

4. Converging Patterns? Educational Policies and Development in an Educational Age

1. INTRODUCTION

In chapter 2 we pointed out that there is a large literature that estimates the effect of education on economic growth. However, it also became clear that this relation may vary considerably between countries. Essentially, two models have emerged that discuss these differences. First, there is the ‘human capital model’ (Fuller, Gorman, and Edwards 1986). This theory, mainly propagated by Western scholars, argues that school investments increase labour productivity both at an individual and national level. However, this theory works mainly at the individual level. An individual decides to follow education based on the anticipated returns while the schools will offer the necessary skills as signalled by the wage rates. Second, mainly propagated by non-Western scholars, there is the ‘institutional model’ which argues that the increase in literacy and skills is mainly driven by political and ideological factors.

Both models suffer from considerable weaknesses. The human capital model is based on a market mechanism and, consequently, it is difficult to explain deviations from the optimal schooling levels that are not caused by misinterpretation of expectations. An example of an attempt to such an exercise is Fields (1974) who argues that wages in developing countries adjust slowly, creating an imbalance in their labour markets and hence, overeducation. The problem with the institutional model is that the individual relation between schooling and labour output is limited and that the economic effect on school expansion should be studied at a national level.

Yet, as our study is also based at the macro level, we think this latter weakness is less important in this case. Indeed, the latter model has become increasingly popular both with sociologists (Fuller, Gorman, and Edwards 1986) and some economists (Bauer 1997).⁶⁹ One could argue that the human capital model equals one end of the institutional model, i.e. the case with optimal, country-specific institutions. This suggests that, as most Western scholars focus on the human capital model while most non-Western scholars focus on the institutional model, it is likely that non-Western

⁶⁹ They all found either that the human capital model must be rejected or that the institutional structure may explain the development of the education system and, through that system, influences economic growth.

countries suffer from sub-optimal institutions compared to developed countries and, hence, from a lower effect of education on growth.

Based on the quantitative data discussed in the previous chapter, we go deeper into the existence of institutional differences of human capital forming institutions in India, Indonesia and Japan. In doing so, we try to develop some hypotheses about the effects this may have on the relation between human capital and growth. In the next section we start with a brief overview of the literature on the historical development of human capital forming institutions. Section 3 to 5 look whether the pattern found is also applicable to Indonesia, India, and Japan. In section 6 arrive at a brief conclusion where we compare the three countries and try to distil some hypotheses on the relation between human capital and economic growth which we can test in further chapters.

2. GENERAL PATTERNS OF EDUCATIONAL DEVELOPMENT IN THE LITERATURE

2.1 Introduction

Most studies on the development of education systems and their differences between countries are from educational sociology. This strand is captured under the common term ‘world model of education’ literature. As the name suggests, in this literature it is generally argued that education systems in most countries follow a common development. Indeed, this is part of the reason why the International Standard Classification of Education (ISCED) was developed which we touched upon briefly in the previous chapter. Even with the existence of all sort of country-specific characteristics, the ISCED nevertheless managed to develop some common characteristics of the education systems from all countries.

Although this literature makes a distinction in the underlying reasons for educational development between different countries, the actual development of the education systems shows a common pattern. Generalizing, it is argued that in most, nowadays developed, countries, the education system arose from internal, country-specific, economic, religious, and political developments (Boli 1989). As these countries are mostly Western European or Western Offshoots such as the United States, there are also large similarities in their internal characteristics. Yet, the development of the education systems in what we call now, ‘developing countries’ was not based on local societal developments. In fact, it seems to have been copied from Western Europe with the idea of stimulating economic development by means of

increasing the skills in the population in the same way as in the Western countries (Ramirez and Boli, 1987).

2.2 *The rise of mass education*

In the ‘world model of education’ literature it is argued that around 1800 in Europe and some western offshoots a system of mass education (defined as primary schools open in principle to all classes of society)⁷⁰ arose caused by economic and political developments (Ramirez and Boli 1987; Boli 1989; Nuhoglu Soysal and Strang 1989).⁷¹ For example, instead of the aristocratic and priestly classes, increasingly the entire population became involved in the political process. This increased the need for the state to ‘educate reliable citizens’. In other words, in order to prevent political change and unrest, common people should be taught the correct moral and political values. These developments in the political field were enforced by economic development. For example the increased use of written contracts, books, and trade correspondence made literacy more important (Houston 1983).

The increase in mass primary education caused by these developments was spectacular. For example, in 1840, the gross enrolment ratio (the number of children enrolled in education divided by the number of children in the relevant age class) in primary education in France was 50.9%. This was spectacular compared to the figures for India and Indonesia that a few decades later were still around 1%. Yet, at the end of the nineteenth century also a take off to mass education took place in much of what is now known as the ‘developing world’ (Ramirez and Boli, 1987; Benavot and Riddle 1988).⁷² However, there were two important differences in the development of

⁷⁰ As a consequence, this does not mean that children actually have to attend schools. So long as parents have a feasible option to send their children to school, we define it as a system of mass education. If we would have simply looked at the numbers enrolled, we would end up with a tautological analysis: ‘mass education started because a high percentage of children was enrolled in primary education’.

⁷¹ The religious argument is also frequently put forward in the literature. Examples are the Calvinist worker attitude or, for Japan the ‘reformation’ in Japan. In the 16th century many developments had taken place that changed the nature of the Japanese government such as the evolution of an administrative corps, the refinement of administrative technology, and the utilization of talented individuals from different social backgrounds. Although this ‘Reformation’ was followed by what Schooler (1990) sees as a successful Counterreformation when the Tokugawa family rose to power, the Reformation-like situation could not be turned around completely. The religious argument is, however, extremely problematic. To give just one example, it is not clear at all whether higher literacy is caused by the arrival of Protestantism or that Protestantism arrived in regions with a high literacy. We will therefore further abstain from this line of reasoning.

⁷² It is argued, however, that for the great mass of developing countries, entry into mass education only started after World War II (Meyer, Ramirez, and Nuhoglu Soysal 1992, 137). However, the simple observation that a large part of the growth in enrolments did take place only after 1950 does not

mass primary education in the developing countries compared with its development in the West.

First, the underlying developments causing the rise of mass education in the developing countries were different from those in the Western countries. Instead of growing from religious, economic, or political changes, here the start of mass education was based on the idea that economic and social progress could only be achieved by copying the Western educational model (Ramirez and Boli, 1987). Several other arguments have also been put forward, including the building of a class of reliable citizens, colonialism causing a simple copying of the education system of the colonizer country, and the need to train capable administrators. However, for all arguments the underlying factor is the idea of that economic and social progress can be stimulated by copying the Western education system. In the 'world model of education' literature, this is often referred to as the 'myth of progress' (Benavot 1983, 65; Ramirez and Boli 1987, 10; Kamens, Meyer, and Benavot 1996, 136).⁷³

The second difference of the rise of the 'world model of education' in the developing countries was its result: a slower increase in mass education and, up till now, lower levels of educational attainment. This is clearly shown by the data of Benavot and Riddle (1988, 202) which show that until 1940 the primary enrolment ratios in Asia were the lowest of all regions except for Africa and the Middle East.⁷⁴

2.3 The rise of secondary and higher education

In first instance, the rise in primary enrolments was hardly accompanied by an increase in enrolments at the secondary level. However, in the Western countries in the mid-nineteenth century an increasing demand for further educational opportunities arose. Economic and social developments made it possible that well to do persons,

exclude possible commitments of the States involved to mass education or, at least, to the 'modern', Western, education system.

⁷³ Admittedly, (Ramirez and Boli 1987, 10) distinguished 5 legitimizing myths, i.e the myth of the individual, myth of the nation as an aggregate of individuals, myth of progress, myth of socialization and life-cycle continuity, and the myth of the state as the guardian of the nation. However each myth is based on the idea that education will deliver progress in the form of economic and social upliftment and in the form of a strong state.

⁷⁴ It may be that, because of its weaker links with economic and political development, the growth of enrolments in these regions was less strong. For example, some indigenous education in Indonesia had a very religious nature which caused this form of education to be badly connected to the demand from the economy. Therefore, many Dutch and Indonesian educators held it in low esteem as it did not provide much possibilities to enrol in a job after graduation. Although, at the 1936 conference in Padang-panjang, attended by many Muslim educators, it was decided to structure these schools and to upgrade the secular subjects in the curriculum (Hing 1995: 13), still the problems with educated unemployed continued.

even if not related to the nobility, could send their children to secondary schools. This increasing secondary education was strongly programme oriented, contrary to the already existing general and classical institutions.⁷⁵ As the average educational attainment rose and the demand for education increased, in the 1920s and 1930s a shift emerged to more general secondary education. This is what Trow (1961) called the ‘second educational transformation’.⁷⁶

The rise in secondary education in developing countries only took place after the 1910s and accelerated only after World War II. As the ‘world model of education’ literature argues that developing countries try to follow the educational development path of the Western countries, and as they lagged in educational development, developing countries started to copy mass secondary education from the western countries since the first decades of the twentieth century and especially after World

Table 4.1: Full-Time Students in Vocational Programs as a percentage of persons enrolled in total general secondary education by select regions of the world, 1950-1990 (number of countries in parentheses)

Region of the World	1950	1960	1970	1980	1990
Africa*	19.0 (21)	16.2 (30)	13.8 (44)	8.5 (39)	3.6 (30)
Asia**	10.1 (12)	10.1 (17)	11.2 (24)	4.1 (27)	3.6 (25)
Middle East/North Africa	15.8 (11)	12.1 (15)	11.5 (17)	8.9 (16)	6.7 (12)
Latin America/Caribbean	29.9 (19)	23.0 (23)	16.0 (30)	11.6 (34)	7.1 (24)
Europe	37.9 (19)	34.6 (23)	21.1 (30)	9.2 (31)	17.9 (36)
Totals, all regions	24.2 (82)	20.0 (108)	15.1 (145)	8.6 (147)	8.6 (127)

*Excluding North Africa
**Excluding Middle East
Source: 1950 and 1960: Benavot 1983, 68; 1970-1990: UNESCO statistical yearbook (various issues).

⁷⁵ It might even be argued that the programme oriented secondary education created a way for further education and, at the same time, closing the way to higher education for the non-elite. For a comparison between Asia and Europe see Wilkinson (1963, 20-21)

⁷⁶ Trow (1961, 148) dates it between 1900 and 1940. However, this is for the United States, which, as pointed out, as a developed country anticipated developments that would commence in the developing world some decades later.

War II. Consequently, their focus is much less on vocational or practical programmes and more on general subjects.⁷⁷ This can be seen in table 4.1. It is especially in Europe (37.9%) that a large share of persons enrolled in secondary education follow a vocational or practical education stream. This figure is much lower for the other regions. Most notably in Asia in 1950 there are only 10.1 students in vocational or practical programmes compared to 100 in general secondary education. Furthermore, we may notice that the share in vocational programmes declines in all world regions.

