromising the ability of the future generations to meet their own needs"*

<div align="right">World Commission on the Environment and Development</div>

A Sustainable Society is: *"..characterized by emphasis on preserving the environment, developing strong peaceful relationships between people and nations and an emphasis on equitable distribution of wealth"*

<div align="right">Co-op America</div>

The efforts on the part of public service agencies to resolve socioeconomic issues will contribute in a positive way the creation of a civil society held together by:

- the bonding of family units within a community
- the bridging of diverse ethnic community and
- the linking of communities with public service agencies
Such partnership will have an impact on the **Quality of Life** and **Sustainable Development** which constitute the foundation of national unity and integration.

METHODOLOGY OF THE STUDY

This study attempts to assess the level of unity and integration among the Malaysian on the basis of a study of the major ethnic communities of Malaysia... For this purpose, a system dynamics is constructed to monitored over time, and to unveil the subtle changes in the political or economic conditions of a Malaysia. They are analyzed based on the latest national census data on educational attainments, occupation as well as household income by region and by ethnicity. The *soft variables or the s*igns are short term indices which represent the perceptions and views of the people at any one time. *This*

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[1] The descriptive part of this section is taken from ,Economic Planning Unit, Prime Minister Department ,Malaysian Quality of Life,2002:National Printing Department, 2002

provide*s* the signal for any fundamental changes in the country's situation(s) or the deterioration of inter-community relations.

For this study, the soft variables or the social capital *encompasses* seven (7) variables- Trust*,* Reciprocity*,* Social Cohesion and Excl*usion,* Community Efficacy*,* Sociability*,* Quality of Life *and* Community Integration*.* To collect information on the soft variables, a structured, stratified quota sampling is conducted based on the population of the region.

- Individual or micro level (Family or household unit level)
- Community of mezzo level (community or ethnic-based level)
- Macro level for the nation as well as for each region (regional, or State level)

A sample of 3200 respondents collected over eighteen months period covering all sectors and levels of communities in Malaysia are used in the analysis of the study. The weighted aggregated selectivity ratios are computed for both the hard variables and the soft variables. These two ratios are aggregated to obtain the composite weighted aggregated selectivity ratios (CWAS) for each ethnic community in Sarawak. The System Dynamic model is used to simulate the CWAS for each ethnic community from 2006 to 2050.

EMPIRICAL ANALYSIS OF THE HARD VARIABLES

To enhance national unity and integration, it is important to achieve parity in terms of the educational opportunities, occupational stratification as well as economic opportunities among the diverse ethnic groups in the country. The importance of attaining parity in educational opportunities among the diverse ethnic groups in the country is contained in the various development plans where the Government uses education as a means to promote the sustainability of economic progress and thereby promoting social cohesion, integration, and unity. *In addition,* the government is also aiming for parity of occupational stratification which implies an equitable distribution among the ethnic communities for the various echelons in the occupational hierarchy. Attaining this parity is important because if the majority of an ethnic community is excluded from the higher strata of society, this would result in them feeling excluded from participating in the larger society and eventually reduces the potential for social solidarity. Similarly, attaining economic parity is important for national unity and this can be achieved if each ethnic group is well represented in each sector of the economy.

In order to monitor the overall dynamics of each ethnic group with respect to each economic sector, an indicator known as Selectivity Ratio is used. Selectivity Ratio is the measure of the parity of each ethnic community for a particular economic variable. The Selectivity Ratio of the participation of an ethnic group in a particular Sector-whether primary, secondary and tertiary is obtained by dividing the percentage of the selected ethnic group in the Primary sector by the relative size of the ethnic group in the population.
For example, if 33 per cent of all the Chinese labour force in Malaysia have tertiary education and if the percentage of Chinese in the Malaysia population is 26 per cent then Selectivity Ratio of Chinese labour force with tertiary education is obtained by

dividing 33 by 26, which is 1.27. This implies that the Chinese labour force with tertiary education is 27 per cent more than its proportion in the population on Malaysia. To compare the parity of socio-economic progress of each ethnic community, it is necessary to aggregate the Selectivity Ratios of each ethnic group with respect to educational attainment, occupational structure and the participation in the labour force for a particular time period. Using the same method of calculation, the weighted aggregate means for the industrial sector, education attainments and occupational structure of the ethnic groups for 1991 and 2000 are computed. S
Based on the 1991 and 2000 Population and Housing Census Reports, the annual growth rate of the population of Malaysia is found to be 2.23 per cent per annum. Hence the population increases from 21.88 million in 2000 to 63.61 million in 2050. However, as the country progresses, there will be a decline in fertility, as in the case of most developing countries and the population in 2050 will be less than 60 million.

1.1 Analysis of the Highest Educational attainments of aged group 10 years and above

According to the Malaysia's Third Outline Perspective Plan (2001 -2010), the success of Malaysia is in attaining its vision to produce a competent, disciplined and highly skilled labour force with strong ethical and moral values and commitment to excellence. economic development and the transmission of society's norms and values. The This is in line with that education plays an integrative role in promoting French sociologist Emile Durkheim maintained that

" Society can only survive if there exist among its member a sufficient degree of homogeneity; education perpetuates and reinforces this homogeneity by fixing in the child from the beginning the essential similarities which collective life demands" , Durkheim 1961

Currently there is a big performance gap between urban and rural schools in Malaysia. This is seen in the following table"

Table 1

Parity of Educational Attainments of Sabah, Sarawak and Peninsula Malaysia Of
Population 10 Years and above -2000

Educational Attainment		Sabah	Sarawak	West Malaysia	Total
None	No	1,114,546	848,758	6,141,317	8,104,621
	%	13.75	10.47	75.78	100.00
	SR	1.23	1.18	0.95	
PMR/LCE	No	269,841	244,807	2,517,139	3,031,787
	%	8.90	8.08	83.02	100.00
	SR	0.80	0.91	1.04	
SPM, SC, MCE, GCE "O" Level	No	268,330	245,017	3,309,727	3,823,074
	%	7.02	6.41	86.57	100.00
	SR	0.63	0.72	1.08	
STPM, HSC, GCE "A" Level	No	33,099	24,901	326,177	384,177
	%	8.62	6.48	84.9	100.00
	SR	0.77	0.73	1.06	
SPVM, Vocational	No	4873	4345	80871	90,089
	%	5.41	4.82	89.77	100.00
	SR	0.48	0.54	1.12	
Certificates, Dipolma, Trade & Technical Institute	No	5594	5518	97,546	108,658
	%	5.15	5.08	89.77	100.00
	SR	0.46	0.57	1.12	
Certificates, College, Polytechnic	No	8822	6824	102,728	118,374
	%	7,45	5.77	86.78	100.00
	SR	0.67	0.65	1.09	
Degree, Advanced Diploma	No	17,829	15,295	360,099	393,223
	%	4.53	3.89	91.58	100.00
	SR	0.41	0.44	1.15	
Post Graduate, Certificates, Diplomas	No	3925	3652	53,445	61,022
	%	6.43	5.99	87.58	100.00
	SR	0.57	0.67	1.10	
Post Graduate Degrees	No	6927	7637	114,279	128,843
	%	5.38	5.93	88.69	100.00
	SR	0.48	0.67	1.11	
Total		1,733,786	1,406,754	13,103,328	16,243,868

Sources: Compiled from the Education And Social Characteristics Of the Population, Population And

   Housing Census of Malaysia 2000

● SR = Selectivity Ratio

Table 1 shows that the regional differences in terms of the highest educational attainment of population ten years and above from Sabah, Sarawak and West Malaysia. It can be seen that at all levels of educational attainments, Sabah and Sarawak have Selectivity Ratios significantly smaller than 1 while West Malaysia have higher Selectivity Ratios at all levels of educational attainments.

