GENDER IMBALANCE IN EDUCATION
AND ITS IMPACT ON THE LABOUR MARKET

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Abstract

There have been substantial gains in access to education with high enrolment rates in public primary and secondary schools. Yet, since the early 1990s, enrolment rates of females have generally exceeded those of males at all levels of education. How has the gender imbalance in education impacted on the labour market? The search for the answers suggested the many gendered facets of this issue: demand for education, labour supply and the dynamics of gender imbalance in education on the labour market. The demand for education can be examined through transition rates, drop-out rates, enrolment rates and household expenditures on education. Labour supply can be examined through the occupational structure, jobs for the early labour market entrants and labour force participation rates. Finally, the dynamics of gender imbalance in education on the labour market can be seen in the linkages between education and occupation. In particular, we can consider whether the occupational structure of the Malaysian economy has approached the theorised structure of the labour market of Reich (2005) for an advanced global economy, the type of economy in which Malaysia has chosen to engage.

These facets were examined based on data obtained at the national level. The data were analysed by various methods according to the specific topic of concern, and included analysis of cross-tabulations and cohort analysis. Some of the analyses have been published. The demand for education (transition rates, drop-out rates, enrolment rates) and the occupational structure of the young workers were examined in an earlier conference paper, now published as a chapter in the conference proceedings (Nagaraj, Goh, Tey and Lee, 2008). The demand for education at tertiary level and the linkages between educational level and occupation were examined in a previous study (Nagaraj, Goh, Tey and Rohana, 2009). This paper reports on gender equity in household expenditures on education and on the changes in the linkages between educational level and occupation across time. It also discusses the implications for human resources development and planning and evaluates the findings in terms of the Reich’s theorised structure.

Education policies have provided equal access to both girls and boys for eleven years of education; but more boys leave school than girls. The previously published findings show that, compared to girls not in school, boys not in school are more likely to be working, self-employed and in skilled work. Turning to the labour market, the relative positions of various occupations in respect of educational requirements have also not changed over time. However, the gain in tertiary education among females has led to an increase in educational levels across more occupational groups. The impact of gender imbalance in education at all levels has been translated into the occupational distribution of young persons. The better educated appear to be crowding out the lesser educated, and this occurs to a larger extent among the females, in the lower jobs. Moreover, almost a fifth of female graduates stay at home, and this has implications for labour supply. The pervasiveness of
the issue suggests that school itself is a systemic cause. The classroom is just not exciting enough to keep many children in school, with the situation being more intolerable for boys. As the issue cuts across all sectors of society, solutions must be addressed within the national public education system at the classroom level, and any solution must not undermine the gains made by girls.

Malaysia’s experience suggests that the achievement of the MDG Targets 3 (universal education) and 16 (productive work for young people) may be jeopardised in the long term not just in Malaysia but in any country that fails to address the different needs of boys and girls in the classroom. It also suggests that in an economy with gender imbalance in education in favour of females, the improved position of females relative to males does not necessarily mean improved position of females in the labour market relative to males. The findings also suggest that the occupational structure approaches the theorised structure of the labour market of Reich (2005) for an advanced global economy for the males rather than the females.

**Keywords:** gender, education, labour market

**JEL classifications:** J16, J21, J24

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Evidence for many years over a hundred countries with different cultures and economic systems shows that the earnings of more educated people are almost always well above average, and the gains are generally larger in less developed countries (Becker, 1993). Malaysia has long been committed to bringing education to its children, and since independence has seen great gains in educational attainment of the population as well as poverty reduction. The policies have provided both girls and boys access to free education for eleven years. Despite the fact that the policies are gender-blind, there is a rising concern of the emerging trend of gender imbalance in favour of the females visible especially in higher education.