This results in two important findings. First, there is tendency to general secondary education which in turn might lead to an expansion of higher education. This is also confirmed by the findings of Kamens, Meyer, and Benavot (1996, 137) who find that the share of comprehensive and general secondary education in the higher secondary education program increased strongly in the richer countries between 1960 and 1980 while this share rose more moderately in the poorer countries. Yet, this latter finding can also be caused by the situation that the initial share of vocational education in these countries was already lower at the start of this period.

Second, it shows that this pattern from vocational to general secondary education in all regions is the same, indicating that there is indeed to some extent a world development in education.⁷⁸ Indeed, if the developments would be largely country specific, we would expect a radically different development after independence. However, this does not seem to be the case.⁷⁹ Some studies, using regression analyses, showed that independence had no strong effect on educational policy (Benavot 1983, 72; Meyer, Ramirez, and Nuhoglu Soysal 1992, 140). Equally, it is argued that country-specific effects on educational development are small (Meyer *et al.* 1977, 251).

Undoubtedly, the increase in general secondary education also increased enrolments in higher education as there is a larger pool of people who can pursue higher education. This increase may be driven by social or economic motives. Social

⁷⁷ Alternatively, Bennett (1967, 106) argued that it are mainly cultural determinants (whatever they may be!) that cause this effect in Asia. Green (1953a; 1953b) is more specific when he suggests that the low share of vocational education in Asia might be explained by caste, authoritarian patterns of communication, and the higher status attached to white-collar jobs.

⁷⁸ Another example is the increasingly equal definition of childhood in constitutions (Boli-Bennett and Meyer 1978, 805). However, not many studies focus on the patterns of educational development over the whole historical period. One exception is provided by Matthijssen (1972). He divides educational development in several phases, each with its own power structure and educational characteristics.

⁷⁹ For an alternative view see Herting and Bauldry (2001), Hirschman (1979), and Ramirez and Meyer (2002, 13).

motives can be pluriform, but entail mainly that younger persons find higher education easier attainable. In addition, they think they can reap the benefits of higher education more easily. Both factors can be caused by increasing education levels in the population which make higher education both easier accessible and more accepted for lower class persons (Hayden and Carpenter 1990). For example, from the overview study on the returns to education of Psacharopoulos and Patrinos (2004), we can see that the returns to higher education are relatively lower in Western than in developing countries. As the enrolment in higher education is also much higher in Western countries, this suggests that there is a limited access both to higher education and, after a degree has been obtained, to the labour market in developing economies. A second reason for the increase in higher education may be economic. Due to changing economic structure, there is a rise in the returns to higher education (Jackson and Weathersby 1975; Nicholls 1984). Both classes of arguments are in conformation with the idea that national economic and social developments drive educational development.

3. THE EDUCATIONAL STRUCTURE IN INDONESIA

3.1 The rise of a colonial education system

At the start of the nineteenth century a weak indigenous education system coexisted with a weak western education system. As far as there were western schools, they were meant for (Indo-) European children. These schools were generally led by missionary organisations, sometimes with the financial support from the East-Indies government. The indigenous system of education, which had no connection with the colonial government, consisted largely of Koran school (*pesantren*) for Muslims where they learned to read and write with the help of Koran texts.

Neither the small indigenous system nor the European schools, provided enough trained persons for government functions and industry. In the early 19th century especially the former factor proved important as '[t]he need for schools for the indigenous population became more important when the village leaders became obliged to participate in the government administration for which they needed certain skills.'⁸⁰ Therefore, the government started slowly to become more active in the field of education made visible in several changes in the law such as the East Indies

⁸⁰ Colonial Report (Koloniaal Verslag) (1849). Translation from Dutch by the author.

Government Act of 1818, which obliged the government to provide schools for Europeans, and to supervise some of the existing indigenous schools. In addition the East Indies government also had to allow Indonesians entering European schools.

However, it was only at the end of the nineteenth century that the education system in Indonesia was considerably expanded to also include Indonesians. In the Netherlands, this was a period of rapid expanding educational enrolments and the Dutch parliament wanted to extend this also to the colonies. These efforts resulted in the Royal Decree (Koninklijk Besluit) of September 1893 which regulated the whole Indonesian school system. The system was changed in such a way that two categories arose. There came five-year First Class schools (Scholen der eerste klasse) for children of high-class or wealthy Indonesian parents and three-year Second Class schools (Scholen der tweede klasse) for children of the Indonesian population in general. Besides this two-tier structure of Indonesian education, the European schools remained in place. As a consequence, the dual structure of the existence of a European and an Indonesian school system side by side, which had in effect existed from the start of the nineteenth century, remained in place.

3.2 Increasing enrolments

3.2.1 Primary education

Although in the mid-nineteenth century the idea already had taken hold that for economic and administrative improvement more Indonesians needed to be educated, in the late nineteenth century the idea arose that the colonizer countries were also responsible for the economic and moral upliftment of the colonial peoples. This development resulted in Indonesia in the Ethical Policy. An important aspect of the policy constituted of improved access to education.

In theory, already from the mid nineteenth century, schools had been open to the indigenous population. However, in spite of the increase in the number of second-class schools and the number of students, these lower class schools never had become popular. Between 1904 and 1914 the number of indigenous second-class schools rose from 603 to 1,167 whereas the number of students rose from 86,342 to 174,415. Although this was a doubling of the number of students, compared to the total

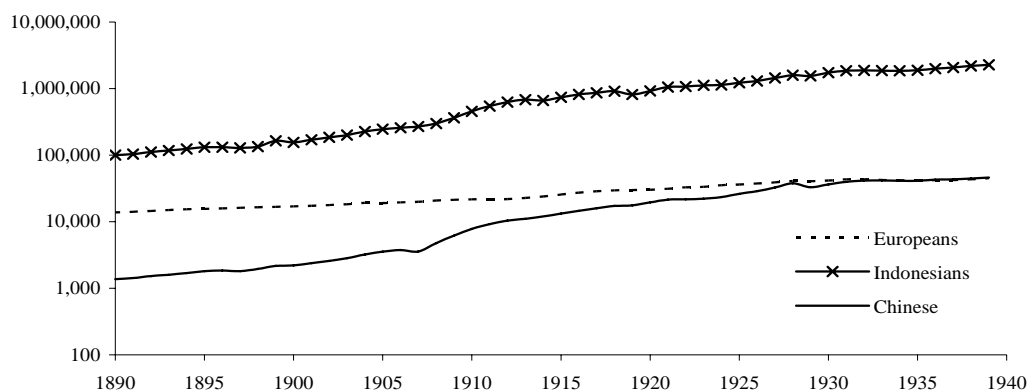
population this increase was small if one considers that it increased the gross enrolment ratio in primary education from 1.1 to 2.1%.⁸¹

For this reason the Governor-general, Van Heutsz, became interested in the village schools, set up in the 1890s by the resident of Kedu (Java), P.M.L. de Bruyn Prince. In the next few years the experiment was extended to include the complete island of Java and in 1909 also a test in Atjeh was allowed whereas in 1914 on the island Sumba also some village schools were set up (Lelyveld 1992, 83). The population had to bear the largest share of the expenses, the profession of teacher did not have much standing, and the quality of these schools was low. Nevertheless, between 1909 and 1914, the number of these desa schools rose from 723 to 3,521 and the number of pupils from 43,713 to 239,415.⁸² So the growth in this new class of education was more than double that in the second-class schools.

This increase can also be seen in figure 4.1. This figure shows two important developments. First, the number of children in primary schools rose strongly as from

Figure 4.1

Log enrolment in primary education in Indonesia by ethnic group, 1890-1940



Source: Colonial Report (various issues)

around 1907. This was largely due to an increase in the enrolments of Chinese and Indonesians.

⁸¹ Please note that these figures exclude all other sorts of education such as village schools.

⁸² Second-class schools were later renamed standard schools which in the 1920s got a fifth and sometimes even a sixth grade for agrarian education (to give the students the possibility to set up their own enterprise). With the start of the school year 1932-1933 the already started process of converting standard schools into Village- and continuation schools was strongly promoted. In that year the number of standard schools decreased with 233. Slowly nearly all Standard schools disappeared.

However, it were not only the numbers enrolled in the desa-schools that increased. Equally the number of Indonesians in European (or related) primary education increased. Where in 1900 only 2,603 children of Indonesian origin entered European and related schools (against 369 Chinese and 17,030 Europeans), in 1920 this figure had increased to 52,682. These figures include enrolments in the former First Class Schools, which got Dutch in the curriculum and were renamed HIS (Hollandse Inlandse School: Dutch-Indonesian Schools).⁸³ This shows that there was a clear demand for European and related education.

The situation was now that the second class Indonesian schools made place for mass education in the desa schools while the first class schools were turned into Dutch-Indonesian schools. This changed the dichotomy in indigenous education. Whereas at the end of the nineteenth century the difference was largely between Indonesians of higher and lower social classes, the dichotomy was now between Indonesians following mass education and Indonesians following European oriented education. Of course, both dichotomous situations largely consisted of the same social groups.

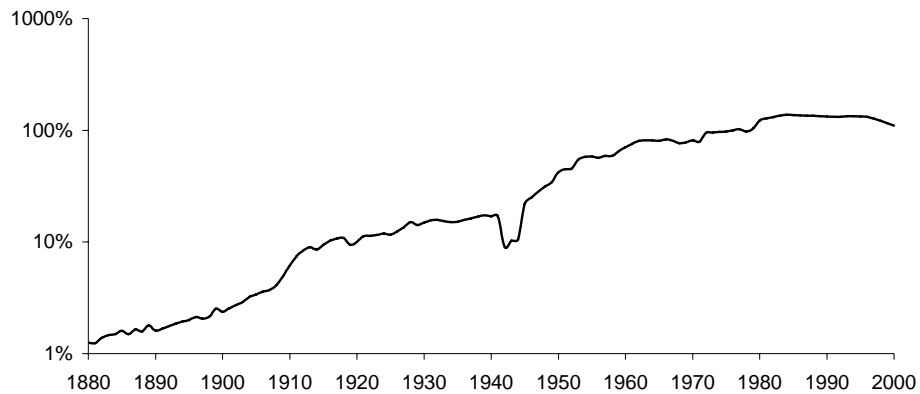
There was thus a decrease in the ethnic differences in educational enrolments in the first four decades of the twentieth century. This process got an impetus during World War II when the Japanese abolished European primary education and created a uniform six-year primary school (Goto 1992, 12). This process was continued after independence when no difference was made between ethnicities. Most important in this respect was the introduction of Bahasa Indonesia as a uniform language in the schools. However, room was left for local languages.