This implies that they (the Bumiputeras of Sabah and Sarawak) are not able to leave the low value-added, labour intensive primary sector to the higher value-added secondary or tertiary sector because of their lower level of educational attainments.

Table 2

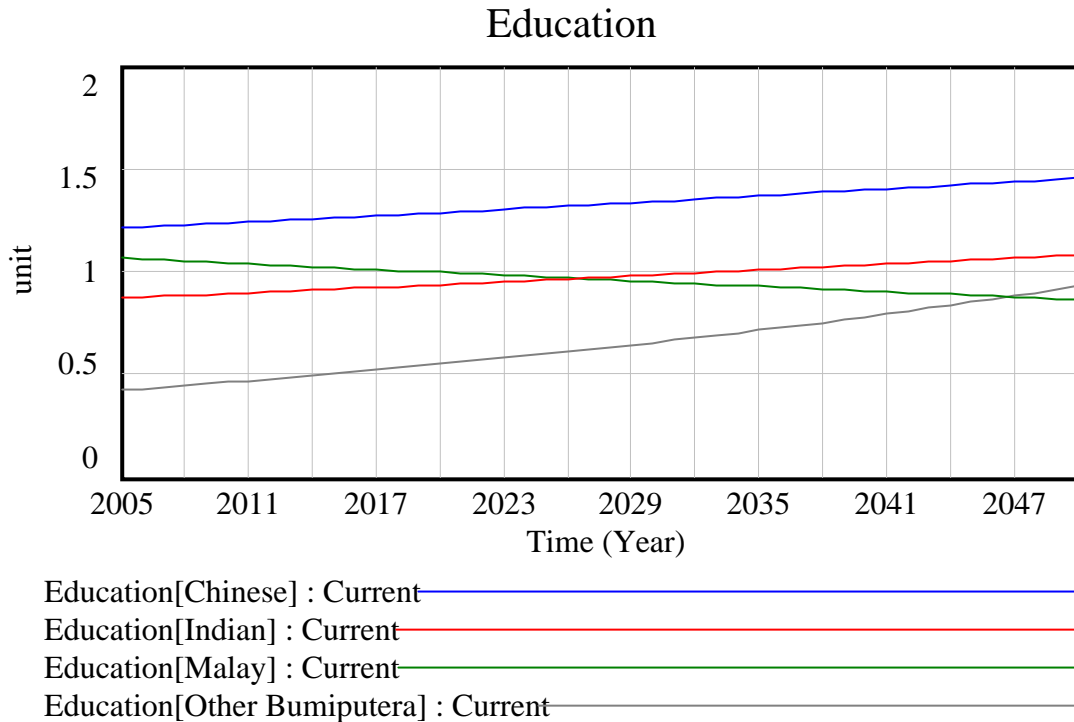**Highest Educational Attainment by Ethnicity 2000**

		Malay	Chinese	Indian	Other Bumiputera	Others	Total
Pre-School	No.	301,937	119,421	33,061	46,609	5462	506,490
	%	59.61	23.58	6.53	9.20	1.08	100.00
	SR	1.12	0.91	0.85	0.78	0.88	
Primary	No.	3,112,070	1,436,219	437,824	701,143	72,915	5,760,171
	%	54.03	24.93	7.60	12.17	1.27	100.00
	SR	1.01	0.96	0.89	1.04	1.03	
Secondary	No.	4,377,929	2,169,353	670,464	729,932	68,402	8,016,080
	%	54.61	27.06	8.36	9.11	0.86	100.00
	SR	1.02	1.04	1.09	0.78	0.69	
Vocational	No.	102,643	37,125	10,601	12,727	1271	164,357
	%	62.45	22.59	6.45	7.74	0.77	100.00
	SR	1.17	0.87	0.84	0.66	0.63	
Trade & Skills Training Institution	No.	60,921	21,318	5483	4283	331	92,336
	%	65.98	23.09	5.94	4.64	0.35	100.00
	SR	1.24	0.89	0.77	0.40	0.28	
Post Secondary	No.	267,171	126,363	31,247	35,433	4293	464,507
	%	57.52	27.20	6.73	7.63	0.92	100.00
	SR	1.08	1.05	0.88	0.65	0.95	
Tertiary	No.	770,667	449,103	95,684	56,926	8783	1,381,163
	%	55.80	32.52	6.93	4.12	0.63	100.00
	SR	1.05	1.25	0.90	0.35	0.51	

Source: Compiled from Population and Housing Census 2000

However, if educational attainment is viewed in the context of the diverse ethnic communities, the conflicting perspective of education seems to emerge. The above table shows that there is significant disparity in educational attainment between the major ethnic communities at all level of educational attainments. Inherently, the major ethnic groups of Malaysia have fundamentally different interests in education besides from having unequal access to the benefits of the education system The above table shows that the Malay and the Chinese have higher selectivity ratios in educational attainments than the Indians and Other Bumiputeras (the indigenous people of Sabah, Sarawak and West Malaysia) Such a scenario, if unaddressed may lead to economic exclusion and marginalization of certain ethnic community. To assess the future impact, a system dynamics model is constructed to simulate the educational attainment growth path until 2050. The model considers the demographic dynamics of each ethnic community/

Diagram 2

Simulated Educational Attainment Growth Path by Ethnicity

Education

Education[Chinese] : Current

Education[Indian] : Current

Education[Malay] : Current

Education[Other Bumiputera] : Current

The above diagram shows that the Chinese community has the highest parity in educational attainment The Chinese are known for their deep- rooted devotion to education. This could be due the Confucian structure of their traditional society which placed scholars at the pinnacle. Furthermore, as the immigrant race, there is a strong economic motivation for education The Malaysian Chinese community through their own financial resources, imported teachers and teaching materials from China and set to set up high schools in all major towns. These schools offered Chinese education right up to pre-university level. Among the ethnic communities, the Chinese have the highest selectivity ratio of 1.210 in 2000. Diagram 2 shows that the selectivity ratio increases 1.455 by 2050. One of the main reasons for such level of growth is that the percentage of Chinese population in Malaysia is declining from 26.00 per cent in 2000 to 14.39 per cent in 2050.