The educational level in Malaysia has improved tremendously in the last two decades, and this can be seen in the increased attainment of higher education. An analysis of the 2000 Population Census shows that the proportion of population with tertiary education has been increasing steadily from 2.3 percent among the 1936-1940 cohort to 19.9 percent among the 1976-1980 cohort, at an accelerated pace in the more recent years. The number of public universities has increased from 5 in 1980 to 21 in 2005. Student enrolment for degree courses in local public institutions of higher learning increased to 289,806 in 2005, from 201,271 in 2000 (Malaysia, 2003). Recent years have also witnessed the proliferation of private institutions of higher learning. The twinning programs of these institutions with foreign universities have enabled more Malaysians to avail themselves to tertiary education. Equal access to educational opportunities has made possible the social and economic advancement of women in Malaysia. Enrolment of females in primary and secondary schools reflected the gender ratio in the country, accounting for about half of the total enrolment in 2005. Female enrolment at the matriculation and form six levels accounted for 67 per cent while their enrolment in public universities continued to increase significantly from 61 per cent in 2000 to 63.4 per cent in 2005. At the post-graduate level, however, female students accounted for only 48.8 per cent and 35.7 per cent at the masters and doctorate levels, respectively (Malaysia, 2006).

With higher enrolment of females in secondary schools, the gender gap in higher education is likely to be perpetuated, with far reaching socio-economic implications. The increase in gender gap in enrolment among the teenagers is likely to perpetuate the male “deficits” in institutions of higher learning, as younger males are more likely than younger females to stop schooling. These gender patterns in education have great implications for the labour force. For example, gender affects occupational choices, career patterns and working practices and can impact on labour supply in certain industries. The 2000 Population Census shows that while 96 percent of male graduates were working, 22 percent of female graduates were outside the labour force. Male graduates were relatively more likely than
female graduates to be employers and own account workers. About 2.6 percent of graduates, both males and females, were unemployed. Of those who were working, female graduates were much more likely than the males to join the civil service, and they made up half of the workers in this sector.

The main objective of this paper is to contribute to a better understanding of the gender dimension of current and emerging trends in education, and its implications on the labour market. The search for the answers suggests three broad areas of concern: demand for education, labour supply and impact on the labour market. The demand for education is examined through enrolment rates, transition rates, drop-out rates and household expenditures on education. Labour supply is examined through the job market for the young labour market entrants and labour force participation rates. The impact on the labour market is examined in the linkages between education and occupation. The implications of the gender imbalance on the labour market is evaluated within the context of the theorised occupational structure for an advanced global economy (Reich, 2005), the type of economy in which Malaysia has chosen to engage.

Some of the analyses have been published. The demand for education (transition rates, drop-out rates, enrolment rates) and the occupational structure of the young workers were examined in an earlier conference paper, now published as a chapter in the conference proceedings (Nagaraj, Goh, Tey and Lee, 2008). The demand for education at tertiary level and the linkages between educational level and occupation were examined in a previous study (Nagaraj, Goh, Tey and Rohana, 2009). This paper completes the analysis and discusses the implications of the findings. The next section describes the methodology of the study and data used in the analysis. The third section reports on gender equity in household expenditures on education and the fourth section on the changes in the linkages between educational level and occupation across time. The fifth section of the paper discusses the implications for human resources development and planning and evaluates the findings in terms of the Reich's theorised structure. The final section concludes the paper.

2. Methodology

This study aimed to provide a better understanding of the gender dimensions of educational attainment and its linkages to the labour market. The issue was considered from a broader perspective, that is, in terms of human capital formation in the nation and its effect on labour market dynamics.
It was designed to answer the following questions:

- Where are the males in education?
- Where are the males in the labour force?
- What are the implications of the gender imbalance in education for higher education?
- What are the implications of the gender imbalance in education for the labour market?

The search for the answers suggested the many gendered facets of this issue: demand for education, labour supply and the dynamics of gender imbalance in education on the labour market. The expanding opportunities for education have made access to higher education accessible and affordable to a greater proportion of society. That is, both supply and demand curves for education have shifted upwards. Understanding the way education affects labour force needs to take into consideration therefore the micro-economic influences on human capital formation. The analysis especially needs to consider the time span needed for acquiring a sufficient level of education to enter the labour force. Such an approach will help in identifying when and how the shift in gender balance occurred, and wherefrom the appropriate policies to encourage the acquisition of human capital that is needed by the nation.