This created a massive rise in enrolments. Figure 4.2 shows that after a rise between 1907 and 1941 and a decrease in enrolments during the War, primary education exploded as from the late 1940s. After a stagnation in the mid-1960s when

⁸³ Yet, this increase was partly due to the decision to introduce the possibility to learn the Dutch language in first-class schools (Lelyveld, 1992: 78). Dutch was introduced as from the third year and the number of school years was extended with one to a total of six as from 1907-1908. After an advice of Hazeu in 1911 it was decided to add a seventh year and to teach Dutch already from the first year. This did not relieve all doubts in the government concerning the quality of education in the first class schools. Therefore, in 1914, this school was converted into the Dutch-Indonesian School (H.I.S., Hollands-Inlandse School). After the village schools, it were the Dutch-Indonesian schools, which showed the fastest rate of growth in the 1920s.

Figure 4.2

Log gross enrolment ratio in primary education in Indonesia, 1880-2000



Source: Appendix A.6., table A.6.1.

Suharto came to power, the gross enrolment ratio started to increase again in the 1970s, fuelled by the increasing government expenditure on education from the boom in oil prices. In the mid 1980s the gross enrolment ratio reached its peak of around 137%. Such a peak in the gross enrolment ratio above 100% takes place in many countries when they try to arrive at universal primary education. It means that also older (and possibly younger) persons follow primary education. Afterwards, the gross enrolment ratio again declines as every designated child follows primary education so the need for older persons to follow this level of education disappears.

3.2.2 *The rise of secondary and higher education*

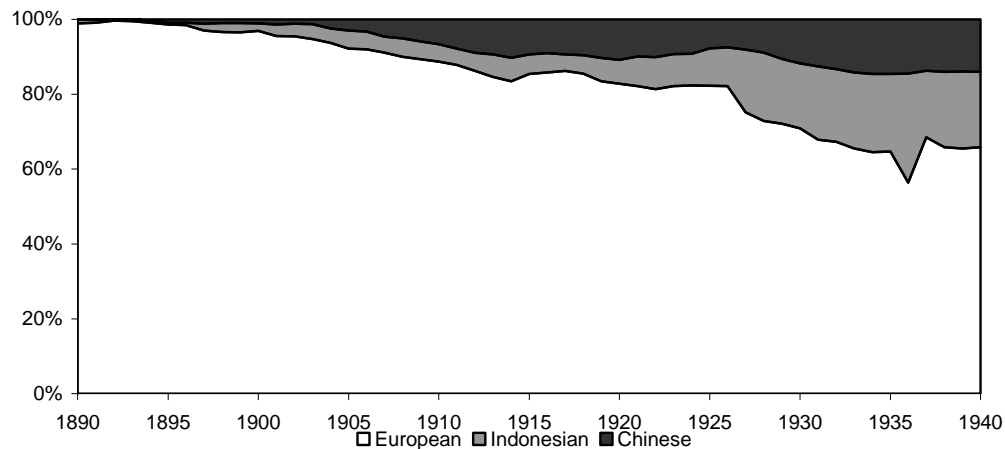
Even though access to primary education for the Indonesian population increased in the first decades of the twentieth century, it still remained difficult to enter secondary education. First, of course, a low enrolment in primary education means that the number of persons eligible to follow secondary education is also small. Second, the possibility of Indonesians entering secondary education was also reduced because the latter was largely given in Dutch.

In the 1910s and 1920s the opportunities for entering secondary education for Indonesians increased. Link schools were introduced, which were aimed at bridging the gap between Indonesian primary education (and of course the HIS) with the (largely European) secondary education. However, the continuation in secondary education remained problematical for the Indonesian population until after

decolonization.⁸⁴ In figure 4.3, we see a relative rise in the number of Indonesian and Chinese children enrolled in secondary education after 1905, but especially after 1925. However, their numbers remained relatively low compared to European

Figure 4.3

Share of ethnic group enrolled in general secondary education in Indonesia, 1890-1940



Source: Colonial Reports (various issues)

enrolments. As a consequence, in this respect the dual structure of the education system remained intact until World War II.

The options for the Indonesian population in secondary education were thus very limited. Still, as figure 4.2 shows, there was a considerable increase in primary enrolments which at least suggests that there was also an increasing demand for further education. This gave, compared to the international patterns described in section 2, rise to a remarkable situation. The Europeans did follow the pattern set out in section 2 of first increasing primary education and then increasing secondary education. However, because secondary education was difficult to access for the indigenous population, the demand for further education that arose was expressed as an increase in vocational primary education. This was a divergence from the global educational development path as generally vocational education was given at the secondary level.

Indeed, table 4.2 shows that the increase in enrolments in vocational education for Indonesians between 1880 and 1940 was much larger than in general (secondary)

⁸⁴ Even after decolonization problems remained with culture, income, language instruction, etc.

education. For Chinese, both sorts of education developed in about the same manner. Finally, European enrolments in general secondary education were slightly higher than in vocational education.

Again, just as in primary education, World War II had a strongly egalitarian effect on secondary education by closing the Dutch schools. However, in effect most

Table 4.2: Enrolment per race in general secondary and vocational education in Indonesia, 1880-1940

	General Secondary education			Vocational education*		
	Indonesian	Chinese	European	Indonesian	Chinese	European
1880	0	1	492	563	5	103
1890	5	0	461	485	4	89
1900	14	7	666	617	25	113
1910	61	88	1.175	2.921	119	537
1920	184	313	2.398	7.669	313	1.410
1930	862	588	3.536	20.355	915	3.466
1940	1.572	1.093	5.130	32.522	1.969	3.952

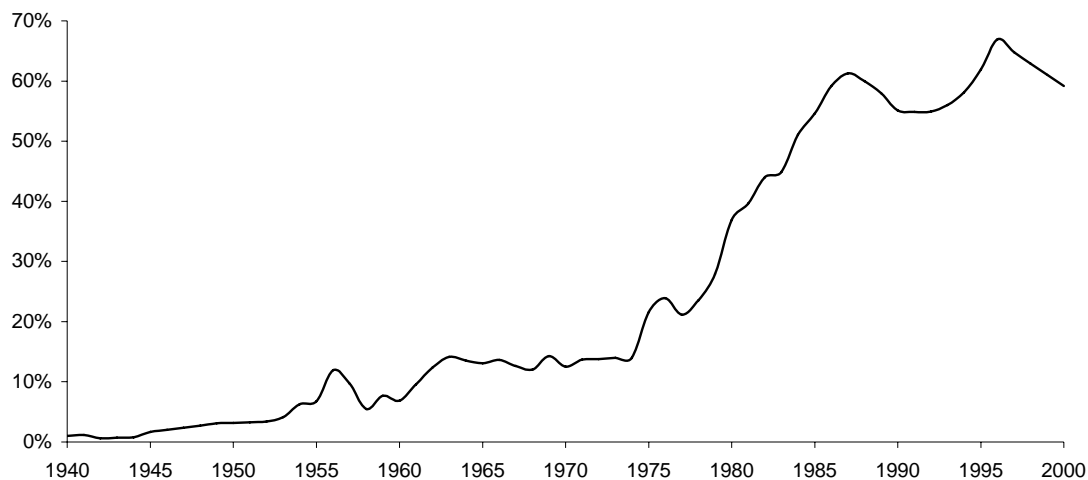
* Includes vocational primary education.

Source: Colonial Report (various issues)

changes took place only after independence. A uniform three year lower secondary and a three year higher secondary school was established. Combined with increased egalitarian access, this led to a strong increase in enrolments. Figure 4.4 shows that

Figure 4.4

Gross enrolment ratio in secondary education in Indonesia, 1840-2000



Source: Appendix A.6., table A.6.1.

the gross enrolment ratio in secondary education increased from the late 1940s, when the education system was reformed after the War and the ensuing Dutch 'Police Actions'. In addition, we may note that the gross enrolment in secondary education started to rise especially strong in the mid-1970s. Of course this may partly be caused by the increase in government funding caused by an increase in the government budget by the oil boom in those years. However, it is also clear that the faster increase in secondary education coincides with a gross enrolment ratio in primary education that was close to 100%. Consequently, after reaching universal primary enrolments, attention now shifted to secondary education.

But although the enrolment numbers strongly increased, the characteristics of secondary education changed much less in the first decades after the War. Before the War, general secondary education had been largely European while Indonesians mostly entered vocational (primary) education because there were few alternatives. Even though the accessibility of secondary education after the War increased, there still were tendencies to try to increase the share of persons enrolled in vocational compared to general secondary education. This had three main reasons. First, during the War, academic-type schools were replaced by vocational ones in order to produce enough trained persons that could be used in the War-related industries. In addition, although private institutions were prohibited from setting up new secondary schools, the existing ones were extended with handicrafts in the curriculum, which was deemed necessary for the war effort (U.S. Department of Commerce 1963). After the War this policy of furthering vocational education was continued. In 1957 the Education Department was split into the Department of General Education (Jawatan Pendidikan Umum) and the Department of Vocational Education (Jawatan Pendidikan Kejuruan), which signaled once more an emphasis on vocational education as well as a rapid rise in the number of schools and pupils (Hing 1995, 70).

The second reason for a continuous emphasis on vocational secondary education was that from 1956 to 1965, the period of Guided Democracy, Indonesia's education system lacked effective planning, knew inflation of the currency, and witnessed a strong expansion. As a consequence, a drop in educational standards was inevitable (Beeby 1979, 6). This was partly caused by the idea to form a completely new education system based on the needs of Indonesia rather than on a western, capitalist, base. However, just as in most other colonies that struggled with this problem, there was no ready-to-use model. In addition, the available teachers, being

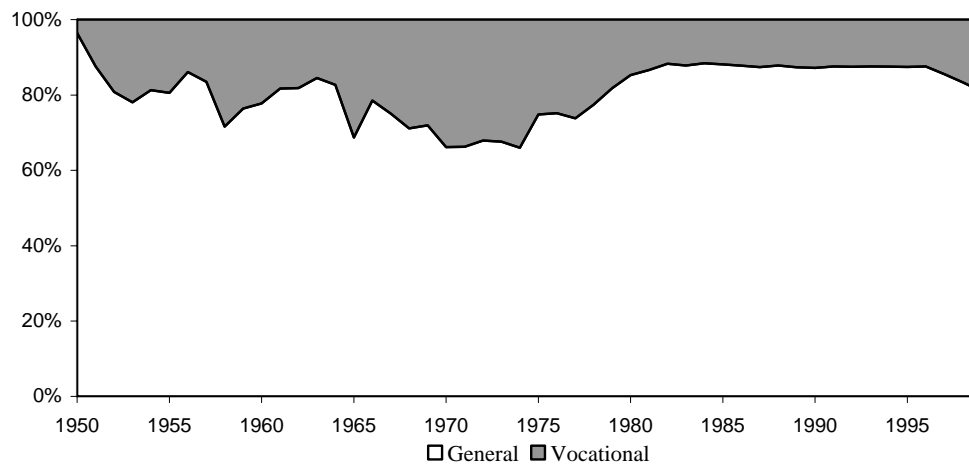
schooled under the Dutch regime, were influenced by their training. This situation was worsened by a chronic lack of finance, which would only partly be resolved when the oil crises in the 1970s caused a boom in government spending in Indonesia. In other words, prior to the oil crises there was not much financial and political room to change the education system fundamentally.