For the Other Bumiputera the extra immigrant mentality and economic motivation are not there to kick start their education. For example, according to the Population and Housing Census of Malaysia, 1970, Vol. 1, pp132-155, in 1970, there were 44,800 Chinese students in Sarawak who have completed secondary education compared with only 10,500 Iban students. At that time the Chinese and Iban accounted for 30.0 and 31.0 per cent of the population of Sarawak respectively. This illustrates the lack of interest on the part of the indigenous people to pursue education in the 1960-70 period. Most of the daily necessities of the indigenous people are provided for by the land. It should be noted that many of the primary

schools in Sabah and Sarawak are located in very inaccessible areas where the supply of piped water and electricity are generally not the norm. Also in Sabah and Sarawak, more than 40 per cent of the parents have either primary or no formal education. As such they lack the social horizon to encourage their children to further their education. They work in the primary sector as agricultural workers, in animal husbandry, hunters or fishermen or become migrants to the urban locality. With only primary or no education, they are forced to work in the agricultural or service sector as unskilled or elementary workers. The scenario is that, in the rural or interior region, very few able bodied adults remain in the long houses and as such, during the harvest seasons, the young people have to help in the harvest or planting at the expense of their education. This is the main reason for the high drop out rate from lower secondary schools among the indigenous people of Sabah and Sarawak. Furthermore, after the completion of their primary education, they need to be relocated to an urban locality for their secondary education. Hence in terms of selectivity ratio, they are not able to attain parity even by 2050, according to Diagram 2.

According to Table 2, the Malay have also attained parity (selectivity ratio greater than one) at every level of the educational attainments. However, due to their high population growth rate, any gain in parity in educational attainments is negated by the higher growth rate in population. As a result based on historical growth path, the selectivity ratio of the Malay in education will drop to0.8637 by 2050

Table 1 shows that the Indians are marginally below parity at all level of educational attainments, except for secondary school education. Diagram 2 shows that the growth path of the aggregated selectivity ratio in education for the Indian grows steadily from0.87 in 2005 to 1.086 in 2050

1.2 The occupational structure of the ethnic communities of Malaysia

In this section, an attempt is made to analyse the stratification of the ethnic communities of Malaysia by occupational structure. The main objective is to determine if the stratification of ethnic communities by occupational structure is divisive or integrative. One of the main strategies of the New Economic Policy (NEP) is to restructure Malaysian society and to correct the economic imbalance among the diverse ethnic communities and eventually eradicate the identification of race with economic function. In other words, the government is aiming for parity of occupational stratification which implies that there is an equitable distribution among the ethnic communities for the various echelons in the occupational hierarchy. If the majority of an ethnic community are excluded from the higher strata of society, they feel excluded from participating in the larger society and this will reduces the potential for social solidarity. For example, if the majority of the Bumiputera from Sabah and Sarawak are relegated to the lowest echelon of elementary workers and excluded from the highest echelons of Legislators and Senior Officials, then such stratifications which if not rectified may lead to social exclusion or ethnic conflict.

Table 3

Distribution of Occupation (one digit) by Ethnicity (1991)

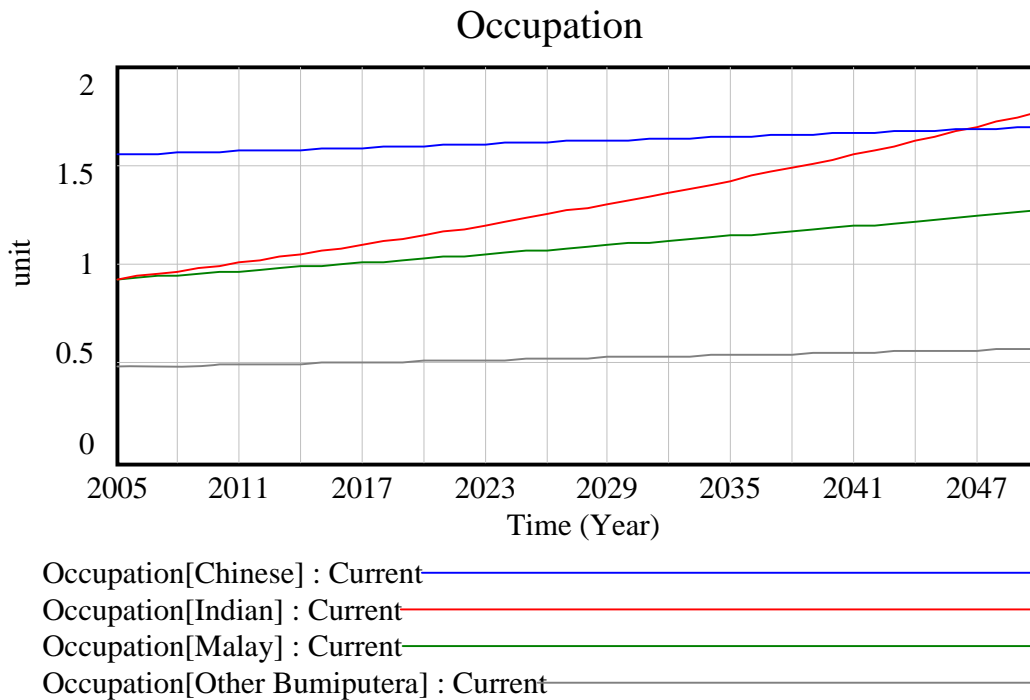| Occupation Code	Indicators	Malay	Chinese	Other Bumiputera	Indian	Others	Total
1,2,3	No	364,520	230,608	38,231	55,022	13,168	701,549
	%	51.96	32.87	5.45	7.84	1.88	100.00
	SR	1.039	1.167	0.517	0.987	.561	
4 & 5	No	830,493	660,453	100,843	133,069	28,349	1,753,207
	%	47.37	37.67	5.75	7.59	1.62	100.00
	SR	0.948	1.338	0.545	0.956	0.484	
6	No	642,334	189,392	334,438	95,984	66,941	1,329,089
	%	48.33	14.25	25.16	7.22	5.04	100.00
	SR	0.967	0.506	2.385	0.909	1.50	
7,8,&9	No	785,054	622,117	97,111	210,528	58,105	1,772,915
	%	44.28	35.09	5.48	11.87	3.28	100.00
	SR	0.886	1.246	.519	1.495	1.23	

Table 4

Distribution of Occupation (one digit) by Ethnicity (2000)

Occupation Code	Indicators	Malay	Chinese	Other Bumiputera	Indian	Others	Total
1,2,3	No	960,727	653,500	104,486	150,461	15,357	1,884,531
	%	50.98	34.68	5.54	7.98	0.81	99.99
	SR	0.951	1.344	0.47	1.039	0.659	
4 & 5	No	869,479	578,212	137,787	122,553	17,254	1,725,285
	%	50.40	33.51	7.99	7.10	1.00	100.00
	SR	0.94	1.289	0.680	0.924	0.340	
6	No	464,075	118,587	297,882	37,715	13,492	931,751
	%	49.81	12.73	31.97	4.04	1.45	100.00
	SR	0.929	0.490	2.726	0.527	1.179	
7,9 & 9	No	1,265,497	738,944	216,893	305,193	32,559	2,559,086
	%	49.45	28.88	8.48	11.92	1.27	100.00
	SR	0.923	1.111	0.723	1.553	1.057	

Code	Occupational
1	Legislators, Senior Managers, Directors, General Managers,
2	Life Science, Teaching, Business & Legal Professionals
3	Semi-Professionals (Physical Science, Engineering, Business).supervisors, Teachers
4	Clerical & Related workers
5	Service, Sales & Related Workers
6	Agricultural & Related Workers, Fishery Workers, Hunters, Trappers & Gatherers
7	Extraction & construction Workers, Metal. Machinery, Printing, Food Processing
8	Production & Machine Operators, Drivers, Plant Operators
9	Sales & Services Elementary Workers, Labourers & Related Workers

Diagram 3

Simulated Occupational Hierarchy Growth Path by Ethnicity

Occupation

Occupation[Chinese] : Current ———————
Occupation[Indian] : Current ———————
Occupation[Malay] : Current ———————
Occupation[Other Bumiputera] : Current ———————

The above diagram shows that the growth path of Other Bumiputera is around 0.5 even by 2050. This implies that they are being left behind in the lower spectrum of the occupational hierarchy because of the low level of their educational attainment. Without any affirmative action plan to enhance their educational level, they will having very slim chance of upward mobility to the secondary and tertiary sector. Such a scenario will lead to economic exclusion and marginalization. While the Malay and the Indian are having a positive growth path, the Chinese is maintaining their status quo in the upper echelon of the occupational hierarchy.

