ISA eSymposium for Sociology

Spatial Ethnic Diversity Patterns in Malaysia:

What Can We Learn from Bio-Diversity Research?[1]

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Diversity, Bio-Diversity and Ethno-Diversity

We are living in a world of increasing diversity, both in terms of measurable items, shapes and features, but also in terms of social organisation, imagination, thoughts and constructions of reality. A complex array of theories and concepts has arisen to take account of these changes in our real world. Theories differ greatly, whether diversity is a valuable good or detrimental to progress and social cohesion. Sociological systems theory, to cite just one influential tradition, assumes that increasing differentiation of social systems enhances their adaptive capacity to challenges ahead. One frequently cited example would be the differentiation of religious belief into subsystems of science and scientific disciplines. The result is a diversity of social structures, organisations and schools of thought that are more and more specialised to solve specific problems, leading to an overall advancement of research and development. Increasing social diversity creates, however, also increasing problems of governance. Managing complex systems requires additional social mechanisms of control and guidance, of resource allocation and conflict mediation.

Similar theoretical arguments are also found in ecological theories, but so far the terminology has not been adjusted to match both systems, the biological and the social, despite Durkheim's observation a hundred years ago that 'the social realm is a natural realm which differs from the others only by a far greater complexity' (Durkheim 1965[1912]: 31).

Geographers have lately voiced similar concerns: 'Understanding geographical systems represents one of the greatest challenges of our time. Complexity has emerged as a useful paradigm to effectively study linked human, socioeconomic and biophysical systems at a variety of different spatial and temporal scales' (Association of American Geographers 2010)[2]. In this paper, I shall concentrate on two central concepts, namely bio-diversity and ethno-diversity.

The co ncept bio-diversity came into being as recently as 1985 and has since conquered the imagination of scientists, journalists and politicians. The term has taken on a strong normative aspect in reference to conservation.

Ethnic diversity or, as it sometimes called, '**ethno-diversity**' describes the degree of variety of ethnic groups living together in a common territory. There is a very large literature in the social sciences on what constitutes an ethnic group and what binds them together (e.g. the classical study of Barth 1969). Ethnic groups may live together in a 'plural society' or form cultural enclaves or 'diaspora' in a host society. The issues around ethno-diversity, formerly the domain of social anthropologists, are also frequently taken up by the mass media and politicians, and imbued with a normative tinge, being mostly seen as a burden or a challenge, rather than a boon, especially in nation-building efforts.

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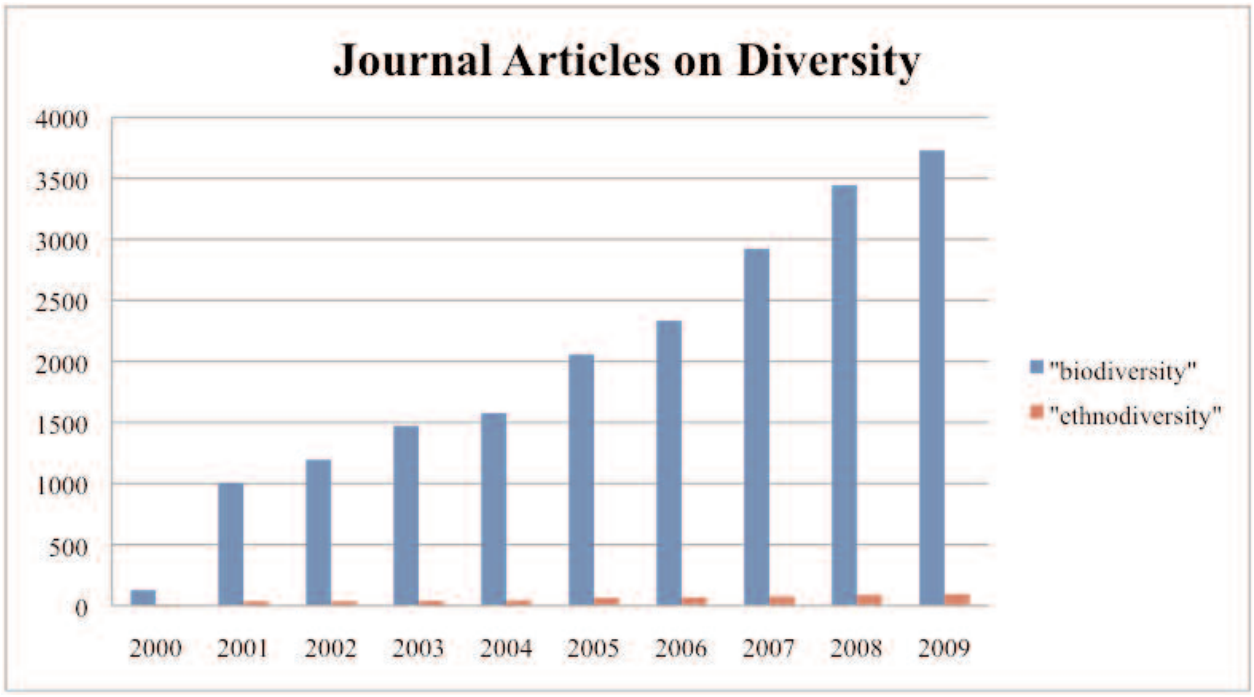
Figure 1: Journal articles dealing with biodiversity and ethnic diversity, as listed in the Web of Science data bank, 2000 to 2009.