Malaysia has chosen to engage in the global information economy and to benefit from it (Malaysia, 2001). The theoretical framework adopted in this study of the labour market is the structure of the labour market that Reich (2005) theorises will apply to an advanced global economy. In the “The Work of Nations”, written almost 15 years ago, Reich (1991) described a three-tiered work force that would be found in most advanced economies of the future (paraphrased in Reich, 2005), “At the bottom would be workers who offer personal service.... In the middle would be production workers in factories or offices, performing simple, repetitive tasks. At the top would be "symbolic analysts," like engineers or lawyers, who manipulate information... the knowledge workers of the new economy.” Writing more recently, Reich (2005) observed that while his prediction in general was true, he did not foresee that the “…top and bottom tiers are growing, and the middle shrinking, much faster than I expected” and that “a new group is emerging at the very top. They're CEOs and CFOs of global corporations, and partners and executives in global investment banks, law firms and consultancies.” In this study, we consider whether the occupational structure of the Malaysian economy will be able to approach the theorised structure of the labour market in the light of the gender imbalance in education.

Specifically, the study is concerned with the gender dimension at two broad levels:

- Demand for education:
  - Transition rates through primary and secondary education
  - Drop-out rates and work patterns of the very young
  - Enrolment by type of programme in private and public institutions of higher learning
In this paper, the demand for education is evaluated by studying household expenditures on education, while labour supply is examined through changes in the education-occupation linkages across time. The findings inform us about the changing roles of men and women in the labour market and their impact on labour supply, as well as identify the information needed to take into account the gender dimension in human resources planning. The findings are then used to draw implications for human resources development and planning. One aspect that would have been a useful addition to the study could not be evaluated: the impact of gender imbalance in education on earnings. This was because the data was not made available to the researchers by the Economic Planning Unit despite several requests. Nevertheless, the study is comprehensive enough to be able to identify the implications of gender imbalance on the demand for education, labour supply and occupational structure for human resources development and planning.

The data used in the analysis are at the national level. The sources for the previous analyses included national education statistics, a two per cent sample of the 2000 census, recent labour force statistics and the Graduates Tracer Survey for 2006 and 2007. The analyses in this paper are based on the 2004 Household Expenditure Survey and data from the labour force surveys as well as statistics for 1985, 1995 and 2005. These data are analysed by various methods according to the specific topic of concern, and included analysis of cross-tabulations and cohort analysis.

3. **Gender Equity in Household Expenditures on Education**

_Education-Occupational Linkages across Time_

The linkages between educational attainment and occupation are examined for data from the labour force surveys as well as labour force statistics for 1985, 1995 and 2005. Since universal secondary education (eleven years from age 7) was introduced in 1992, 1985 represents a selected year before this policy was in place, 1995 a selected year soon after and 2005, 13 years after the policy was introduced. Since the impact on education is seen primarily in the long run, these selected years give an overview of the impact of changes in
educational policy on the labour market. All analyses take into account the gender dimension.

Table 1 shows the labour force participation rates (LFPRs) by educational attainment and sex. The LFPRs have declined slightly between 1985, 1995 and 2005, reflecting the decline for males (85.6, 84.3, 80.0) rather than for females (45.9, 44.7, 45.9). The diminishing gap in participation of males relative to females between 1985 and 2005 is seen in the male-female ratios of the LFPR. This pattern is quite consistent across all educational attainment categories except secondary education where there is an increase in 2005. Figure 1 shows the LFPRs by age-group for 1985, 1995 and 2005. The LFPRs are sharply lower for the age-groups 15-19 and 20-24 especially in 2005, and for the age-groups 50 and above. The former indicate the improved access to secondary education, with the impact bigger in 2005 than in 1995. The latter could reflect the improved access to financial resources, whether through dependents or pensions over time. Figure 2 shows the male-female ratios by age-group for the three selected years. The lower participation of males relative to females in the labour force in 2005 relative to 1985 is apparent for age-groups 20 to 29 and less. This analysis of the LFPRs suggest that the effect of age, educational attainment and sex on labour force participation. Since male participation rates are higher than females, and females tend to leave the labour force when they are married and have families, the gender imbalance in educational attainment at the tertiary level in favour of females is reflected in the increased male-female ratio for secondary education, and the lowered ratio for ages 20-29.