1.3 Analysis of the industrial sectors of Malaysia

Since Malaysia embarked on the industrialization process in the mid-eighties, there is a transformation of Malaysia from an agrarian society to production-based type of economy. The transformation process resulted in the migration of the people from the agriculture or primary sector which is characterized by labour intensive and low value-added type of work, to the higher value-added type of work such as Assemblers and Machine Operators. Table 3 and Table 4 show the transformation of the occupational structures of the ethnic communities of Malaysia from 1991 to 2000. In general, there is a decline in employment in the agriculture sector (Code 6); from 1,329,089 in 1991 to 931,751 in 2000. This represents nearly 30 per cent decrease in employment in this sector. During the same period there is an increase in the service sectors represented by Codes 4 & 5 and Codes 7,8 & 9. This is in line with the fact that the growth of manufacturing output in the early phases encouraged the growth of services.

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However, the rate of upward mobility from the agriculture-based and related occupations to the services and professional related occupations is not the same for all the ethnic communities of Malaysia. The dynamics of the upward occupational mobility of the Other Bumiputera and the Malay are indicators which may affect the unity and national integration of Malaysia. As for the Other Bumiputera, the number of agriculture and related workers declined from 334,438 in 1991 to 297,882 in 2000. This is a very marginal decline of 1.151 per cent per year during the 1991-2000 period. As a result the percentage share of the Other Bumiputera in this occupational group increased from 25.16 per cent in 1991 to 31.97 per cent in 2000. Its selectivity ratios also increased from 2.385 to 2.726 in 2000. This implies that in 1991, the Other Bumiputera were over-represented by 138.50 per cent in the agriculture related occupations. In 2000, their parity has increased further to 172.6 per cent. All these scenarios imply that there is very insignificant economic progress for the majority of Other Bumiputera. The majority of them are still confined to the occupations which are generally described as low wage, low value-added and labour intensive. At the highest echelon of the occupational hierarchy (Codes 1,2, &3), the selectivity ratios of Other Bumiputra have declined from 0.517 to 0.470. However, there is quite a significant increase of Other Bumiputera in the lowest echelons (Codes 7,8 & 9) of the occupational hierarchy. Diagram 3 shows that the Other Bumiputera, as a whole, there is very insignificant growth in their aggregated occupational selectivity ratio even by 2050.

As for the Malay, numerically, their share of agriculture related occupations actually declined from 643,334 in 1991 to 464,075 in 2000. However, their percentage share have increased from 48.33 per cent in 1991 to 49.81 in 2000. Due to increase in population at a national level, from 49.99 % in 1991 to 53.6 % in 2000, there is a marginal drop in their selectivity ratios from 0.967 to 0.923. All these imply that, the Malay constitutes nearly half of the agriculture related occupations in the country. This may be one of the reasons that in terms of selectivity ratios, there is a decrease of Malay in the Clerical, Sales related occupations (Codes 4 & 5) and an increase in the occupations at the lowest echelon in the occupational hierarchy. Such a scenario shows the need for more affirmative action plans to stimulate the progress of the Malay in the occupational hierarchy. However, the aggregated occupational selectivity ratio attains a level of 1.268 by 2050.

During the 1991-2000 period, the Indian seemed to have undergone a very significant positive transformation in their occupational structure. During this period, nearly 61 cent of the 95,984 Indians moved away from the agriculture related occupations. As a result their selectivity ratios decreased from 0.909 in 1991 to 0.527 in 2000. At the same time, their share in the lowest echelon occupations (Codes 7,8 & 9) increased from 210,526 in 1991 to 305,193 in 2000. This is the result of the rural urban migration from the rubber estates to the factories in the urban localities. Such migration did not affect the occupational structure in the Clerical and Service related occupations as occupations generally require secondary school education. As such the selectivity ratios of the clerical and Service related occupations (Codes 4 & 5) decline marginally from 0.956 to 0.924. The mass migration of Indian estate workers to urban localities as production and elementary workers enable the Indian community to develop a strong base in the manufacturing and servicing sectors. A

The Chinese have parity in all the occupations except the agriculture related occupations. However, their dominance is reduced by the high exit rate. The Chinese community is ageing and at the same time having the lowest birth rate among all the ethnic communities. It has the highest percentage of population (36.93) over the age of 35 and a death rate of 4.8 per 1000 of the population, (compiled from the 2000 Population and

Housing Census Report.) Tables 3 and Table 4 show that apart from Codes 1,2 & 3 , the highest echelon in the occupational hierarchy, the selectivity ratios for all other occupations have declined. Despite the high exit rate, the Chinese community is able to maintain its status quo at the upper echelon of the occupational hierarchy..

1.4   Distribution of the labour force in the industrial sectors

Ever since Malaysia embarked upon the policy of export oriented industrialization in the mid-eighties, Malaysia has become one of the Newly Industries economies . According to the 1987 World Development, the growth path of most developing countries especially those which have adopted the export oriented industrialization policy is as follows:

● Decline in the agriculture labour force due to increase in agricultural productivity
● Rising agricultural productivity increases the supply of agricultural raw material to industry
● Additional foreign exchange made possible by increased agricultural exports can be used as import input for industry
● As industrialization proceeds, it creates a demand in the service infrastructure such as transportation, distribution, communications, finance and insurance

Currently Malaysia is in the transitional period of moving from the production based economy P-Economy) to the knowledge base economy (K-Economy), it will impose a great strain to the current labour force comprising workers of diverse ethnicity, socio-economic , religious, educational and linguistic background. It is one of the objectives of Vision 2020 to ensure that an economic or industrial sector is not dominated by one ethnic group and that there is an equitable imputation of the economic pie. Hence the primary objective of the analysis of the distribution of labour force in the industrial sector is to identify any ethnic community which in the process of being marginalized or excluded from certain industrial sectors.