This brings us to the third reason for a continued emphasis on vocational education. The lack of finances drove developing countries to borrow with international organizations. However, organizations such as the World Bank issued loans and technical advice on the condition of increasing investments in vocational education.

These policies lasted until the early 1970s. However, they aroused little enthusiasm in the population. Although vocational education increased from only 6,000 in 1950 to over 250,000 in 1970, the share in total secondary education

Figure 4.5

Share of persons enrolled in vocational and general secondary education in Indonesia, 1950-1999



Source: BPS, Statistical yearbook (various issues).

remained low. This can be seen in figure 4.5. Here we see that the share of vocational in total secondary enrolments increased until the 1970s.

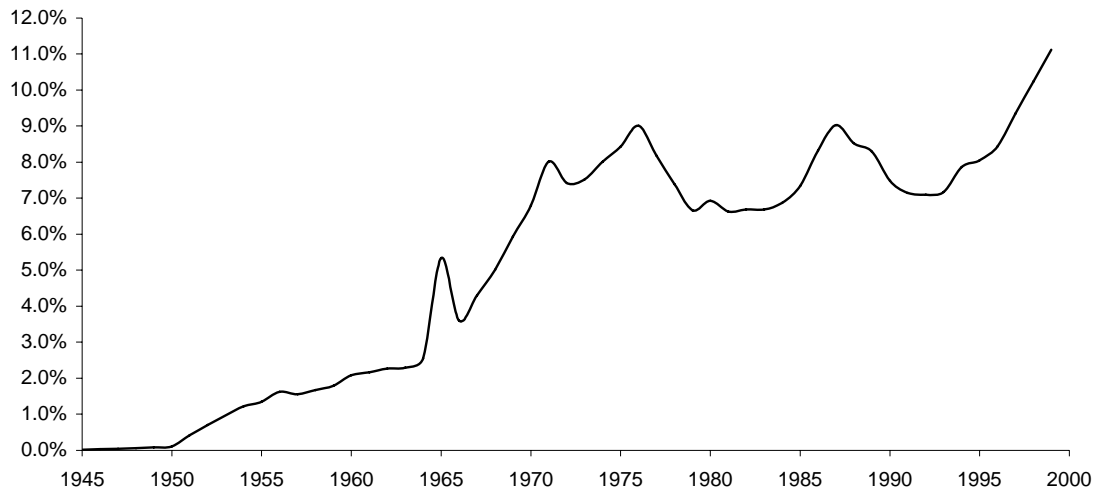
Three reasons may be given for the decline in the share of vocational education after 1970. First, secondary education from the 1970s onwards began to grow even faster. This made access easier and, consequently, people could follow

their first choice: general secondary education. Second, in the 1970s the policies aiming at increasing vocational education were abandoned. Not only were much of the colonial teachers slowly replaced, but also the government increased its educational expenditures which made them more independent of the international organizations. In addition, were in the pre-1970s international institutions such as the World Bank had mainly focussed on technical and vocational education (Heyneman 2003), after the 1970s they started focussing more on general education.

The relative increase in general secondary enrolments in the 1970s and 1980s also caused an increase in enrolments in higher education. The gross enrolment ratio for higher education increased from 0.01% in 1930 to 0.11% in 1950 and 11.12% in 1999 (see table 4.6). Higher education was only introduced in Indonesia in the 1920s

Figure 4.6

Gross enrolment ratio in higher education in Indonesia, 1945-2000



Source: Appendix A.6., table A.6.1.

and until 1950 there existed only a small number of colleges. It was only after 1950, when secondary education also started to increase, that higher education expanded. However, this expansion was not so massive and it is likely that in the coming decades the gross enrolment ratio will expand to around 30%.

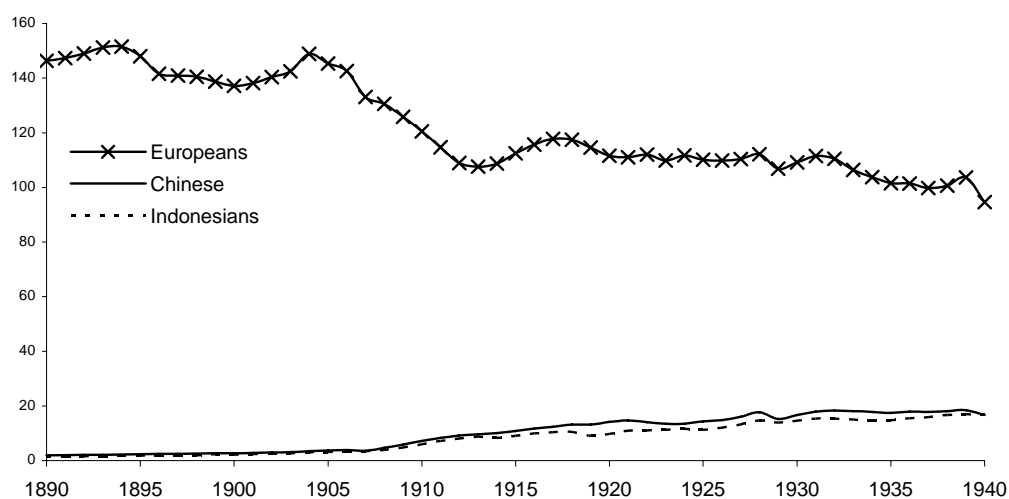
3.3 Social changes in the enrolment composition

The increase in primary education from the late nineteenth century followed by a slow increase in secondary education between the 1910s and 1940 and a faster increase

after 1960, finally followed by an increase in higher education in the second half of the century also has important consequences for the composition of enrolments. Over time, especially a change in ethnicity and sex took place within each level of education.

We start with a brief look at ethnicity although we have made some remarks on this already in the previous sub-section. Looking at the gross enrolment ratios per ethnicity we see that for Indonesians and Chinese these are considerably smaller than

Figure 4.7
Gross enrolment ratio in primary education in Indonesia, 1890-1940



Source: Appendix A.5, table A.5.1.

those for Europeans. However, there is an increase as from around 1907. Equally, we saw in figure 4.3 that as from the start of the twentieth century the share of Indonesians and Chinese in total secondary education grew. Yet, we have to be aware that the total number of Indonesians and Chinese is also much larger than that of the Europeans. Consequently, the gross enrolment ratio of Chinese and Europeans was with 0.8% and 0.2% in 1920 much lower than that of Europeans with 29%.

The question of equality among ethnicities thus remained to be solved at the start of World War II. Indeed, this was one of the most important, and least discussed, issues during World War II and after Independence. In this period the focus on ethnicity was abolished. In principle, everyone got the same opportunity to enrol in

education. The introduction of Bahasa Indonesia besides the local language contributed a great deal to this development.

The same developments that took place in the ethnic composition of enrolments also took place in the differentiation by sex. In figure 3.1 (chapter 3) we gave the percentage girls enrolled per level of education. The most remarkable finding is a strong increase in the percentage girls enrolled in secondary education from 1880 to around 1910 whereafter it remains constant until around 1960 when it increased again to around 50% in 2000. These increases in female enrolments (1890-1910 and after 1960) can to some extent be attributed to the increase in over-all education. This is a development that was also visible in primary education. For example, in primary education, we notice an increase in the share of girls enrolled from around 15% in 1915 to around 30% in 1940. The rise in the share of girls in primary education after 1915 is largely due to the increase of the number of girls in Indonesian primary education. Both European public primary education and Indonesian private primary education already had a fairly high percentage of girls enrolled, up to around 50% at the start of the twentieth century. However, the percentage girls enrolled in Indonesian public primary education rose from 8% in 1880 to 11% in 1920, 20% in 1930 and 27% in 1939, an increase that for 90% can be attributed to the desa schools. In the same way, secondary education around 1880 was very small, and largely public. However, around 1880/1890, the numbers enrolled in secondary education started to increase. This increase can to a large extent be attributed to the set up of private secondary schools, which were largely intended for girls.

Equally, the increase in the share of females enrolled in secondary education after 1960 corresponds largely with a period of fast growth of secondary enrolments. Indeed, the unequal division between both sexes, as almost everywhere else in the world, decreased when the level of education increased. For example, in 1970 the number of girls enrolled in primary education to the total enrolments in primary education was 41%. This was a considerable increase compared to the 29% in 1939.

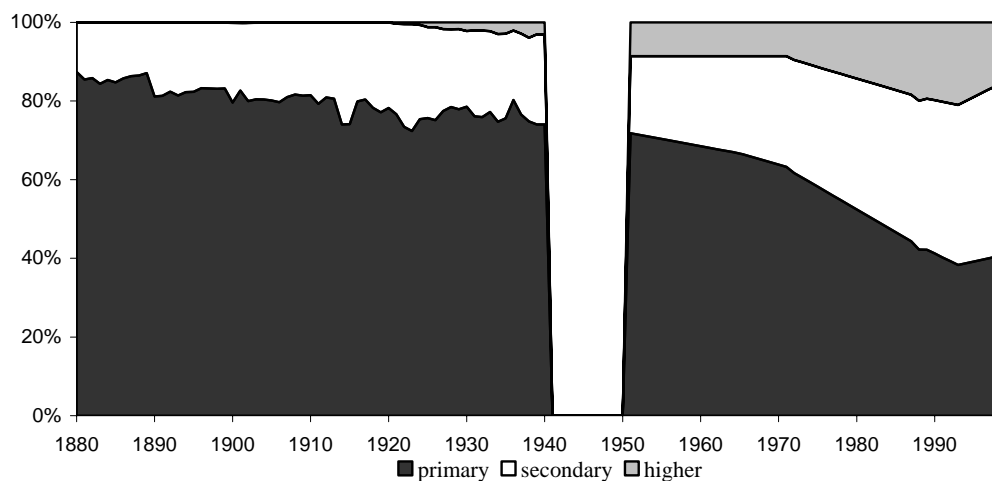
3.4 Who pays? Public and private expenditure on education

The development of the education system over time is likely to also have consequences for educational expenditure on education. For example, the rise in mass education with the introduction of the low quality desa school is likely to have led to lower per student expenditure on education although over-all expenditure increased.