If we compare the number of publications on both subjects, bio-diversity is way ahead (see Figure 1). As social scientists, we could ask the question: what can ethno-diversity research learn from studies on bio-diversity? As a biologist or environmentalist, one may ask: what can we learn from sociological theories of ethnic diversity? As indicated above, either concept, bio-diversity or/and ethno-diversity, are embedded in theories, which often, but not necessarily exhibit an evolutionary bias.

Table 2: Corresponding Concepts of Bio-diversity and Ethno-diversity

Bio-diversity	Ethno-diversity
populations, species, taxa, communities	Ethnic groups, communities, diaspora
Eco-system	Plural society
Conservation	National unity
Sustainability	Resilience
Symbiosis	Cohesion

Bio-diversity and Ethno-diversity as Value and Resource

Since bio-diversity and ethno-diversity have entered the public debate or domain, the valuation of the concepts and the reality behind them has differed considerably. It is difficult to follow all different streams of thought on the matter of diversity, but at least a general tendency is clearly visible. Whereas bio-diversity is valued highly, ethnic diversity is not. There is advocacy by NGOs on both issues, but by and large, bio-diversity is seen as important to sustain life on this planet, while ethno-diversity is mostly seen as detrimental to social harmony and political stability.

In contrast, national governments have stressed national unity, the assimilation of migrant communities and reduction of ethnic identity. Some governments have even gone as far as reducing ethnic diversity by 'ethnic cleansing' as a means to create a uniform society. Even policies of affirmative action have a basis in the goal of uniformity rather the diversity. One ethnic community, seen as lagging behind, is supported to bring it up to the same level of (usually economic) standards as other groups. It is

hoped that economic and ethnic differences will be reduced, gaps will be closed and diversity will be diminished.

Political leaders generally tend to stress unity (or at least, like in Indonesia and Malaysia, 'unity in diversity'; '*Perpaduan dalam Kebelbagaian*' in Malay and '*Bhinneka Tunggal Ikha*' in Indonesian). The '*Satu Malaysia* – One Malaysia' policy of the Malaysian government stresses the unity of the nation and conveys the message that 'we are all Malaysians', rather than Malays, Chinese, Indians and others. Though this position is debated and disputed, ethnic diversity is still largely perceived as a cause for conflict, disorder and trouble.

It is perhaps significant that even the UNESCO culture report 2000 is entitled 'Cultural Diversity, Conflict and Pluralism': diversity and pluralism is mentioned side by side with conflict. Political science especially thrives on conflict and conflict studies. As Shamsul A.B. (2010:2) has pointed out, 'academic and popular analyses on plural societies in Southeast Asia has privileged the "conflict approach"...A heavy emphasis has been given to the working of centrifugal forces, which divide, as the ruling societal pattern, and less on the centripetal ones, that encourage convergence'.

When it comes to bio-diversity, the general perception is the reverse. The diversity of species is highly valued and the sustainability of nature and mankind has been linked to the maintenance of a high level of bio-diversity.

Linking Biodiversity and Ethnicity Research

I shall discuss several basic concepts of both approaches and then turn to questions of measurement.

The Value of Diversity

Though predictions for the maintenance of biodiversity are gloomy, high values are placed on the maintenance of biodiversity. High levels of biodiversity can positively affect average levels of ecosystem performance (McGrady-Steed, et al. 1997:162). Whereas ecosystem service, i.e. the economic value of biodiversity is recognised, the economic value of ethno-diversity is not.