Table 5

Distribution of Ethnicity by Labour Force in Industrial Sector 1991-2000

		Primary Sector		Secondary Sector		Tertiary Sector	
		1991	2000	1991	2000	1991	2000
Malay	No.	596,418	481,892	689,614	1,060,319	469,311	953329
	%	46.19	47,76	46.16	50.67	37.18	44.86
	SR	0.924	0.895	0.9233	0.950	0.74	0.841
Chinese	No.	198,344	137,969	515,144	649,856	602,687	791,320
	%	15.36	13.67	34.48	31.06	47.75	37.24
	SR	0.546	0.526	1.224	1.194	1.70	1.432
Other Bumiputera	No.	337,447	317,679	71,358	131,492	54,959	142,137
	%	26.13	31.49	4.78	6.28	4.35	6.69
	SR	2.477	2.690	0.454	0.535	0.539	0.570
Indian	No.	93,595	54,561	170,622	232,083	106,099	211,403
	%	7.25	5.41	11.42	11.09	8.41	9.95
	SR	0.914	0.704	1.439	1.444	1.06	1.296
Others	No.	65,409	16,938	47,143	18,790	29,186	26,491
	%	5.07	1.68	3.16	0.90	2.31	1.24
	SR	1.49	1.36	0.940	0.732	0.69	0.984
		1,291,213	1,008,988	1,493,851	2,092,540	1,262,242	2,124,680

Source: Compiles from 1991 and 2000 Population and Housing Census Reports

The above table shows that over the 1991-2000 period, the labour force in the primary sector decreases from 1,292,213 to 1,008,988. This represents only a 21.86 per cent reduction over a period of 10 years. In 1991 the percentage shares of the Malay and Other Bumiputera are 46.19 % and 26.13 % respectively. In 2000, the percentage shares of the Malay and the Other Bumiputera continue to increase in this sector even though both of the two ethnic communities registered a numerical decrease. However in terms of selectivity ratio, the Other Bumiputera have the highest value of 2.690. This implies that in 2000, they are over-represented in this sector by 169 per cent. This also implies that the rate at which the Other Bumiputera leaving the primary sector is exceeded by the population growth rate. This is the situation of a reinforcing loop which grows exponentially. The economic implication is that this ethnic community will continue to dominate this sector and their selectivity ratios in the secondary and tertiary sector sectors remain to be under 0.6 even by 2000.

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Table 6

Distribution of the Major Components of the Tertiary Sector by Ethnicity (2000)

Code		Malay	Other Bumiputera	Chinese	Indian	Other	Total
G	No	304,622	64,784	480,698	65,559	11,735	927,398
	%	32.85	6.99	51.83	7.07	1.27	100.00
	SR	0.615	0.615	1.993	0.921	1.033	
H	No	297,891	28,623	171,892	31,698	5003	535,107
	%	55.67	5.35	32.12	5.92	0.94	100.00
	SR	1.041	0.456	1.235	0.771	0.764	
I	No	230,011	30,254	126,282	62,571	5357	454,475
	%	50.61	6.66	27.79	13.77	0.94	100.00
	SR	0.948	0.568	1.069	1.793	0.762	
J	No	117,545	7341	100,234	220,24	1815	248,959
	%	47.21	2.95	40.26	8.85	0.73	100.00
	SR	0.885	0.251	1.548	1.152	0.593	
K	No	103,260	11,135	111,814	29,551	2581	258,341
	%	39.97	4.31	43.28	11.44	1.00	100.00
	SR	0.749	0.367	1.665	1.490	0813	
L	No	556,270	83,686	73,357	42,657	4472	760,442
	%	73.15	11.00	9.65	5.61	0.59	100.00
	SR	1.364	0.938	0.371	0.730	0.480	

Source: Compiled from Population and Housing Census 2000

Codes	Sector
G	Wholesale and Retails
H	Hotel & Restaurant
I	Transport, Storage & Communication
J	Finance, Insurance
K	Real Estate, Renting, Business Services
L	Public Administration & Defence

These sub-sectors of the Tertiary sectors are sectors which provide high value-added jobs in finance and business activities and these are the avenues where the Chinese community can unleash their entrepreneurial energies and skills to increase their economic dominance and market capitalization. The Chinese have a head start in Wholesale and Retail since the British colonial period and as such they have extensive networks with the oversea Chinese. As a result in 2000, the above table shows that they control nearly 52 per cent of the Wholesale and Retail sub-sector and more than 40 per cent of the Finance and Real Estate sub-sector.
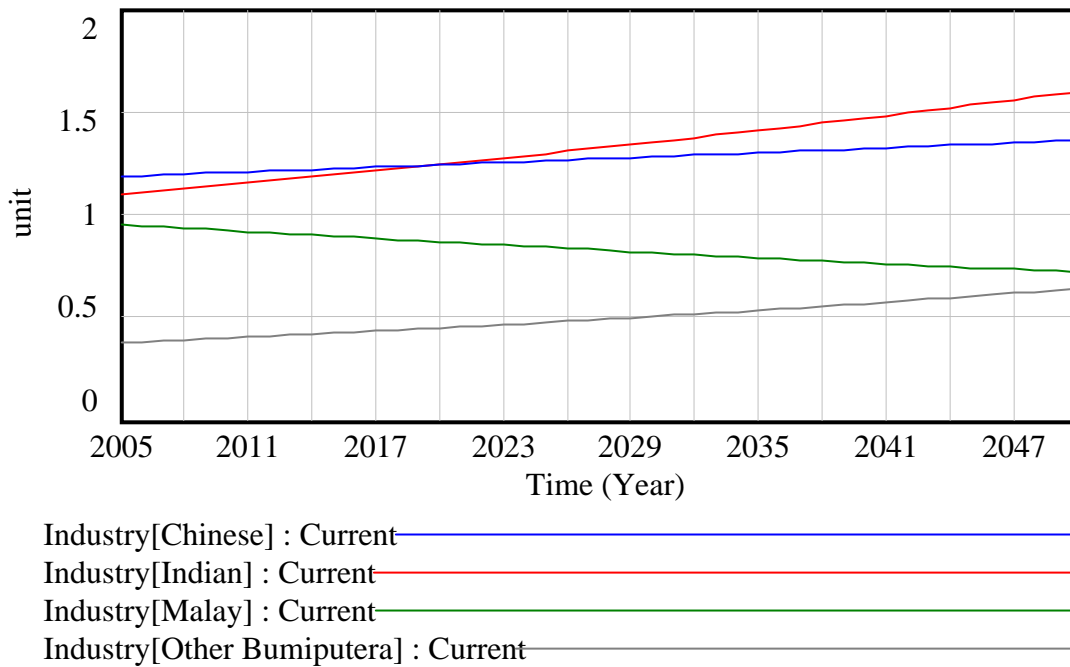
The Malay on the other hand, only have parity in the Hotel & Restaurant and the Public Administration sub-sectors. Their selectivity ratios in Wholesale, Finance and Real Estate sub-sectors were 0.615, 0.885 and 0.774 respectively. However, they account for more than 73 per cent in the Public Administration sub-sector. Base on historical growth , the Malays' share in these sub-sectors are on the decline. Diagram 4 shows that without any affirmative action plan the Malay's industrial selectivity ratio growth path will decline to below parity.

The Other Bumiputera are under-represented in all the Tertiary sub-sectors. Their exclusion from the Tertiary sector is due mainly to the distribution of their population in the rural and interior areas of Sabah and Sarawak. Table 5 shows that their percentage shares and selectivity ratios in the primary (agriculture) sector are increasing from 26.13 per cent in 1991 to 31.49 per cent in 2000 Their lack of participation in the key sub-sectors is further exacerbated by the low educational attainments. This implies that they will not be able to play a significant role in the tertiary sector even in the near future. Simulation of the labour force of the ethnic communities in primary sector from 2000 to 2050 shows that the percentage shares and selectivity ratios of all the ethnic communities with the exception of the Other Bumiputera, are diminishing. Diagram 4 shows that Other Bumiputera's industrial selectivity ratio only attains 0.637 by 2050.