Equally, in the rise in secondary and higher education is likely to have led to higher over-all expenditure as higher levels of education are often more expensive. This can

Figure 4.8

Share of educational expenditure by level of education in Indonesia, 1880-1999



Source: Appendix A.8, table A.8.2.

be seen in figure 4.8. This figure shows that prior to World War II primary educational expenditure as a percentage of total educational expenditure fell slightly even though its share in total enrolments remained about the same. The rise in higher education and, especially after the massive rise in secondary enrolments in the 1960s, expenditure on secondary education did, however, decrease the share of expenditure on primary education.

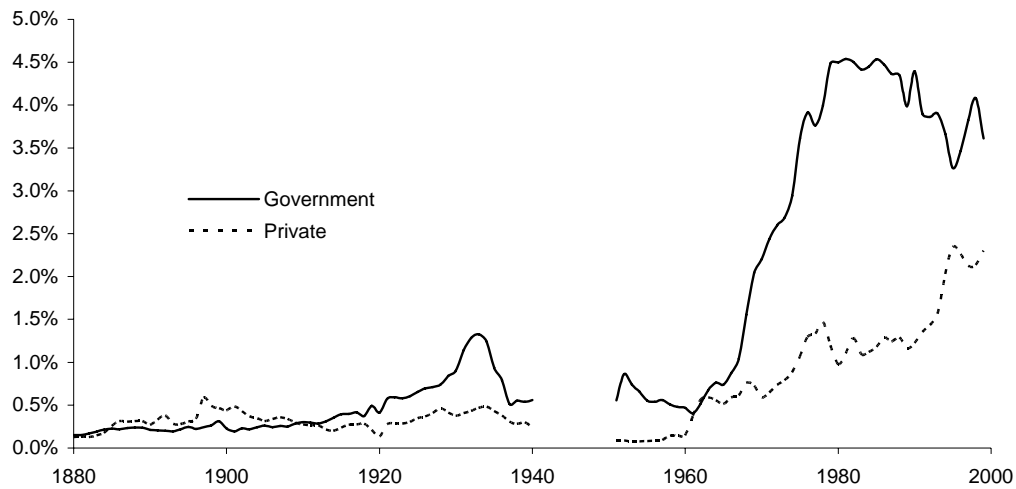
Where the increase in mass education caused by the introduction of the desa school did not necessarily signal an increase in total educational expenditure as they replaced the more elitist (and thus more expensive) first and second class schools, the increase in secondary and higher enrolments did. Indeed, we can see in figure 4.9 that educational expenditure starts to increase as from around 1910 together with increasing enrolments in primary and secondary education. However, only from the mid-1960s expenditure on education starts to increase strongly.

These findings are interesting for two reasons. First, education expenditure as part of GDP (both public and private) started its fast growth already in the 1960s. This is contrary to the view that the oil boom was the main cause behind the increase in public educational expenditure (Jones 1994). Second, the increase in expenditure on

education prior to 1960 was mainly caused by government expenditure. It was only after 1960 that private expenditure also started to contribute to a larger extent to the

Figure 4.9

Government and private expenditure on education as percentage of GDP in Indonesia, 1880-1999



Source: Appendix A.8, table A.8.2.

increase in overall expenditure. As private expenditure is a better reflection of the population's attitude towards education, this suggests that the view towards education changed. This may be caused by the situation that the economic benefits increased because lower class persons had access to higher skilled jobs, a situation that was less likely to occur under colonial rule where most jobs requiring high skills were filled by Europeans. Also, the 1960s signalled the rise of general secondary education, which better conformed to the demand of the population at large.

4. THE EDUCATIONAL STRUCTURE IN INDIA

4.1 *The rise of a colonial education system*

As was the case in Indonesia, in India the indigenous education system had a long history. It was already during Mughal reign that education was furthered by some of the Sultans. This was, however, not done in any systematic way. During Akbar's reign (1556-1605) this policy was continued while, at the same time, Akbar wanted to align education more with social needs (Qanungo 1962, 448). Besides the rise of Muslim education (especially the 'mukhtabs' for elementary and the 'madrassa' for higher

education), the old Hindu schools continued to exist which consisted of the ‘pathsalas’ for elementary education and the ‘tols’ for higher education. These schools were quite numerous, which led to a relatively high literacy rate.

In the mid-nineteenth century, when the effect of the western education system was still negligible, the indigenous system accounted for a relatively large share of educational enrolments. For example, in Bombay around 1840 about 17% of the school-aged boys were enrolled in indigenous schools. This compares favourably with the figure of 8% for all India in 1891, which corresponds with a literacy of about 10% for men.⁸⁵ If we use the same relation between literacy and enrolment of 1891 and apply it to the 1840 figure, we get a male literacy in Bombay in 1840 of about 21%. Other sources also confirm this interpretation. For example, some research has been carried out by officials of the East India Company at the start of the nineteenth century. In a minute of 10 March 1826 Thomas Munro observed that in Madras, with a total population of 12,850,941, there were 12,498 schools and 188,650 pupils. Equally, in Bengal and Bihar, the missionary William Adam found that in the mid 1830s there were 100,000 schools on a population of about 40,000,000 (Gosh 2000, 8). Although we have to be careful as both Munro and Adam also included places of domestic instruction, we may conclude that a literacy rate of 10-20% for men may be acceptable.

Yet, this education had already been in decline since the late eighteenth century. First, the collapse of Mughal rule meant that many schools were no longer sponsored. Second, the arrival of the Europeans, who demanded an education more conform with the requirements of government and their economic objectives, further hastened the decline of the indigenous education system. Nevertheless, as was the case in Indonesia, in India this decline was (partly) compensated by the setting-up of a western-style education system.

4.2 Increasing enrolments

4.2.1 Primary education

Three reasons lay behind the increased influence of the colonial government in education. First, there was the economic need for trained personnel in industry.

⁸⁵ This figure of 10%, however, is likely to be an underestimation as probably many indigenous languages were not included. This further increases the difference between enrolments and literacy, which might be explained by the existence of ‘home education’.

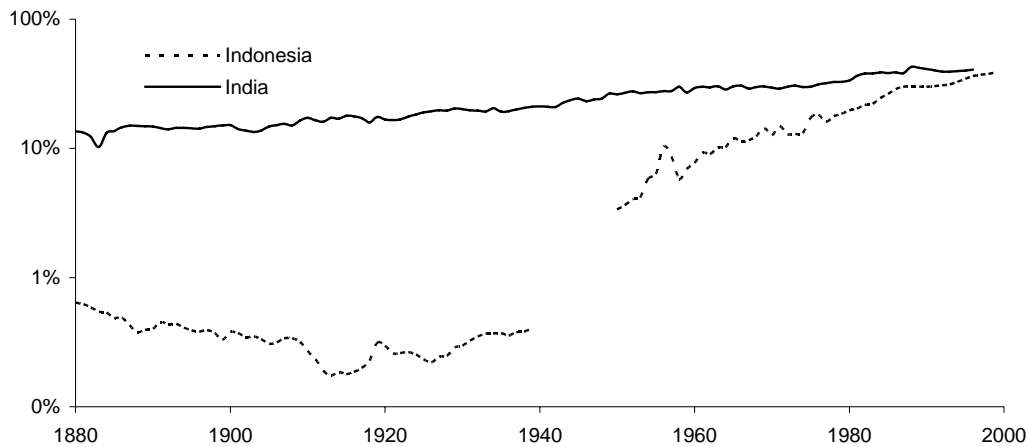
Second, this demand for trained persons was also visible in the government administration itself where, with a relatively small number of British, the number of Indians enrolling in the service was also small. Third, the low numbers of Europeans in India required the colonial government to seek support from the indigenous population. One way of doing this was to establish links with a class of educated Indians. The decision that education should mainly be given in English caused these schools to be attended largely by people from the higher castes. As a consequence, this led to the creation of a class of literati from the higher castes, thus reviving caste differences (Di Bona 1983; Kumar 1991). It would however be wrong to assume that this was solely caused by the British educational policy in India as already before the British hegemony the indigenous education system was a system based on class differences (Bara 1998, 131).

As the colonial education policy was mainly based on higher educated Indians both for government and private occupations, there was a clear focus towards enrolments in secondary and higher education. For example, the share of total secondary and higher enrolments in total enrolments in India in 1880 was 13.5% against 0.6% in Indonesia. However, at the end of the nineteenth century the practical consideration of creating indigenous administrators and skilled craftsmen for industry diminished in favour of the idea that education was important for their moral and economic upliftment. Indeed, it was clearly phrased in the educational despatch of 1854 that “[t]his knowledge will teach the natives of India the marvellous results of the employment of labour and capital, rouse them to emulate us in the development of the vast resources of their country, guide them in their efforts, and gradually, but certainly, confer upon them all the advantages which accompany the healthy increase of wealth and commerce” (Gosh 2000, 77). This can therefore be seen as some sort of ‘ethical policy’ as started in Indonesia around 1900. Nevertheless, the focus remained more on secondary and higher education than on an increase in primary enrolments. Figure 4.10 shows that prior to World War II the share of primary enrolments in Indonesia was much larger (and increasing) than that of secondary and higher enrolments. It was only after the War, when the ideal of universal primary enrolments was approached, that secondary and higher enrolments started to rise. In India, however, the share of primary enrolments was relatively low compared to Indonesia. The share of secondary and higher enrolments in total enrolments knew a steady, though slow, growth towards the end of the twentieth century. This is indicative for

the situation that universal primary education was only achieved in India at the end of the century which in turn suggests that the following decades will probably witness a

Figure 4.10

Logarithm of the share of secondary and higher enrolments in total enrolments in India and Indonesia, 1880-2000



Source: Appendix A.6, tables A.6.1 and A.6.2.

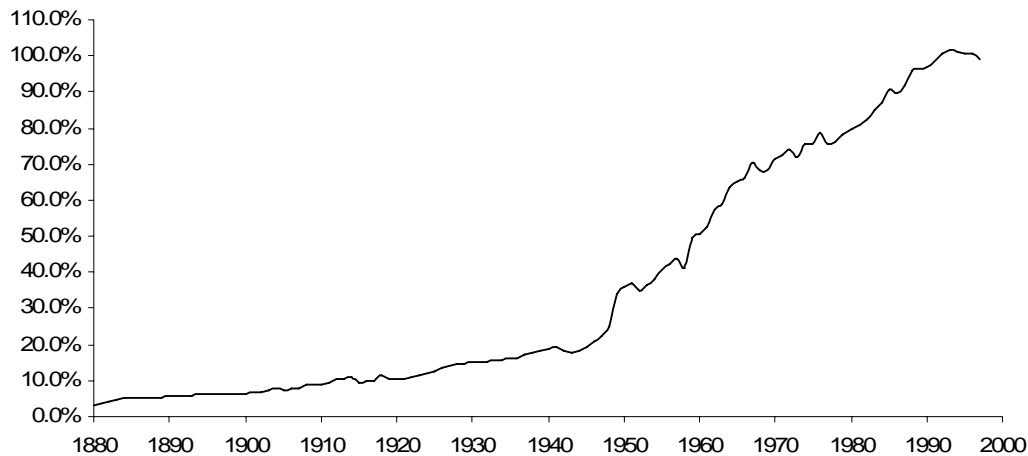
stronger increase in the share of secondary enrolments as was the case in Indonesia since the 1960s-1970s.