In management theory in contrast to politics, the valuation of diversity has meanwhile taken a positive turn. 'Diversity management' is supposed to turn diversity into a business advantage (Harvey and Allard, 2012). Ethnically diverse teams are deliberately created to increase innovations and improve output. To cite just one example: The Hongkong and Shanghai Banking Corporation (HSBC), one of the world's largest banks, refers to the positive aspects of diversity on its website: 'At HSBC, we believe in the power of diversity. Diversity is central to the HSBC brand. Beyond gender, ethnicity, disability or age, we recognise and appreciate individual differences and how diverse perspectives spark creativity, productivity and performance – that would lead us to progress'.

Economists, who have for a long time ignored the issue of ethnic diversity, have now started to ask 'is ethnic diversity "good" or "bad" from an economic point of view, and why?' (Alesina and La Ferrara 2005:763). The general verdict seems to be that ethnic diversity is good for innovations, but could also be disruptive if social cohesion is lacking. The business studies literature is even more firms in stressing the positive aspects of diversity, here defined as 'workforce diversity' in terms of ethnicity, gender and age.

A recent survey of the European Commission on the costs and benefits of diversity in 200 companies asserts that 'companies that implement workforce diversity policies identify important benefits that strengthen long-term competitiveness and, in certain instances, also produce short and medium-term improvements in performance' (Centre for Strategy and Evaluation Services 2003:3). A study by the Brookings Institute revealed that diversity (measured by a combined diversity index CDI) 'strongly predicts high-tech growth' in the US (Florida and Gates 2001:6). A rank order of American high technology regions correlates highly with a ranking of regional ethnic diversity. This rather crude rank order correlation is, however, supported by case studies of high tech companies, which showed that high diversity is profitable.

Measuring diversity

Statistically speaking, diversity is easily measured and reduced to a diversity index. The degree of bio-diversity is usually measured by a statistical formula known as the Simpson Diversity Index (Simpson 1947), which shows the probability that two individuals chosen at random from the same area belong to the same species. This Simpson's diversity index (also known as Species diversity index) is a measure used to quantify the biodiversity of a predefined area. It measures the number and distribution of each species. For plants, the percentage cover in a square meter or square kilometre is usually used; for animals, the number of organisms of a species is counted. The statistical formula for the Simpson index is:

$$D = \frac{\sum n_i(n_i - 1)}{N(N-1)}$$

where N is the total percentage or total number of organisms and n is the percentage of a species or number of organisms of a species.

The Simpson Diversity Index can be calculated to show how the ethnic composition of a nation or district has changed or how different areas compare as to the distribution of ethnic groups. The Institute of Ethnic Studies (KITA), Universiti Kebangsaan Malaysia (UKM), is involved in developing a Malaysian Ethnic Relations Monitoring System (MESRA) to track changes in the ethnic composition of the Malaysian population, its livelihood and its political behaviour. Within this framework, an 'ethnic diversity index' (EDI) has been developed. It takes its cue from research on biodiversity and related fields. This index will enable policy administrators and civil society organisations to track long-term social change and pinpoint, in combination with other data and indicators, possible fields for policy interventions. The EDI will be exemplified with some pilot study data towards the end of this paper.

The advantage of the EDI lies in the fact that large datasets are standardised and can be compared and correlated with other variables. We may assume, for instance, that the conflict potential of certain areas is not only related to the incidence of poverty or the dominance of a particular ethnic group, but also to the degree of ethnic diversity. The hypothesis that areas of high ethnic diversity are less prone to ethnic violence than areas of low ethnic diversity can be empirically tested by large data sets. The EDI is therefore both an analytical as well as a planning tool. Recently the US Bureau of Census has applied the Simpson