During the 1991- 2000 period, there is a mass exodus of Indian from the rubber estates and as such they made made a significant in-road in both the secondary and tertiary sectors. They have the highest selectivity ratio in the Transport sub-sector and they are making a significant in-road in the Finance sub-sector as well. Whilst they are under-represented in Real Estate, Hotel and Wholesale sub-sectors, they are having the highest growth rate among all the ethnic communities. E growth path of the aggregated selectivity ratio of This is shown in diagram 4 in which the growth path of the aggregated selectivity ratio of the Indian attains the highest parity of 1.597 by 2050.

In the light of differing percentage shares, parities and growth rates of the industrial sector of the diverse ethnic communities, it is a formidable task on the part of the government to maintain a policy of equitable growth. It is cited in the Report: " Malaysia: 30 Years of Poverty Reduction, Growth and Racial Harmony", Economic Planning Unit, 2004, that *" Growth was more of a prerequisite for poverty reduction restructuring of society and national unity "*

Diagram 4

**Simulated Growth Path of the Aggregated Industrial Selectivity
Ratio**

Industry

Industry[Chinese] : Current
Industry[Indian] : Current
Industry[Malay] : Current
Industry[Other Bumiputera] : Current

The above diagram shows both the Malay and Other Bumiputera are converging to a low selectivity ratio in excess of 0.5 in their respective Aggregated Industrial Selectivity Ratio growth paths, while the Chinese and Indian are gowing upward in the value chain of the industrial sector. By 2050, the Chinese and Indian will account for 14.39 and 5.26 per cent of the population of Malaysia while the Malay and Other Bumiputerta will account for 63.01 and 17.31 percent of the population. This scenario depicts that the Chinese and Indian are becoming the dominant economic minority while the majority of the Malay and Other Bumiputera which together constitute nearly 80 per cent of the simulated population of 63 millions are staying put in the low value-added and labour intensive primary sector.

1.5 Analysis of the survey data on social capital

This is the first survey on the social capital of the ethnic communities of Malaysia. According to the recent report by the World Bank's Social Capital Initiative (SCI), social capital contributes significantly to sustainable   development. The traditional components of hard economic variables such as physical capital and human capital need to be broadened to include social capital. Social Capital refers to the internal social and cultural coherence of society, the norms and values that govern interactions among the people and the institutions which they are embedded. Social Capital is the glue that holds society together without which they can be no economic growth and human well being. Without Social Capital, society at large will collapsed and to-day world present some very sad examples.

The main objective of this pilot survey is to capture the Social Capital of the major ethnic groups of Malaysia from the point of view of

- Trust
- Reciprocity
- Social cohesion and exclusion
- Community Efficacy
- Sociability
- Quality of life
- Community Integration

The inputs from this survey will be processed and integrated with the hard economic variables for the construction of a System Dynamic model which can be used to simulate the Composite Weighted Aggregate Selectivity Ratio for each ethnic community. The stock flow diagram of the input from the survey is shown as follows:

Table 7
Dimension of Social Capital by Mean Score of Ethnic Communities

Dimension of Social Capital	Malay	Chinese	Other Bumiputra	Indian
Trust	5.701	4.660	5.637	4.792
Reciprocity	5.774	4.631	5.557	4.768
Community Efficacy	6.398	5.164	6.317	5.537
Community Integration	6.617	5.517	6.554	6.724
Quality of Life	6.892	6.118	6.800	6.654
Problem Resolution	5.701	4.660	5.647	4.792
Sociability	7.860	6.501	7.417	6.286
Social Exclusion	-5.983	-5.101	-5.202	4.918
Denial of Service*	-1.690	-2.690	-1.449	1.722
Social Capital	37.27	29.46	37.258	32.913

* All the above variables except Denial of Service are measures on a 11 points scale
All questions pertaining to Denial of Service are two-way questions and the average score is adjusted to the eleven points score.

Since there were no earlier survey done in Malaysia on the perceived social capital of the ethnic communities, the average compound annual growth rate of the Malaysia Quality of Life Index is chosen as a proxy to the growth of social capital T