We now turn to occupation-education associations. In order to explore the changes across time, a logistic regression is used to “predict” the probability of being male. The focus is on tertiary attainment among the employed in the labour force. This should highlight the net effects of gender on education and the labour market. Table 2 shows the results of the estimated odds ratios obtained using logistic regressions on males for 1985, 1995 and 2005. Two models were estimated for each year:

\[
\ln y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{2i}^2 + u_i
\]

where \( y = 1 \) if respondent is male, 0 otherwise

\( X_1 = 1 \) if respondent has tertiary education, 0 otherwise

\( X_2 = \text{Age} \)

\( X_2^2 = \text{Age squared} \)

\[
\ln y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{2i}^2 + \beta_4 X_{3i} + \beta_5 X_{4i} + \beta_6 D_{1i} + \beta_7 D_{2i} + \beta_8 D_{3i} + u_i
\]

where \( y = 1 \) if respondent is male, 0 otherwise

\( X_1 = 1 \) if respondent has tertiary education (higher than Form 5), 0 otherwise

\( X_2 = \text{Age} \)
\[ X_2^2 = \text{Age squared} \]

- \( X_3 = 1 \) if respondent is in a secondary occupation (Clerical and related worker, service and sales workers), 0 otherwise
- \( X_4 = 1 \) if respondent is in a tertiary occupation (Professional, technical and related, administrative and managerial), 0 otherwise
- \( X_5 = 1 \) if respondent is in a tertiary industry (industries which employed more workers with tertiary qualifications than average), 0 otherwise
- \( X_6 = \text{Hours worked} \)
- \( X_7 = 1 \) if respondent had never married, 0 otherwise

The first model contrasts, by gender, tertiary attainment netting out the effect of age (measured as age and age squared). The second set adds in the occupational structure netting out the effect of the economic structure (industries that employed tertiary workers) and two labour market indicators known to differ by gender (hours worked and whether never married). The results for these models are presented in terms of the odd ratios which are the exponentiated coefficients. The odds ratio for the dummy variable \( X_1 \), for example, provides an estimate of the ratio of the probability of Male=1 over the probability of Male=0 when Tertiary=1. The odds ratio for the continuous variable \( X_2 \), for example, shows the increase in the ratio of the probability of Male=1 over the probability of Male=0 when age increases by a year. Also presented are the predicted probabilities of Male=1 among the employed with selected characteristics.

The results of the estimations are shown in Table 2. Clearly the variables that are important in distinguishing male and female participation in the labour force, in particular that of education, change between 1985 and 2005. Model 1 shows the gross effect of gender on tertiary attainment. Tertiary education is a significant predictor only for 1985 and 1995. The odds ratio increased between 1985 and 1995 but dropped to 1 by 2005. This indicates that males were more likely to have tertiary education compared to females in 1985 (about 1.5 times) and 1995 (about 1.7 times), but males and females were equally likely to have tertiary education in 2005. Turning to Model 2, we see that tertiary attainment is no longer significant in 1985 when other labour market factors are brought in, but in 1995 males were about twice as likely to have tertiary education net of other effects.

The predicted probabilities of male=1 are shown in Table 3. The probability of Male=1 among those with tertiary education increases when net effects are taken into account in 1985 and in 1995 (with a smaller increase in 1995) but decreases in 2005. On the other hand, the probability of Male=1 among those in tertiary occupations decreases when net effects are taken into account in 1985 and in 1995 (with a bigger decrease in 1995) but increases in 2005. Finally, the predicted probability of Male=1 among those in a tertiary
industry when net effects are taken into account decreases in 1985 but increases in 1985 and 1995 (with a bigger increase in 2005) but increases in 2005.

This pattern suggests that increased access to education in the short run led to greater gains among males, but in the long run, females have made more rapid gains to level the playing field in educational attainment by 2005. However, males still dominate today in tertiary occupations and in industries that employ more tertiary educated persons, while females are more spread out in lower level occupations and in industries that employ fewer tertiary educated workers than average.

4. Implications of Findings

The implications of the findings are discussed for each of the three broad areas identified earlier as providing various perspectives of the issue of gender imbalance in education. These are education, labour supply and implications for human resources development. The discussion pools together the findings from this paper as well as from the two earlier publications (Nagaraj, Goh, Tey and Lee, 2008; Nagaraj, Goh, Tey and Rohana, 2009). We discuss each in turn.