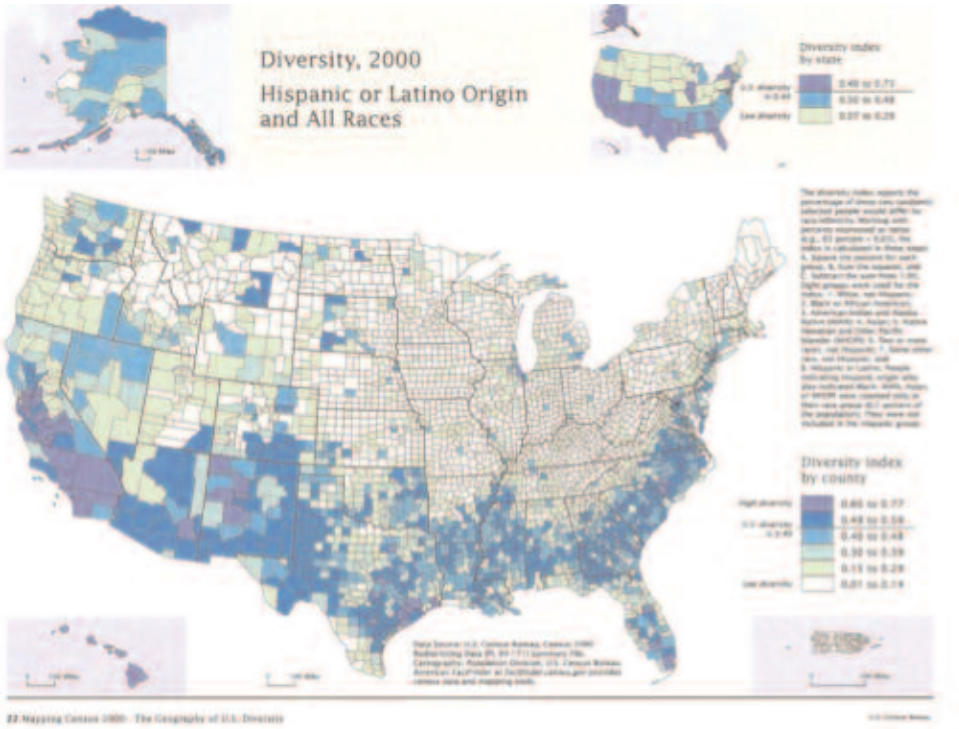


Figure 3: Ethnic Diversity, USA 2000

Diversity Index to measure ethnic diversity by county (see Figure 3).

The US diversity index is 0.49. The map clearly shows the areas of high diversity in the South, if persons of Latino origin are counted as a separate ethnic group.

Basic research has just started to link biodiversity and ethno-diversity. The basic idea suggests that man is just one of the many species on earth. Diversity is defined in a broad way to include ethnicity, languages, etc as well as bio-diversity variables[3].

A large-scale research project of Terralingua, conservation NGO, has assembled world-wide data to construct a Biocultural Diversity Index (IBCD). Three components of the IBCD are derived from five indicators of BCD[4]:

- number of languages
- number of ethnic groups
- number of religions
- number of bird and mammal species (combined)
- number of plant species

Three core areas or "hotspots" of diversity have been identified, one of which includes Brunei, Malaysia and Indonesia. These countries contain a population that speak many different languages and contain large areas of tropical rainforests of high but unfortunately fast declining biodiversity.

Some authors even argue that biodiversity depends on ethno-diversity (Lipietz 1992). It remains, however, unclear why ethno-diversity should be systematically linked to bio-diversity at all. Further empirically based research will be necessary to establish this link, if it exists at all.

Let me now turn to our recent research and analyse some trends in the changing ethnic landscape of Southeast Asia.

Ethnicity: A Southeast Asian Dilemma

Southeast Asian societies are usually classified as 'plural', following Furnivall's classic analysis of colonial societies (Furnivall 1980). During the colonial past of , the colonial governments used the reduction of the cultural complexity of their colonies as a strategy of governance. The British in Malaya, for example, classified the native population into constructed categories of Malay, Chinese, Indians and Others, although the ethnic diversity was and is much more complex (King 2008:135). In this tradition, today Singapore gives a good example in how to handle cultural diversity for the sake of efficient government. They took over the system of categorising ethnicity from the British to standardise the complex ethnic and religious diversity. Thus, the Singaporean government has managed to model ethnicity through government regulation to encourage people to act, dress and speak according to predefined categories to enable a conflict free functioning government system.

Brunei, a British colony until 1984, has emphasised its Malay Muslim cultural heritage and created a state ideology of '*Melayu Islam Beraja*', more or less ignoring other ethnic groups in a form of 'benign neglect'. The existence of other indigenous as well as migrant ethnic groups is recognised, but conversion to Islam and integration into Malay society is actively encouraged. The value of diversity is not officially recognised.

Indonesia is another example of creating a unitarian national state in face of extreme cultural diversity. In Indonesia, diversity cannot be talked away with more than 100 ethnic groups living in the archipelago, but the state managed to create a unifying model under the national logo 'Unity in Diversity'. Each province has a different set of items to symbolise diversity, but the set itself is standardised and a way of modelling diversity.