Diagram 5
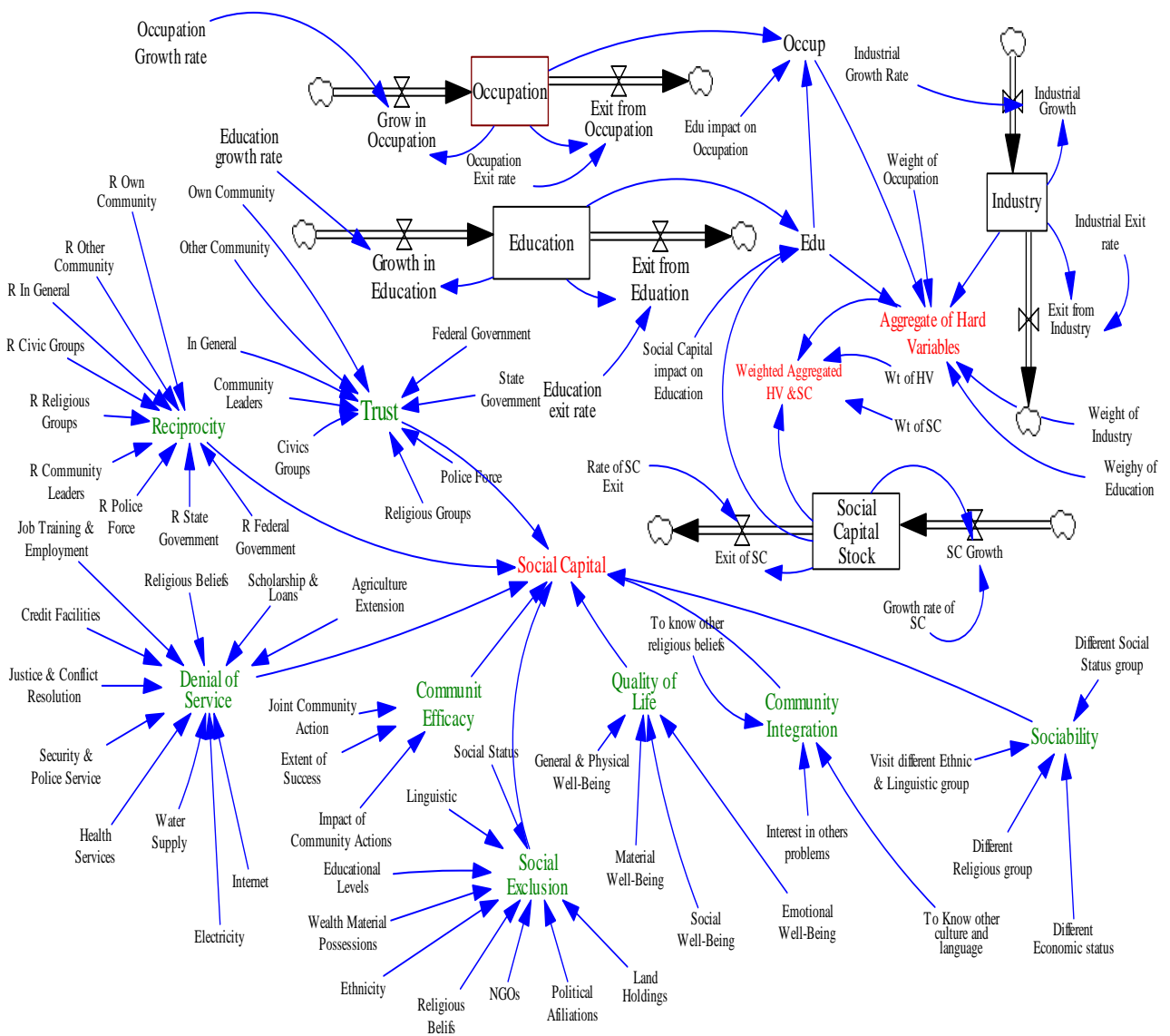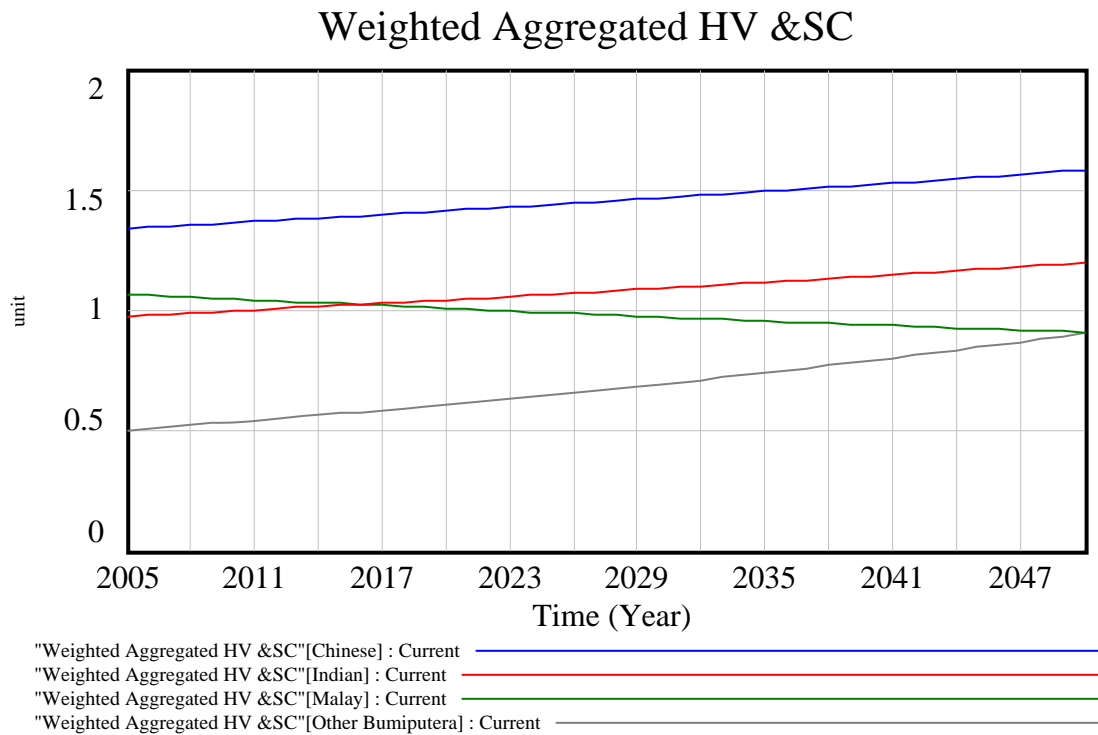### *System Dynamic Stock and Flow Diagram For Social Capital and Hard Variables*

Diagram 6

Weighted Aggregated HV &SC

"Weighted Aggregated HV &SC"[Chinese] : Current ————
"Weighted Aggregated HV &SC"[Indian] : Current ————
"Weighted Aggregated HV &SC"[Malay] : Current ————
"Weighted Aggregated HV &SC"[Other Bumiputera] : Current ————

* **HV = Hard Variables, SC = Social Capital**

Diagram 6 shows the simulated growth path based on the historical data from the 1991 and 2000 Population and Housing Census and the growth path based on the aggregated hard variables and the social capital. The simulation takes into consideration, the population growth rate and the exit rate of each ethnic community. The exit rate includes the death rate per 1000 and the retirement rate of each ethnic group The simulation of the second scenario combine the impact of social capital with the aggregated hard economic variables The rationale for combining the impact of social capital to the hard economic variables is that social capital has been identified by the World Bank that economic development projects are generally not sustainable without an adequate level of social capital. According to the work done by Knack and Keefer for several countries, including US, UK, Canada, France and Germany, a ten percentage point increase in Trust would increase the growth rate of the GDP by 0.8 per cent. This concurs with the finding from the Sarawak study (2006) that a one percent increase in Trust will increase Household income by 19 per cent.

Diagram 6 shows that the Chinese growth path is ahead of all the other communities. This is due to the fact that the Chinese already have a dominant control in the business sector during the British colonial period. They have access to capital and their market capitalization is very much enhanced by globalization. However, they have the lowest population growth rate among the ethnic communities.

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Their population size in Malaysia, in terms of percentage is decreasing from 26 per cent in 2000 to about 14 per cent in 2050. In the State of Sabah, by 2020, the Chinese only accounts for 6.52 per cent of the population of Sabah. In Sabah, they are dominating the tertiary sector and as such they become the dominant minority among the Other Bumiputera who are mainly confined to the primary (agriculture) sector. Such a scenario could be a fertile breeding ground for ethnic conflict

The aggregated selectivity ratio of the hard economic variables of the Malay is falling below the line of parity after 2014 and if there is no intervention it will reach 0.80 by 2050. The main reason for the limit to growth is that the rate of production of human capital of the Malay (those with Post Secondary and Tertiary Education) is negated by the rate of the Malays' population increase. This variable is a declining reinforcing loop. Such a loop may not be noticeable at the beginning.

Diagram 6 shows that the growth path of the Indian is gradually increasing from 0.9106 in 2005 to 0.9575 in 2050.The reason for such a scenario is that the actual economic progress of the Indian during the 2005-2050 period is very marginal and the steady positive growth path is caused by the very gradual decline in the population from 7.49 per cent in 2005 to 5.43 per cent in 2050.

Since 1991, when there was an exodus of Indian from the rubber estates, they have integrated into the secondary sector as production workers, supervisors and transport and communication sector where they have a very high parity. In the Tertiary sector, the Indian are making their presence felt in business and finance. In short the Indian are well represented in all the economic activities albeit at a lower level than the Chinese and the Malay.