This does not mean, however, that no attempts were being made to further extend primary education. For example, just as with the experiments of De Bruyn Prince in Kedu, in India field experiments with mass education were held. Examples were Thomas Munro in Madras, Henry Hardinge in Bengal and James Thomason in the North-Western Provinces (Sen 2002, 117). It was, however, with the 1854 despatch that the British government came up with a scheme for mass education for all India. Although the educational quality was low, educational enrolments did increase from 270,000 in 1860 to 2,366,902 in 1890. Indeed, figure 4.11 shows that there was a steady increase in the enrolment in primary education between 1880 and 1940, followed by a far faster growth after World War II. The post-War developments are of course mainly due to the drive of the government to arrive at universal primary education. As a consequence, in 1950, in article 45 of the Indian Constitution, it was laid down that within 10 years from the commencement of the Constitution, free and compulsory education for all children up to 14 years of age would have to be reached (Borooah and Iyer 2002, 3). Yet, from figure 4.11 it is clear that this had to wait for

another 50 years. Only in 1992 a gross enrolment ratio of 100% was reached while the share of the population with primary education was even in the year 2000

Figure 4.11

Gross enrolment ratio in primary education in India, 1880-2000



Source: Appendix A.6, table A.6.2.

only 83%.⁸⁶ Given the fact that enrolment is summed over at least 40 or 50 years to obtain literacy, universal literacy will only be achieved around 2040.

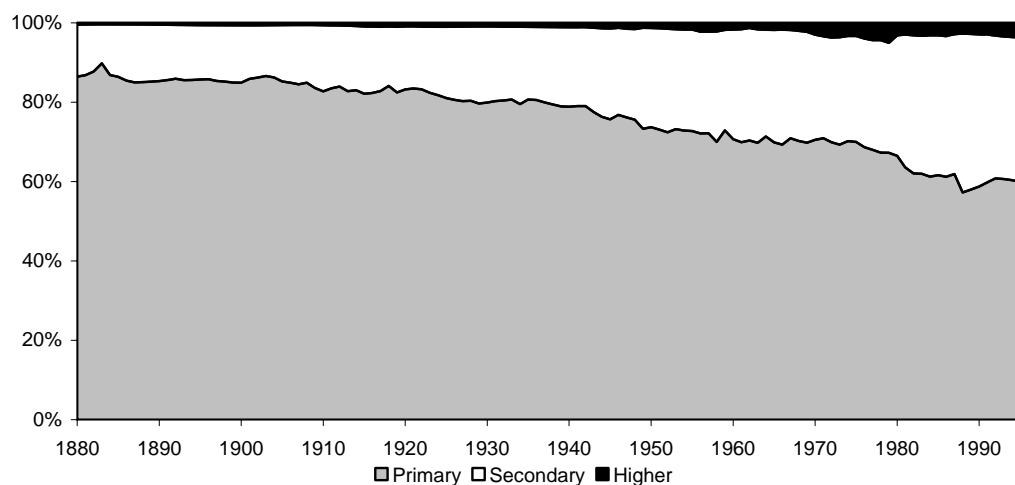
4.2.2 The rise of secondary and higher education

As we have seen in figure 4.10, secondary and higher enrolments were much higher in India at the start of the century than in Indonesia. If one looks at enrolments in secondary education divided by the enrolment in primary education, which gives a rough indication of how many children continued in secondary education after having successfully concluded the primary level, one finds that in 1880 this figure was 15%. This figure was large compared to the 0.6% in Indonesia. From the numbers enrolled in secondary education about 5 % further enrolled in higher education. This figure increased after World War II to around 10%. Although not as impressive as the enrolment in secondary education, this figure was still large enough to lead Sundaram (1946, 517) to argue that ‘high school education came to be unduly dominated by the requirements of the universities, and representatives of the universities on the boards of high school education have dictated what the high schools should turn out.’

⁸⁶ Literacy in 2000 was somewhat above 60% (see figure 1.3 in chapter 1).

Indeed in those years India still far exceeded most developing countries in the share of secondary and higher education in total education. In fact, their share in 1950

Figure 4.12
Enrolment shares in India, 1880-1995



Source: Appendix A.6, table A.6.2.

was only marginally larger than it had been in 1880 (see figure 4.12). Nevertheless, in absolute numbers, secondary and higher education did increase. Where in 1890 the gross enrolment ratio for secondary education had been 0.84%, in 1950 it was 16.6%.

Given the situation that both figure 4.10 and 4.12 indicate that the shares of on the one hand primary enrolments and, on the other, secondary and higher enrolments remained relatively stable, this raises the question why this occurred. There may be three basic answers. First, the high starting point at the end of the nineteenth century. The already relatively high level of educational enrolments leaves not much room for a quick increase in the share of secondary education. Equally, as secondary education was already relatively extensive, it would be difficult to extend primary education without offering the new classes the opportunity for further education.

A second reason for the relatively slow growth of the share of secondary and higher enrolments may be the industrialisation policy after independence. In general the idea was that education (especially secondary and higher) was necessary for the development of an industrial sector. Crucial in this respect was the appointment in 1948 of a University Commission with Dr. S. Radhakrishnan as chairman. This commission promoted vocational education at higher levels of education. This in turn

was deemed necessary as the newly independent state wanted to concentrate on the promotion of heavy industry. The reconstruction of university education was considered essential to meet the demand for technical labour (Gosh 2000, 178). This idea also furthered cooperation with individual entrepreneurs. For example, in the universities of Bombay and Calcutta, cooperation of local industrialists and the colleges took place in technical courses which increased job opportunities (Caldwell Wright 1952, 206). This government policy also explicitly stated the importance of secondary education for the development of university education. In other words, the idea was strong that secondary and higher education was the way to economic progress. Consequently, the growth in primary enrolments, which due to the relatively low level of enrolments after the War had still important strides to make, was compensated with an at least equal growth in secondary and higher enrolments.

This brings us to the third reason for the constant development of the shares of the different education levels: the de-linking of primary education from secondary and higher education. As indicated before, there was a relatively high share of persons enrolled in secondary education. The role of primary education was thus to a large extent to produce graduates that could enrol in secondary and higher education, i.e. primary education was linked with secondary education. This meant that the rise in enrolments in primary and secondary education were strongly interrelated. Although there was a process of de-linking primary and secondary education since the 1930s⁸⁷, this process was slow and had only a marginal effect.

⁸⁷ Three factors played an important role in the de-linking of primary from secondary education. First, the rise of mass primary education. Although we have seen that the shares of primary and secondary enrolments only changed slightly over time, figure 4.10 shows that there was indeed a strong growth in primary enrolments. This caused the absolute number of children that did not pursue secondary education to increase strongly. Second, the administrative changes which took place in the 1920s and '30s. These resulted in placing education in the hands of the State Governments which were largely controlled by members of the Indian nationalist party, Congress. This can be seen as a change to an education system that was administered by the Indians themselves (Mujeeb 193, 209). At the beginning of 1937 Congress had won the elections, made possible by the Act of 1935, and formed governments in seven provinces. Following the ideas of Gandhi, this led to an increased interest in both universal compulsory education for children between the age of 6 and 13 in the vernacular language and in increased practical education. Both factors may be the cause of de-linking of primary and further education. Indeed, the vocationalisation of education is a third reason for the de-linking of primary and secondary education. Vocationalisation had been present at the start of the century as well, which can be seen in the continuous discussions by Congress (the Indian nationalist party) about uneducated Indians. Indeed, the correlation between the growth of secondary and vocational enrolments before World War II is -0.6 and highly significant while the correlation between the growth of primary and secondary enrolments was 0.14. Although the latter was only significant at 25%, the point remains that the growth of primary enrolments is either not or positively connected with the growth of secondary education while the effect of the growth of vocational education is negative. As after the War

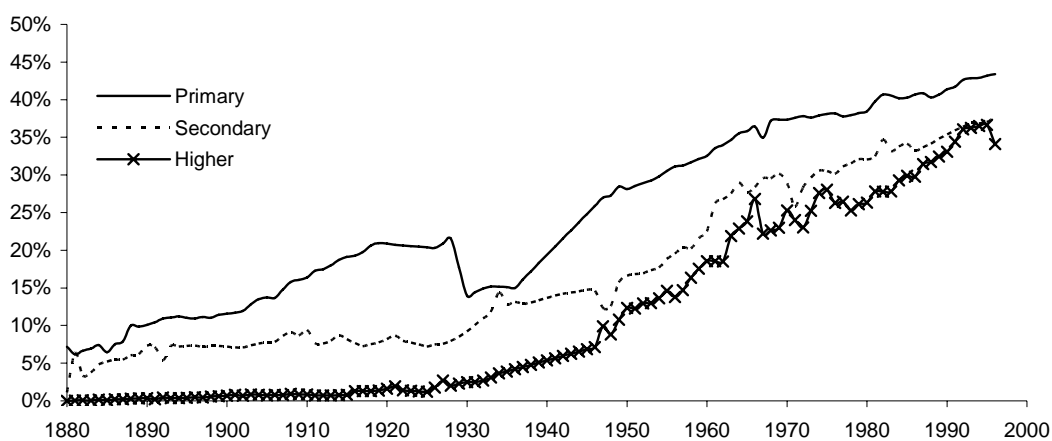
4.3 Social changes in the enrolment composition

The same difference between Europeans and the indigenous population that was found in Indonesia was also present in India. Clearly Europeans were in a privileged position. For example, in the 1911 census, Hindu males had a literacy rate of 10.1% of which 0.9% was in English. However, looking at Christians (mostly Europeans and Indo-Europeans) these figures were, with 29.3% and 12.6%, much higher.