Indonesia, Thailand, Brunei, Malaysia and Singapore have developed distinct forms of governing ethnic diversity. The large number of ethnic groups has been categorised into several standardised ethnic groupings in order to reduce complexity to manageable proportions. All countries experienced ethnic violence in the past, but looking at Malaysia first, the country '...had since been in a state of "stable tension", ...dominated by many contradictions, but we have managed to solve most of them through a process of consensus seeking negotiations...' (Shamsul A.B. 2008:3). Inward migration, both legal and illegal, is still substantial and requires a constant process of integration or assimilation into Malaysian society.

Malaysia was predicted to suffer from serious bloody ethnic conflicts every time an economic crisis occurred in Asia. After experiencing a series of economic crises in the last three decades, namely the 1986-87, 1997-98 and the recent 2009-11 economic crises, Malaysia remains politically stable and indeed enjoying a positive economic growth. According to distinguished Professor Shamsul, 'what many have failed to realise is that all the predictions of the prophet of dooms have not come true. Instead, since the major ethnic riot in May 13th 1969, there has been consistent long peaceful period, punctuated once or twice by ethnic skirmishes. Instead, all the riots and conflict have been happening in the north of peninsular Malaysia, in the once famous "peaceful" Thailand' (Shamsul A.B. 2008).

The Ethnoscape of Malaysia

Ethnodiversity creates distinct, but constantly shifting 'ethnoscapes' of ethnic groups, distributed across the geographical space of nations (Appadurai 2010). Measured by our recently developed Simpson index of ethnic diversity, Malaysian states differ greatly in terms of ethnic diversity, even if we only use the broad categories of Malays, Chinese, Indian and others (see figure 4).

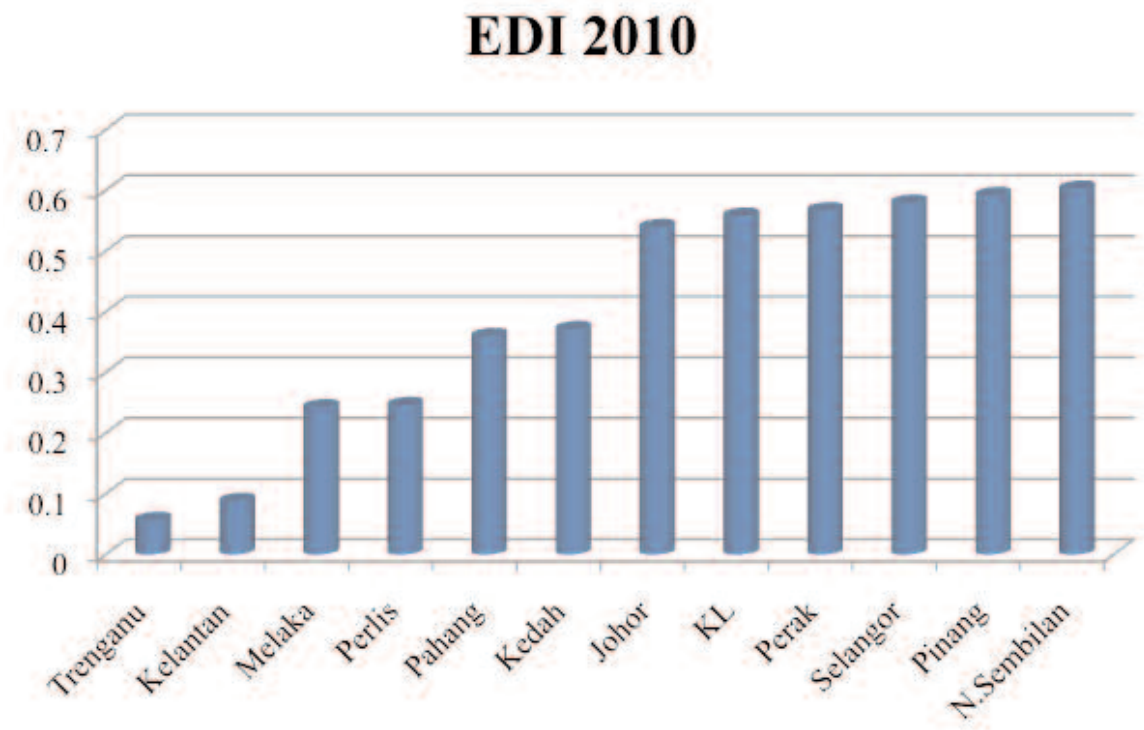
The index shows that Malaysian states can be grouped in three categories.