Education

In 2000, the enrolment rate of children was near universal at 95 per cent in public primary schools and about 85.0 per cent in public secondary school. The gains, however, have been uneven across gender. Increased access to education in the short run led to greater gains among males, but in the long run, females have made more rapid gains to equality. Prior to 1990, enrolment rates for males generally exceeded that of females. However, since the beginning of the 1990s, enrolment rates of females have been equal to, or have exceeded, those of males at all levels of education. The drop-out rate is higher at higher levels of education. Among the reasons cited for drop-outs in primary school are poverty and accessibility to schools (Ministry of Education Malaysia, 2003: 2-8). A small proportion may be in private schools. The data suggest that many children are out of school. For example, the percentage of children aged 12 to 17 who say they have completed school (on average 11.0 per cent) varies between the lowest rate (6.5\% in Perlis) to highest rate (23.0\% in W.P. Labuan), these children are nevertheless to be found in every state irrespective of level of development and availability of alternative schools. The working children, as well as the unemployed children, aged 12 to 17 are likely to be male, from more developed states, have lower levels of education and are the older ones in the group. They are also likely to be from the marginalised groups. Thus one “pull” explanation could be not poverty but private costs of education. While costs of schooling are nominal, other
related expenditures like food, transport, uniforms, stationerries and books are not, so children may be taken out of school. In addition, non-citizens have to pay for public education, and that too only if they are in the country legally. So their costs of education in particular weighed against their earning potential will keep them out of school.

Although both boys and girls leave school at young ages, boys are more likely than girls to leave school. Interestingly, the boys who are not in school are more likely to be working compared to females not in school. They are also more likely to be self-employed and in skilled work. This suggests that boys who do leave school may do so if they already have apprenticeships. Furthermore, one could suppose that with the rapid expansion of the economy in the 1990s, and the access to technology, young boys are far more adept at learning related skills (Coates and Draves, 2006) and at adapting to needs (Kleinfeld, 1998). School may actually be irrelevant for those who find the world of technology more exciting. The Ministry of Education has made great efforts to bring ICT to schools (Ministry of Education Malaysia, 2003), but given the speed of technology uptake, schools will inevitably be behind, and whatever facilities they have will be available to students as part of class schedule.

The pervasiveness of the issue of drop-outs suggests, however, a more systemic cause. One “push” explanation could be that the classroom is just not exciting enough to keep a child in school and that this is a likely explanation for the male disadvantage. It is possible that the lack of a male role in school (Mortenson, 1999) is a factor: in 2000, 64.6 per cent of teachers in primary school were females (Ministry of Education, Malaysia 2003). However, the percentage female was higher in Chinese medium schools (81.5 per cent) where it has been observed the retention rate is highest (Lee and Nagaraj, 2006) suggesting that this argument may not apply. It is important to highlight that it is unlikely that boys are less intelligent, although it is possible that they are weaker academically. In a study of primary school children in Selangor, Anuar Zaini et al. (2004) show that, once IQ scores and learning styles are taken into account, there is no difference between male and female performance tests. On the other hand, among top 25% of IQ scores, males were more likely to be under-achievers.

*Labour Supply*

Generally the gains in educational attainment are reflected across all occupations. Furthermore, the relative positions of various occupations in respect of educational requirements have not changed over time. On the other hand, the youngest cohort, the 15-24 year olds appear to have benefited less from their education than the middle cohort of 25-44 year olds. In particular, the gain in the mean years of education for primary occupations is greater than that for tertiary occupations. The issue of gender is important in
labour force dynamics as it affects occupational choices, career patterns and earnings (Nagaraj et al., 2002; Goh, 2004; Goh and Rohana, 2009; Lee and Nagaraj, 2006). The analyses show that the percentage of males in occupations requiring secondary and higher education, other than technical occupations, was less in 2000 for the younger cohorts (aged 15-34) compared to the oldest cohort (aged 45-64) in 2000. Furthermore, the gain in tertiary education among females has led to an increase in educational levels across more occupational groups. On the other hand, further declines in the proportion male in tertiary education may lead to increased segmentation based on tertiary education in the male occupational structure. Apart from gains in tertiary education amongst the females, the findings seem to suggest that there were stronger segmentation for the females in the older days, a possible indication of sex discrimination. Over time, equality of gender rights appears to have brought about the parity in job segmentation among the two sexes. Among the youngest cohort, job segmentation is gender-blind.