The main difference with Indonesia is in the distribution of the sexes in education. Whereas in Indonesia the increasing primary enrolments at the start of the twentieth century led to a decrease in inequality in education, in India the relatively

Figure 4.13

The share of girls by level of enrolment in India, 1880-1995



Source: Appendix A.6, table A.6.2.

limited increase in primary education before the 1920s led to a continuation of inequality. Indeed, as long as the rise in primary education remained to some extent coupled with the rise in secondary education, the weaker groups remained in a disadvantaged position, even in primary education. One way to look at this is simply reviewing enrolments. Figure 4.13 shows that the share of girls enrolled remained below 20% before the Second World War. This is low compared to Indonesia where these levels reached 25-30%. In the 1930s we even see a decline in the share of females enrolled. However, this is mainly caused by an increase in male enrolments

vocational education was mainly given at secondary level, the correlation became of course positive (0.08) although not significant.

while the number of females enrolled remained about constant. The situation that it were mostly the stronger groups that profited from the increase in mass primary education in this period once again shows that primary education still was not de-linked completely with social status (and thus with higher education).

In sum, although India exceeded Indonesia in gross enrolment rates, the share of females in total enrolments was considerably lower. We argued that this was caused by the situation that there was an emphasis on secondary and higher education. However, a second reason for this difference might be religion. As India consists largely of Hindus with a large Muslim minority while Indonesia is largely a Muslim country, a relatively more beneficial role in education for females in Indonesia may also be caused by a less beneficial effect of the Hindu faith on female enrolments. Table 4.3 provides data on literacy rates provided by the census of India for the whole

Table 4.3: Literacy in Undivided India by sex and religion, 1891-1911.

		1891	1901	1911
Hindu	Male	9.5%	9.4%	10.1%
	Female	0.4%	0.5%	0.8%
Muslim	Male	6.7%	6.1%	6.9%
	Female	0.3%	0.3%	0.4%
Christian	Male	34.2%	29.1%	29.3%
	Female	13.5%	12.5%	13.5%

Source: Statistical Abstract Relating to British India (various issues).

of British India by sex and religion. Christians had by far the highest literacy rates, both for males and females. As this group also includes Europeans and Indo-Europeans, which had often better access to educational opportunities, this is not surprising. Indeed, we find the same in Indonesia. However, Indonesia is a Muslim country whereas India is largely Hindu (with a large Muslim minority). So, simply said, if religion is at stake, we would expect that the Muslim figures in India are close to Indonesian figures while the relative female enrolments among Hindus are lower than female enrolments in Indonesia. Both are not the case. Female enrolments were about the same for Muslims and Hindus. In addition, the attainment figures for the indigenous population in Indonesia in 1911 were around 1% for females in primary education and 3.7% for males. This shows that literacy was somewhat better under the Indian Muslims for males, but not for females.

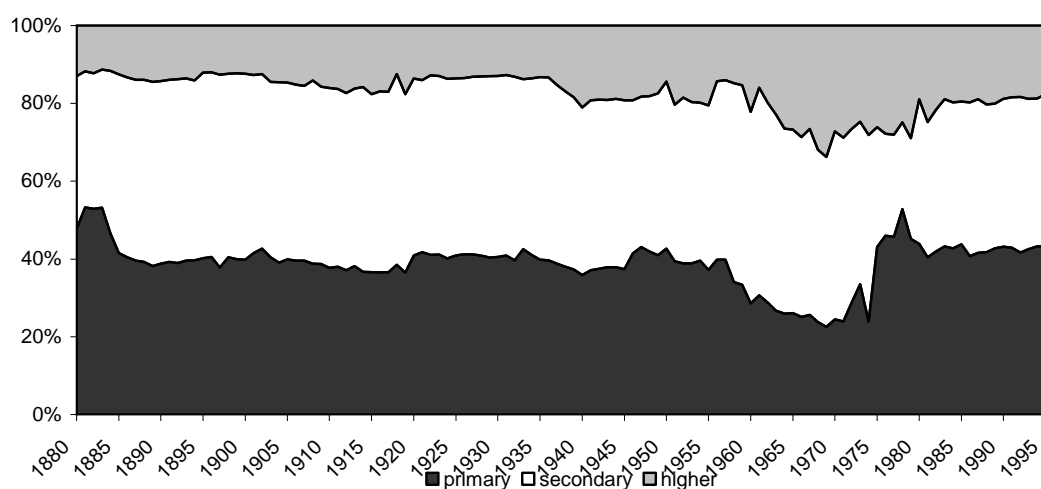
Nevertheless, eventually the share of females in education increased slowly over time. The rise of mass education from the early twentieth century also witnessed increased female participation. In the 1920s, this went hand in hand with increased female participation in secondary and higher education (see figure 4.13). However, around 1940, the gross enrolment ratio of girls in primary education still was low with only 7.6% compared to 11.2% in Indonesia while the share of females in primary education was even higher. With the rise of mass secondary education, in India the share of girls in secondary education increased strongly over time to 37.7% in 1996. However, this figure was still lower than that of Indonesia in 1939.

4.4 Who pays? Public and private expenditure on education

In the same way in which the enrolment composition differed from that in Indonesia due to the higher level of educational enrolments at the start of the century, so did educational finance. Two points can be distinguished. First, as secondary and higher education were more expensive and more extensive in India, the share of these levels

Figure 4.14

Percentage shares of public expenditure by level of education in India, 1880-1996



Source: Appendix A.8, table A.8.3.

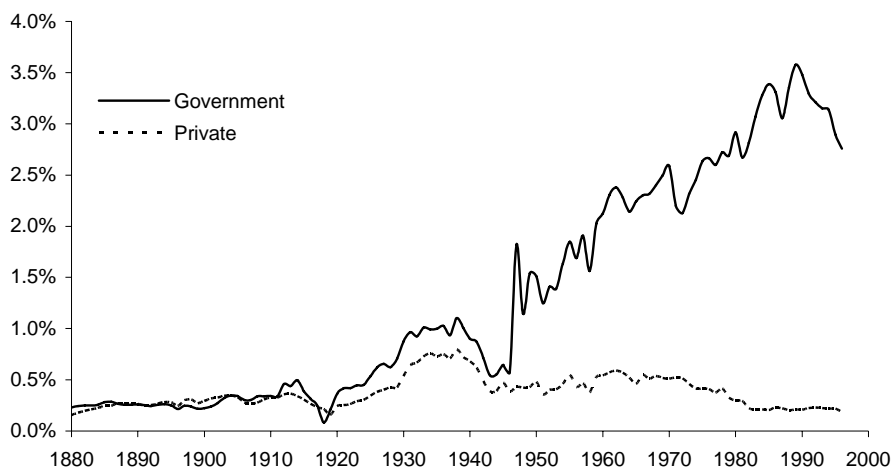
of education in total expenditure was also much higher than in Indonesia. In Indonesia in 1920 the share of secondary and higher public expenditure in total public expenditure was 21.8% while in India it amounted to 59.1%. But this ratio remained high and about constant over the entire twentieth century (see figure 4.14). This is not

surprising as we already pointed out that the enrolment shares also remained about constant.

A second consequence of the educational structure on educational finance in India was the relation between public and private expenditure on education. We already argued that prior to the War primary education had a link with secondary and higher education. This was de-linked since the 1930s, but because of the already relatively high shares of secondary and higher enrolments, not much changed in the educational composition. Yet, the existence of a link before the 1930s means that it were mostly the wealthier persons that entered schools. This also meant that they were better capable of 1) reaping the benefits from a school certificate as higher class persons had a better chance of getting a job and 2) paying the school fees. Consequently, it is likely that the private expenditure on education moves up with

Figure 4.15

Government and private expenditure on education as a percentage of GDP in India, 1880-1996



Source: Appendix A.8, table A.8.3.

public expenditure which is indeed what we see in figure 4.15.

Interestingly, however, after an initial decline in the share of both public and private educational expenditure in GDP in the late 1930s due to the economic decline and the following War, after 1950 the movement of public and private expenditure moves apart. Indeed, we even see a rise in public expenditure combined with a decline in private expenditure. This may be caused by the de-linking of primary from further

education which caused an increase in the enrolment of poorer children who were often state financed. Indeed, after the war there was a stronger increase in both enrolments in primary education and in state expenditure on education. As primary education was largely state financed as well, this led to a large increase in public expenditure that was not accompanied by an equal increase in private expenditure.

5. EDUCATION IN JAPAN: ANALYSING THE GROWTH OF A MODERN EDUCATION SYSTEM

5.1 The rise of the Japanese education system: the development of mass education

Around 1870, primary attainment in Japan was around 20% but this is probably an underestimation (Dore 1965, 318-319) which makes it likely that literacy was higher. Dore (1965) makes as an informed guess for enrolments in *terakoya* (elementary education for commoners) that about 40% of all Japanese boys and 10% of all girls were getting some form of formal education outside their homes at the start of the nineteenth century (see also Passin 1965, 54). Looking at the level of education of conscripts in 1873, Crawcour (1970, 34) also arrives at fairly high enrolment figures.

We therefore may arrive at the conclusion that Japan already in the mid nineteenth century had an education level that was higher than in India and Indonesia. But where in India and Indonesia the existing indigenous education system was slowly replaced by a colonial one, in Japan the old education system was modernized after the Meiji Restoration of 1868 when the feudal state was replaced by a centralised nation-state. One of the main causes of the Meiji Restoration was the threat of the western colonial powers; the aim thus became to industrialise and create a strong state. To that end, it was also necessary to create an educated workforce and to include western science and technology in the educational curriculum.

Many authors have argued that the period of the Meiji Restoration, when the Tokugawa family lost power, constituted a significant break in the educational system of Japan.⁸⁸ However, other authors have argued that this is less the case (Godo and Hayami 2002). We tend to side with the latter for four reasons. First, education had already been aimed at practical subjects from the late eighteenth century when more commoners were allowed to follow formal education. Therefore, Japan had a well developed educational base already before the Meiji restoration. Without this base, it

⁸⁸ See for example Kaigo (1952). This author argues that the Japanese system adapted strongly to the American one during the Meiji Restoration.