Table 5 Ethnic Diversity Index, West Malaysian States 2000

Ethnic Diversity	States
Very low 0-0.1	Kelantan, Terengganu
Medium 0.2 – 0.4	Perlis, Pahang, Kedah
High diversity 0.5 – 0.7	Melaka, Perak, Johor, Negeri Sembilan, Penang

More interesting than the distribution of ethnic groups at any particular time is the dynamics of ethnic diversity. The following maps (Figure 6 and 7) show the changing ethnoscape of West Malaysian states.

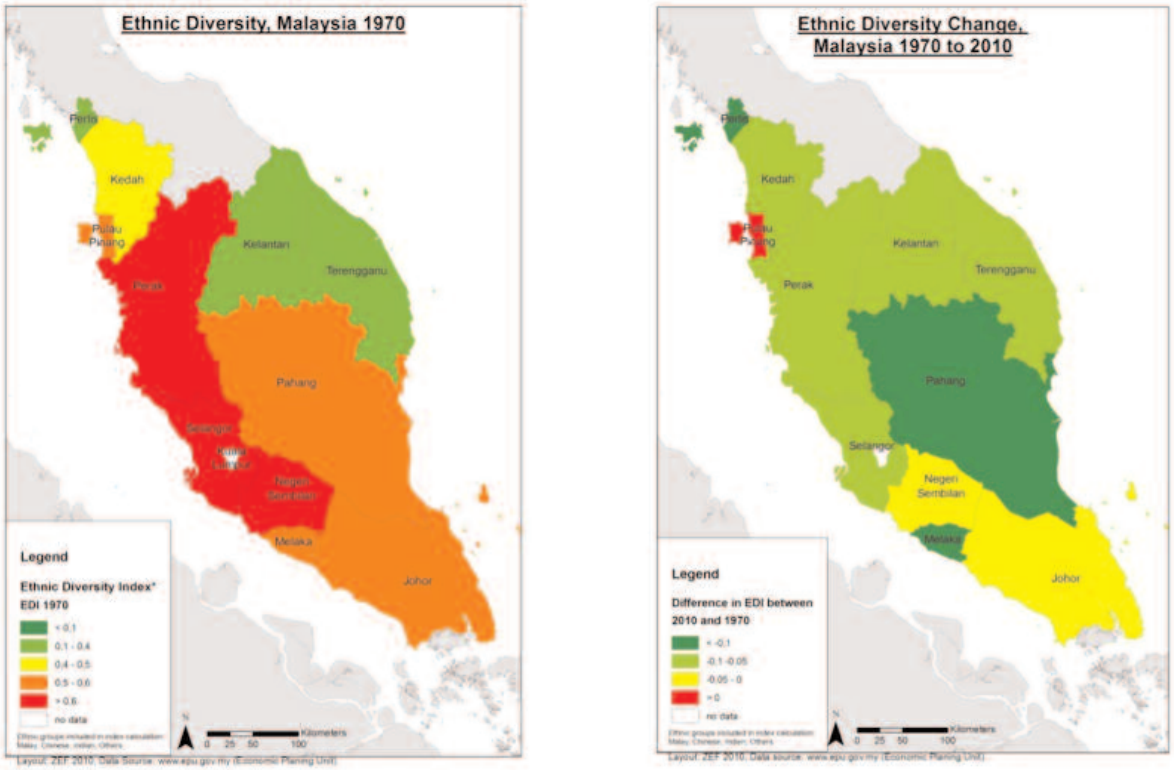
Figure 4: Ethnic Diversity Index, West Malaysia 2010



Source: EDB and own calculations

These maps can be explained with reference to the well-known population distribution of the West Malaysian states. More surprising, however, is the change in ethnic diversity between 1970 and 2010. In only one state, namely Penang, the ethnic diversity has increased, whereas in all other states, particularly in Perlis and Pahang, ethnic diversity has been reduced.