Comparing the occupational distribution of young school leavers with the whole labour force in 2000, we find that young people have a smaller presence in tertiary occupations (not surprisingly) and a greater presence in primary and some secondary occupations. Though it is possible that young people engage in these jobs while continuing education, the analysis by gender suggests that a second reason, that of lower educational attainment, may be more pertinent. Turning to tertiary education, males still dominate today in tertiary occupations and in industries that employ more tertiary educated persons, while females are more spread out in lower level occupations and in industries that employ fewer tertiary educated workers than average. Focussing just on graduates; we find that the fields of study have dimensions, with more females in all except the technical subjects. Female graduates were more likely to be unemployed, in contract or temporary jobs, and in government service. In contrast, male graduates were more likely to be employed, in permanent positions, in private sector employment or self-employed. Not surprisingly, the percentage of males with high earnings was higher than that for females.

Implications for Human Resources Development

The results of the study suggest that the impact of gender imbalance in education at all levels has been translated into the occupational distribution of young persons. Although the educational system produces more women with tertiary education, a greater proportion of these women stay home compared to men, while the greater proportion of the less educated men are working. About 1 in 5 female graduates stayed out of the labour force compared to 1 in 20 male graduates. Labour supply will be affected to the extent that female workers are less prepared to work in localities far away from family or are constrained by family and marital demands. Furthermore, the female advantage in terms of tertiary enrolment does not translate directly into the labour market. Female graduates can be found across a
wider diversity of occupational groups than male. Male graduates with a tertiary education are at an advantage in terms of employment and earnings perhaps because of choice of subjects. Expanding economic opportunities have increased the demand for educated workers. However, there appears to be a mismatch for there is now the issue of unemployed graduates, in particular, the argument that graduates especially from public universities do not have the training needed for the labour market. Furthermore if graduates fail to get jobs for which they have been trained, either because of lack of job opportunities or because of a highly competitive environment for skilled workers, they may seek jobs or opportunities elsewhere.

In considering Reich’s (2005) argument for a three tier labour force structure with growing end tiers and a squeezed middle tier, we find that this may be truer of the occupational structure for the males than for the females. In particular, if Reich’s arguments hold, the demand for education would be affected by the prospects of work in a multi-national company that offers a higher return to skills than a national company. Further, as Vidal (1998) shows, the prospect of emigration to a country’s higher returns to skills also provides an incentive to invest in human capital. It is therefore possible that males do consider the long term prospects when deciding to continue with tertiary education.

5. Conclusion

The foundations of a knowledge economy are human ingenuity and skills and commitment to innovation through research and development. Education is the single most important factor in stimulating the creation of a knowledge-based economy. In this context education encapsulate all activities intended to increase the knowledge and skills set of individuals. The gender dimensions of educational attainment of a society have important ramifications. It can affect educational choice (Tey, 2006; Siow and Chew, 2008), occupational choice (Kuppusamy et al., 2008), career patterns (Quek and Chang, 2008), work (Goh, 2004; Halimah et al., 2008) and wages (Fernandez, 2007; Goh, 2000; Goh and Rohana, 2008), and in turn can affect educational attainment and occupational structure (Nagaraj et al., 2002; Nagaraj, 2004; Lee and Nagaraj, 2006; Tey, 2006) as well as impinge on other issues such as health (Standing, 2000). With higher enrolment of females in secondary schools, for example, the gender gap in higher education in favour of females is likely to be perpetuated, with far reaching socio-economic implications. Labour supply could be affected if, as is usually the case, female workers are less prepared to work in localities far away from family constrained by family and marital demands. Moreover, gender imbalances in educational attainment may affect marriage and fertility patterns.

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(Tey, 2006). There is also a lack of recognition of the implications of gender imbalance in human resources planning. This gender blindness can seriously affect labour supply as female workers are less prepared to work in localities far away from family and are often constrained by family and marital demands. There is also the potential shift of men labour into the informal sector.