The Other Bumiputeras growth path will be a matter of concern to strategic planners. Diagram 6 shows that the growth path of Other Bumiputera are lagging so far behind the other ethnic communities that they only attain the level playing field by 2050. The Sarawak Survey (2006) indicates that among the ethnic communities of the Iban, Bidayuh, Melanau and "Other Bumiputera" have a higher level of Social Capital (at the bonding level), which help them to get by but not helping them to acquire upward mobility in terms of education and employment. They need bridging and linking social capital to reach out to their community leaders and public agencies. The Other Bumiputera are only moving very slowly into the Secondary Industrial sector as production workers and the Tertiary sector as elementary and service workers. The rate of leaving the Primary (agriculture) Sector is so sluggish that their percentage share in this low value-added, labour intensive and low wage sector, is increasing from 32 per cent in 2000 to 53 per cent by 2050.
Despite all these setback the Other Bumiputera community gave the present an almost 100 per cent mandate in the recent general election.

There is an urgent need to monitor the current scenario of the growth path of Other Bumiputera as their lack of overall growth coupled with the economic success of the Chinese in Sabah may be a potential breeding ground for ethnic conflict after 2020 and beyond when the Chinese in Sabah become an economic dominant minority.

It should be noted that the simulations results are based only on historical data. The input variables can be adjusted according to different policy options of the Government. The Model can be used to determine the different rates of growth of the hard and soft variables so that the growth path for each ethnic community can attain a predetermined level of overall selectivity ratio, after a predetermined period of time. I will pleased to receive any feedbacks concerning this model. Thank you...

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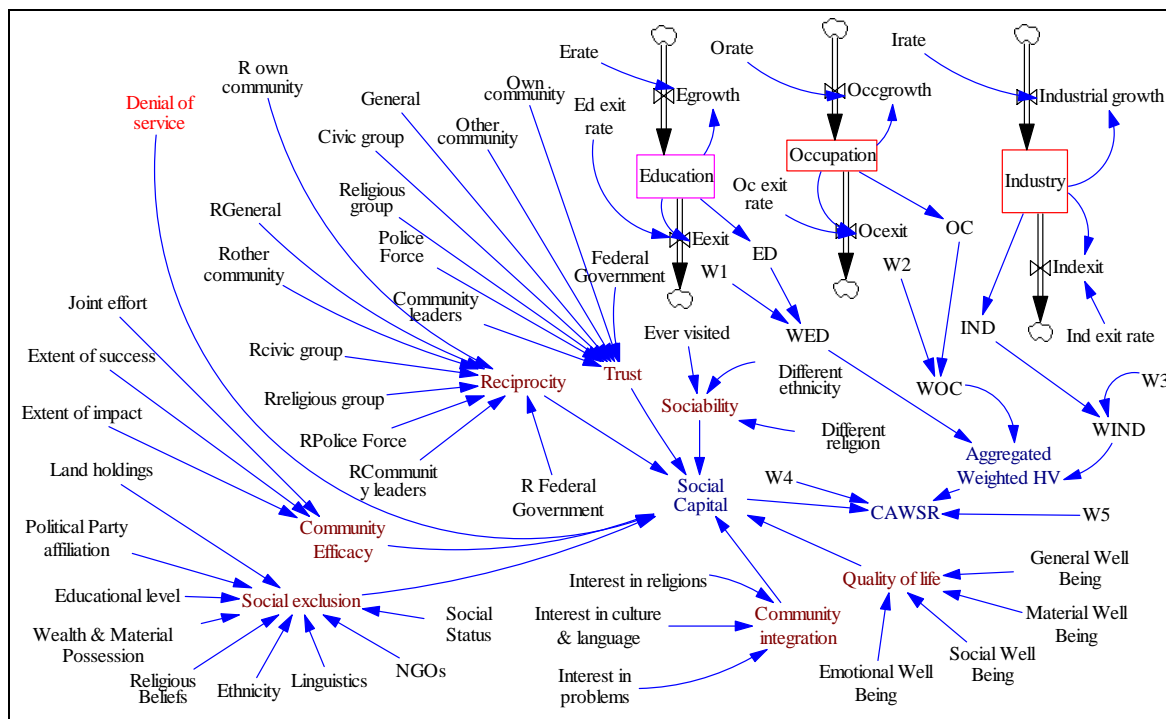
The square boxes as shown in the diagram are the hard economic variables where:
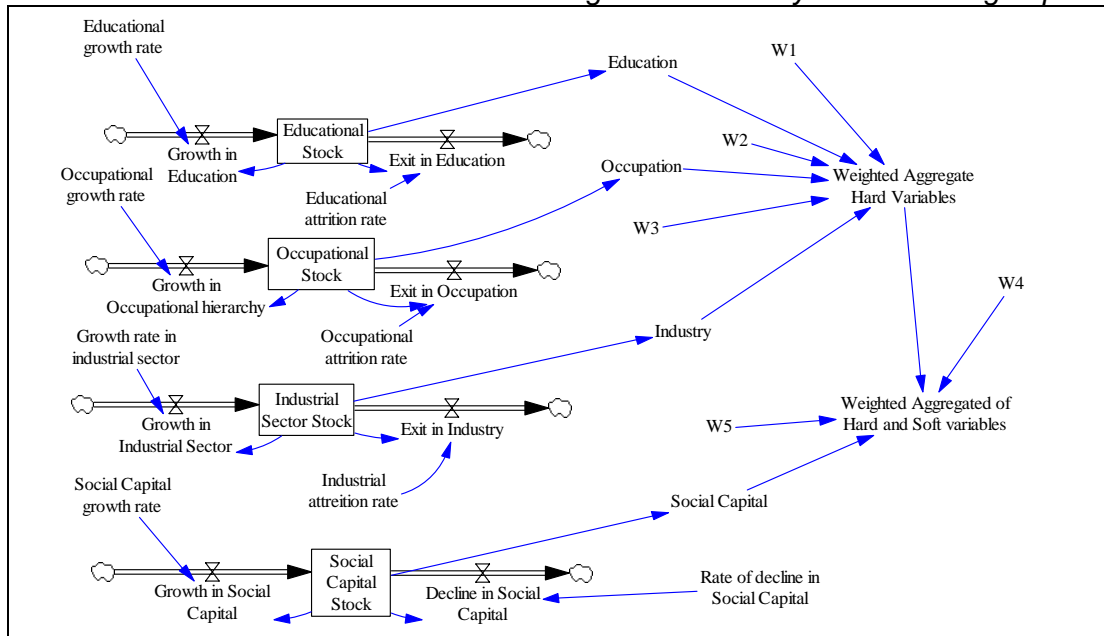
Education –This refers to the highest educational attainment. This variable is in the form of **weighted aggregate of the Selectivity Ratio** of the ethnic group. The parity value is one. Any value less than one implies that the distribution of the labour force is skewed towards the lower level of educational attainments such as Primary and Lower Secondary Education. Any value greater than one implies that the distribution of the labour force is skewed towards higher level of educational attainments such as Graduate and Post Graduate levels.

Occupation – The weighted aggregate of the occupational hierarchy Any value less than one implies that the majority of the labour force are holding jobs in the lower occupational hierarchy such as Elementary workers and Agricultural workers. Any value greater than one implies the distribution of the labour force is skewed towards the higher level of the occupational hierarchy , such as Legislators, Senior Managers and Professionals.

Industry – The weighted aggregate of the labour force distribution in the industrial sector. Any value less than one implies that the distribution of the labour force is skewed towards the Primary Sector. Any value greater than one implies the distribution of the labour force is skewed towards the Tertiary Sector.

Simulation of the Model for the Integration and Unity of the ethnic groups in Sarawak