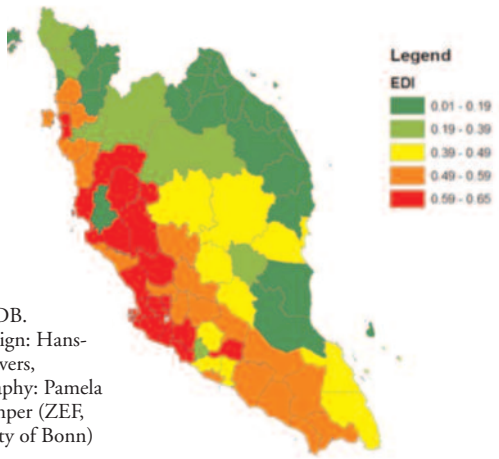
Figure 6 and 7 Ethnic Diversity 1970 and Change of EDI between 1970 and 2010



Data: EDB. Map design: Hans-Dieter Evers, Cartography: Pamela Nienkemper (ZEF, University of Bonn)

The following map is an attempt to show ethnic diversity in Malaysia at a district level. The district data are derived from the Malaysian census of 2000 and provide a more detailed view of the high level of ethnic diversity along the Straits of Malacca, with the exception of the area around a naval base at Lumut, Perak. The ethnic diversity index appears to correlate highly with economic performance indicators, but too many factors are involved with economic growth to warrant any robust conclusion.

Figure 8: Ethnic Diversity Index, Peninsular Malaysia 2000 (District Level)



Data: EDB.
Map design: Hans-Dieter Evers,
Cartography: Pamela Nienkemper (ZEF, University of Bonn)

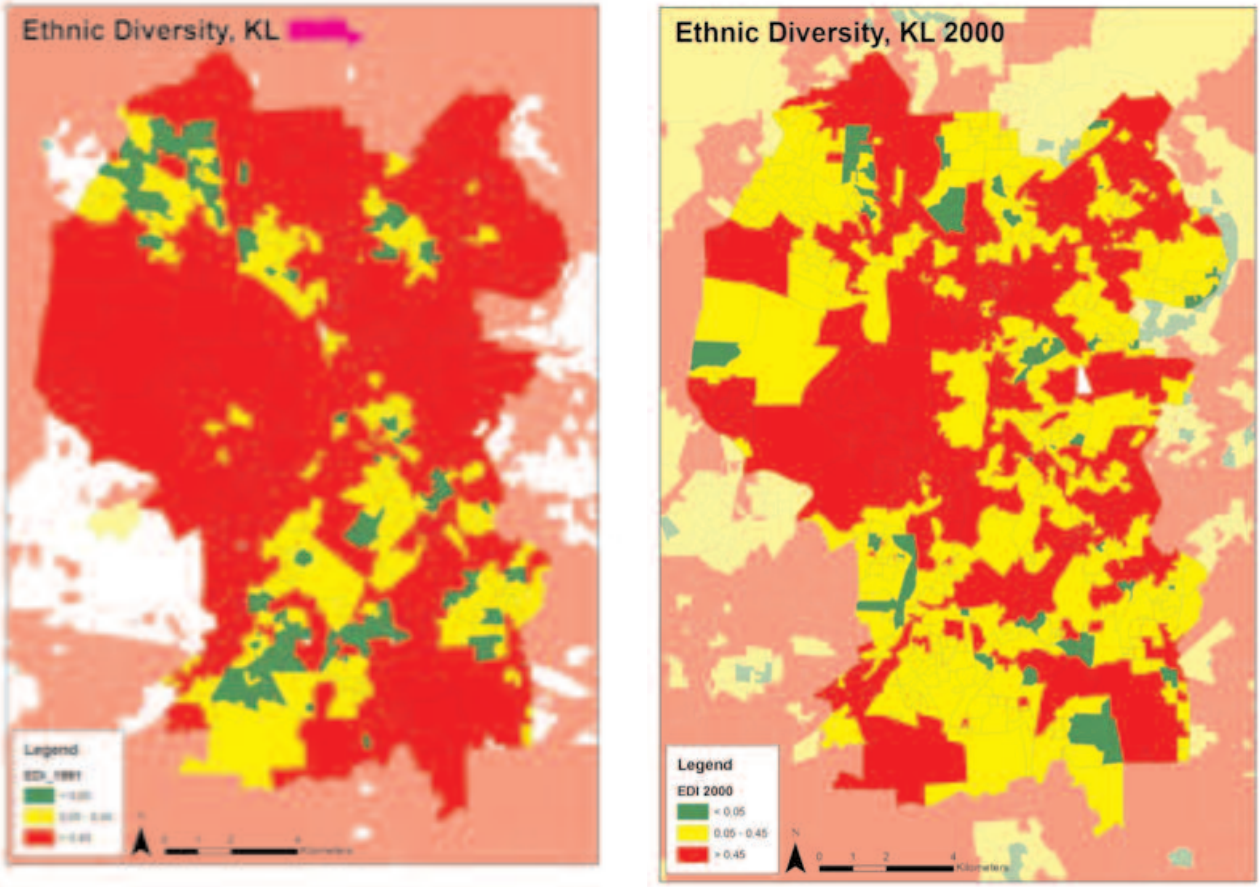
Down-scaling the diversity index to census block level yields an even clearer picture of the development of ethnic diversity. The following maps show the change of ethnic diversity in the Federal Territory, containing the city of Kuala Lumpur, Malaysia's major urban area. If the census data are correct, ethnic diversity has declined and living areas have become more segregated. This preliminary result needs further checking and investigation.