As the issue cuts across all sectors of society, solutions must be addressed within the national public education system at the classroom level. Although there is mention of the development of a child’s potential in the Education Development Plan, 2001-2010 (Ministry of Education Malaysia, 2003), the plan makes no mention of gender issues, or of an educational philosophy that is child-centred. The problem is not unique to Malaysia. Among the issues raised has been the suitability of school curricula including pedagogical approaches, whether the needs and characteristics of male students have been neglected in curriculum design, and why is there a failure to retain male students in the school and university system. Tyre (2006) argues that the school system does not favour boys. She writes, “High-school boys are losing ground to girls on standardized writing tests... With millions of parents wringing their hands, educators are searching for new tools to help tackle the problem of boys ... In the last two decades, the education system has become obsessed with a quantifiable and narrowly defined kind of academic success, these experts say, and that myopic view is harming boys ... Boys tend to have better hand-eye coordination, but their fine motor skills are less developed, making it a struggle for some to control a pencil or a paintbrush.” Sharkey (2006) goes further to state that boys develop differently. He notes that, “Boys are biologically, developmentally and psychologically different from girls. Boys learn differently than girls and when the (education) system was altered to encourage girls to do better, boys began to be treated ‘like defective girls’.” He argues that educating boys and girls separately them by addressing those differences should have positive results.

Indeed, although national unity is a prime objective, addressing cultural diversity in the classroom is not. There is no provision to address the needs of each child in the classroom. It is time to move away from gender-blind policies for education and focus on each child in the classroom. There is evidence that boys learn differently from girls (Pollack, 1999; Galley, 2002; Sharkey, 2006; Tyre, 2006). The current rote learning system with its heavy focus on mastery of words and on narrowly defined academic success can be an extremely unfriendly environment for the active boy who prefers a more exploratory and interactive form of learning (Kleinfeld, 1998; Gurian and Stevens, 2005; von Drehle, 2006; Kafer, 2007). Teachers should take into account the neurological and biological differences in their teaching of boys and girls, and implement techniques and good pedagogical practices which enhance their learning (Coates and Draves, 2006). Differentiated instruction (Banks et al., 2000) (as every child learns differently) taking into gender and cultural diversity in
the classroom, and individualised curricula (as every child learns at a different pace) that develop the ability to learn (Senge et al., 2000) rather than the ability to absorb knowledge should be adopted. Finally, the needs of the large number of children with inadequate education already in the labour force should also be addressed. Education should be made available not only to the school and college going population but also to the working population which may not have the usual academic qualifications. Opportunities should be provided for workers to keep abreast with developments in their respective areas of specialization. The way education is administered should also lead towards imbuing individuals with abilities to create and innovate. This is also true for the working population. Opportunities should be provided for them to update their knowledge and to keep abreast with developments in their respective areas of specialization.

There are also broader implications of our findings. Our findings add to the debate on education and its impact on the status of women. Clearly increased educational attainment among females does not necessarily lead to a smaller gender differential male-female earnings gap or to shifts in the gender occupational structure (Karen mason) from Target 4 of the MDG is stated primarily in terms of women. It needs to be stated more broadly so that the delivery of education is not seen only in terms of facilities and access but also in terms of curriculum and learning that is not gender-blind, that takes into account the gender and cultural diversity in a classroom. In particular, both boys and girls need to enjoy schooling, and not just tolerate it for the good of their future. Malaysia’s experience suggests that the achievement of Targets 3 (universal education) and 16 (productive work for young people) may be jeopardised in the long term not just in Malaysia but in any country that fails to address the different needs of boys and girls in the classroom.


Table 1: Labour force participation rates by educational attainment and sex, Malaysia, 1985, 1995 and 2005