Government policies may have had a decisive impact. Creating low cost housing estates for lower income groups, but also high cost gated communities may have segregated the population along ethnic lines. The governance of ethnicity is as difficult as the governance of bio-diversity. Ashby's 'Law of Requisite Variety' comes to mind: 'Any regulative system needs as much variety in the actions that it can take as exists in the system it is regulating' (Ashby 1960) as well as Ostrom's recommendation for the governance of biodiversity: 'Complex resource systems and biodiversity can successfully be maintained by complex, polycentric, multi-layered governance systems which have a variety of response mechanism' (Ostrom 1998).

Conclusion

The uses of the diversity index have not yet been fully explored. A Pandora's Box has been opened, as there is still scope to address many questions with further research[5]. The analysis of ethnic diversity will have to rest on the assumption that 'ethnic diversity' is a variable in its own right. It treats all ethnic groups as

Figure 9 and 10 Ethnic Diversity Index for Kuala Lumpur, 1991 and 2000



Data: Department of Statistics. Map design: Hans-Dieter Evers, Cartography: Pamela Nienkemper (ZEF, University of Bonn)

equal, irrespective of their cultural, social and economic status. As an independent variable, it may be correlated with other socio-economic data and enable the researcher to investigate the interrelation between ethnic diversity and development. We assume that ethnic diversity will have a positive impact on innovation, social mobility and economic development. Though several studies have been conducted in Europe (Alesina and La Ferrara 2005, Lee and Nathan 2010) and the US (Florida and Gates 2001, Herring 2010), this assumption still needs to be tested further with empirical data, before any robust conclusions can be drawn.

Although biodiversity differs from social and ethnic diversity, lessons have been learned from biodiversity research, both in terms of methodology as well as concepts and theories. We hope to have shown that cooperation across disciplinary boundaries is likely is to open new avenues of inquiry and will yield new results.

Notes

[1] This paper was prepared with considerable inputs from Shamsul A.B. and Anis Y Yusoff, Institute of Ethnic Studies (KITA), Universiti Kebangsaan Malaysia, whose contribution is gratefully acknowledged. The author is, however, solely responsible for any errors and omissions.

[2] We have referred to GIS-based mapping in this context, which yield representations or maps of density (Evers, Genschick, Schraven 2010; Evers, Gerke, Menkhoff 2010).

[3] 'Biocultural diversity (BCD) is the total variety exhibited by the world's natural and cultural systems. It may be thought of as the sum total of the world's differences, no matter what their origin. It includes biological diversity at all its levels, from genes to populations to species to ecosystems; cultural diversity in all its manifestations (including linguistic diversity), ranging from individual ideas to entire cultures; the abiotic or geophysical diversity of the earth, including that of its landforms and geological processes, meteorology, and all other inorganic components and processes (e.g., chemical regimes) that provide the setting for life; and, importantly, the interactions among all of these' (Harmon and Loh 2004:6).

[4] A country's overall BCD-RICH score is calculated as the average of its cultural diversity richness score (aggregated from the scores for languages, religions, and ethnic groups) and its biological diversity richness score (aggregated from the scores for bird/mammal species and plant species). The same holds true for BCD-AREA and BCD-POP.

[5] The Ethnic Diversity Index (EDI-Malaysia) to be developed by the Institute of Ethnic Studies (KITA), UKM will be based on the Simpson Diversity Index, will use data on all Malaysian Parliamentary constituencies or districts, will develop time series 1990-2010 and will provide correlations with other socio-economic data.

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