<table>
<thead>
<tr>
<th>Educational attainment</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Male/Female Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1985</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>65.7</td>
<td>85.6</td>
<td>45.9</td>
<td>1.86</td>
</tr>
<tr>
<td>No formal education</td>
<td>58.5</td>
<td>90.2</td>
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<td>94.6</td>
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<td>77.7</td>
<td>45.8</td>
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<td>77.1</td>
<td>83.0</td>
<td>68.0</td>
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<td><strong>1995</strong></td>
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<tr>
<td>Total</td>
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<td>44.7</td>
<td>1.89</td>
</tr>
<tr>
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<td>85.9</td>
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</tr>
<tr>
<td>Primary</td>
<td>66.0</td>
<td>92.5</td>
<td>38.8</td>
<td>2.38</td>
</tr>
<tr>
<td>Secondary</td>
<td>64.9</td>
<td>80.9</td>
<td>46.4</td>
<td>1.74</td>
</tr>
<tr>
<td>Tertiary</td>
<td>71.8</td>
<td>80.7</td>
<td>61.3</td>
<td>1.32</td>
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<td><strong>2005</strong></td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>63.3</td>
<td>80.0</td>
<td>45.9</td>
<td>1.74</td>
</tr>
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<td>89.6</td>
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<td>79.3</td>
<td>44.4</td>
<td>1.79</td>
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<tr>
<td>Tertiary</td>
<td>64.7</td>
<td>71.4</td>
<td>58.1</td>
<td>1.23</td>
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</table>
**Table 2: Odds Ratios, Logistic Regression on Employed Males, 1985, 1995 and 2005**

<table>
<thead>
<tr>
<th>Model/Variables</th>
<th>1985</th>
<th>1995</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary Education</td>
<td>1.499**</td>
<td>1.706***</td>
<td>1.067</td>
</tr>
<tr>
<td>Age</td>
<td>1.067***</td>
<td>0.990</td>
<td>0.963**</td>
</tr>
<tr>
<td>Age Squared</td>
<td>0.999**</td>
<td>1.000</td>
<td>1.000**</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>16.17***</td>
<td>8.51**</td>
<td>7.21**</td>
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<tr>
<td>Percentage correctly classified</td>
<td>65.1</td>
<td>52.1</td>
<td>52.9</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Tertiary Education</td>
<td>1.191</td>
<td>2.048***</td>
<td>0.886</td>
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<tr>
<td>Age</td>
<td>1.089***</td>
<td>1.009</td>
<td>0.954</td>
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<tr>
<td>Age Squared</td>
<td>0.999***</td>
<td>1.000</td>
<td>1.001*</td>
</tr>
<tr>
<td>Secondary</td>
<td>0.496***</td>
<td>5.847***</td>
<td>0.388***</td>
</tr>
<tr>
<td>Tertiary Occupation</td>
<td>0.530***</td>
<td>0.668***</td>
<td>0.848</td>
</tr>
<tr>
<td>Tertiary Industry</td>
<td>1.399***</td>
<td>1.977***</td>
<td>1.847***</td>
</tr>
<tr>
<td>Hours Worked</td>
<td>1.016***</td>
<td>1.008</td>
<td>1.018***</td>
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<tr>
<td>Never Married</td>
<td>1.014</td>
<td>0.948</td>
<td>1.014</td>
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<tr>
<td>Likelihood Ratio</td>
<td>91.14***</td>
<td>76.14***</td>
<td>99.8***</td>
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<tr>
<td>Percentage correctly classified</td>
<td>66.5</td>
<td>63.6</td>
<td>66.9</td>
</tr>
</tbody>
</table>

Notes: * Significance at 10% level
** Significance at 5% level
*** Significance at 1% level
Table 3. Probability of Male among the Employed with Selected Characteristics 1985, 1995 and 2005 (based on Model 2)

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1995</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tertiary=1</strong></td>
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<td></td>
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<tr>
<td>Actual probability</td>
<td>0.554</td>
<td>0.558</td>
<td>0.506</td>
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<tr>
<td>Predicted probability</td>
<td>0.700</td>
<td>0.631</td>
<td>0.483</td>
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<tr>
<td><strong>Tertiary Occupation=1</strong></td>
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<tr>
<td>Actual probability</td>
<td>0.579</td>
<td>0.603</td>
<td>0.653</td>
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<tr>
<td>Predicted probability</td>
<td>0.558</td>
<td>0.457</td>
<td>0.676</td>
</tr>
<tr>
<td><strong>Tertiary Industry=1</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Actual probability</td>
<td>0.742</td>
<td>0.689</td>
<td>0.740</td>
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<tr>
<td>Predicted probability</td>
<td>0.725</td>
<td>0.718</td>
<td>0.765</td>
</tr>
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</table>
Figure 1: Labour force participation rates by age group, Malaysia, 1985, 1995 and 2005

Figure 2: Male-female ratios of labour force participation rates by age group, Malaysia, 1985, 1995 and 2005