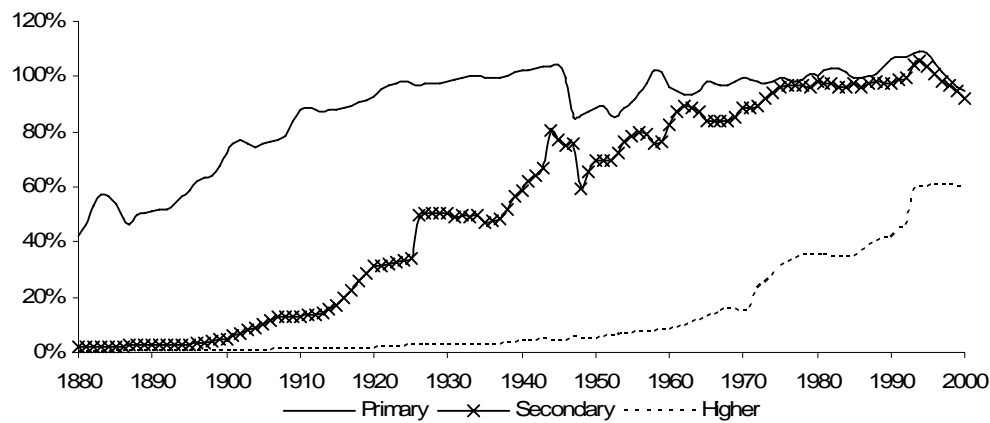
would be hard to imagine the enormous increase in education afterwards. That is, there was already a culture in which parents sent their children to school. This can also be seen from our gross enrolment figures which were in 1880 42% in primary education which rose to 72% in 1900. Although this was a strong rise, it is also clear that, already at the time of the Meiji restoration, the educational base was much larger than in India and Indonesia. Second, the inclusion of western subjects was already allowed into the curriculum at the end of the eighteenth century, be it hesitantly (Passin 1965, 52). While during the nineteenth century in virtually all domains Western Studies entered the curriculum, it would only be fully put into work after the Meiji Restoration in 1868. Third, western subjects were not only introduced because of changing attitudes, but also because it was deemed necessary to create a powerful nation able to defend itself. Fourth, Japan was never a colony, so it was not confronted with the change from an indigenous education system to a system where indigenous and colonial education existed side by side, and, finally, to a national education system as was the case in India and Indonesia. The Meiji reformers were simply another Japanese government and therefore it is unlikely that the structure of education could have radically changed.

5.2 The rise of secondary education

Around 1880 Japan had already reached the level of primary education that India and Indonesia would only reach after World War II. In that year Japan had a gross

Figure 4.16

Gross enrolment ratio per level of education in Japan, 1880-2000



Source: Appendix A.6., table A.6.3.

enrolment ratio in primary education of 42% against 3.2% and 1.3% in India and Indonesia respectively. Consequently, we see in figure 4.16 that, although there was an increase in the gross enrolment ratio to around 100% in 1940, the major changes before the War were in secondary enrolments. Indeed, after the War, with the exception of a brief period in the 1940s during the American occupation when the education system was modified, gross enrolments in primary education remained at around 100%.

Gross enrolments in secondary education started to increase in the 1890s. Initially, there was some focus on vocational secondary education. Enrolment in vocational education (excluding normal schools) was only 2,459, or 2.2% of total enrolment at secondary level in 1890 which increased to 16,981, or 7.8% of total enrolment at secondary level, in 1900. Although still small in absolute numbers, this did provide a marked rise in secondary education. Two main reasons for this increase may be identified. First, the high level of primary education created a demand in the population for further education. Second, there came an increasing awareness that vocational education, which due to the high levels of primary enrolments mostly was given at the secondary level, was important for the economic development of the nation. As Passin (1965, 62) argues: ‘in the explicit view of the Meiji reformers, education opened the way to the full utilization of the intellectual resources of the country: Men of talent, even if of commoner origin, were more valuable to the new state than unqualified samurai. “Self-cultivation” and “merit” became the watchwords of the day.’ This development was further strengthened by the Sino-Japanese War (1894-1895). Until that war vocational education had remained almost entirely private. However, combined with the developing Japanese technical industry, the war increased the demand for technically trained people. Therefore a Vocational Education Law was drafted and passed in 1894. Additional steps were taken in 1899 when fishery, forestry, and agricultural vocational schools were established at the lower secondary level (Passin 1965, 97). This increase in vocational enrolments was continued with, for example, the National School Ordinance Enforcement Regulations, following on the National School Ordinance in 1941, which stipulated among others that secondary education should deepen the knowledge and technical skills common and essential for the livelihood of the people. However, just as can be

seen on a global scale in table 4.1, in the 1940s-1950s the share of vocational in secondary education started to decline.

5.3 The post-War period

Under American influence, the Japanese education was reformed after the American model. A first step was the banning of the nationalist parts from the curriculum (Nishimoto 1952, 24). The second step was the adoption of a 6-3-3-4 plan. That is, 6 years primary education, 3 years junior high school, 3 years senior high school, and 4 years of university. These changes made the access to secondary education much more egalitarian.

However, the rise in enrolments in secondary education also had a negative effect. Before the War, it was especially the movement from primary education to (high rank) secondary schools that proved problematical. If one entered such a high rank secondary school, a following university diploma was almost guaranteed. The problem thus was in entering secondary schools. Indeed, the relatively small numbers enrolled in secondary education also prevented a strong rise in higher education. The role of the universities was thus 'to produce educated manpower to meet political and economic needs, not to create broad opportunities for social development' (Hayes 1997, 298). However, after World War II an increasing number of persons was now able to advance to secondary education. The enrolment in secondary education increased from 70% to 90%. It now became of the utmost importance to gain access to high rank universities. This is what still causes an enormous pressure on secondary school students today (Sato 1991, 96). Their results at secondary level must make them eligible for a place at a high rank university. If obtained, that is almost a guarantee for a diploma and ensuing career. Nevertheless, we still see in figure 4.16 that the gross enrolment ratio in higher education increases strongly as from 1950-1970. It is interesting to remark that in the 1950s, at the start of the growth in higher education, around 10.4% of all students enrolled in higher education were female. However, this figure increased in the period of educational growth until it reached 57% in 2000. Again this is an indication that a strong expansion of educational opportunities is the best way to increase female enrolments.

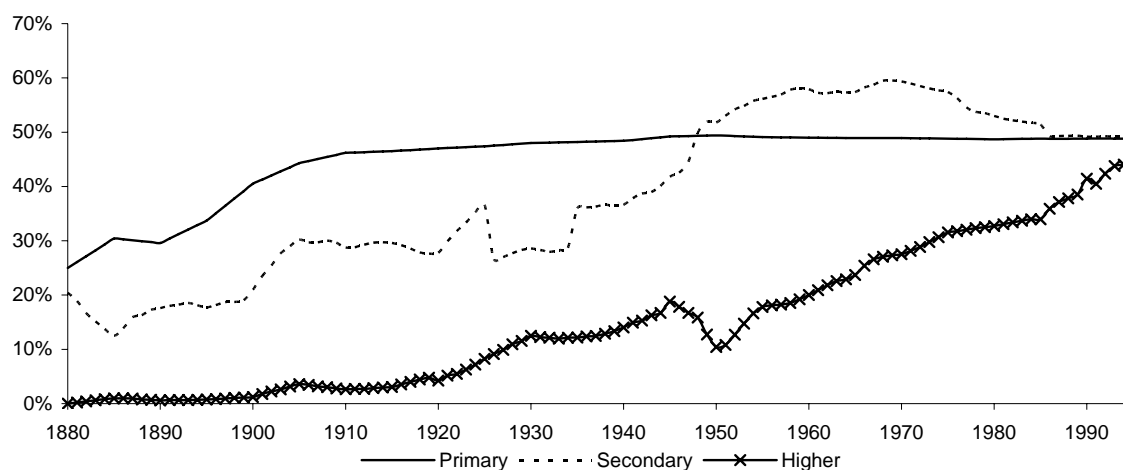
5.4 Social consequences of educational development

Drawing our conclusions from the rise of mass primary education in India and Indonesia, we would expect that during a rise in mass education, the difference in both class and sex declined. As enrolment and attainment in Japan were much higher than in India and Indonesia, we would expect the class differences to be lower and the share of girls enrolled in primary education to be higher at the start of the twentieth century. Indeed, this seems to have had a strong effect on class differences in enrolment. To name just one example, the profession of teacher was dominated by the samurai before 1868. In the following years this slowly changed. In the Kumamoto Prefecture Normal school in 1878-1887 80% of the persons enrolled were samurai and 16% commoner. This had virtually reversed in 1928-1932 when these numbers were 10% and 90% respectively (Sato 1991, 77). Clearly somewhere between 1860 and 1920 class differences had in this respect declined.

This decline in unequal educational participation in education also took place in female enrolments (see figure 4.17). In 1880 already 25% of all persons enrolled in

Figure 4.17

Percentage females enrolled per level of education in Japan, 1880-2000



Source: Appendix A.6, Table A.6.3.

primary education were females. This compares favourable with the 7% for India and 16% for Indonesia respectively. In 1920 the Japanese figures had even risen to close to 50%. Yet, in secondary education this would only be the case around 1950. Godo and Hayami (2002) explain the low increase in female participation in secondary and

higher education before 1940 with the remark that ‘while boys and girls received the same education at primary school, middle schools were segregated according to gender. The only tertiary education in the public school system open to females were girls high-school graduate courses, girls higher normal schools, and very limited courses of vocational colleges.’ The largest increases in the share of girls in secondary education thus had to await the rise in mass secondary education.

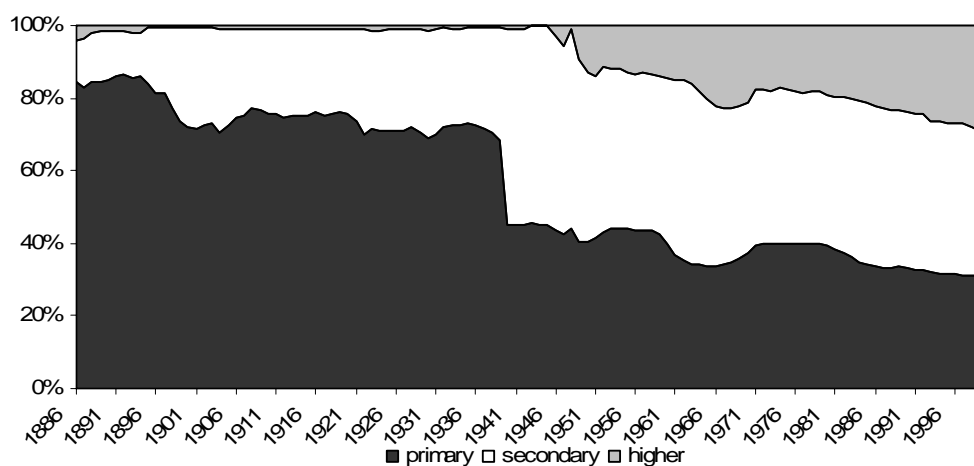
It is interesting to see that between 1950 and 1985 the share of women in secondary education even exceeded 50%. This is a pattern that happens at all levels of education (for example primary education in Indonesia (see figure 4.2)) when universal enrolments are reached and also some younger or older persons wanted to be schooled. The reason why this was especially pronounced in Japan was the inclusion of several ‘miscellaneous schools’ which were in the 1950s to 1980s dominated by female enrolments.

5.5 Who pays? Public and private expenditure on education

For Japan the developments of educational finance are less dramatic than for India and Indonesia (in the case of India it is exactly the lack of change in the composition of expenditure that is surprising). The main reason is that the data only start after the largest increase in mass education had taken place. Nevertheless we can make two interesting observations. First, contrary to India, we do see that the shares of

Figure 4.18

Share of public expenditure per level of education in Japan, 1886-2000



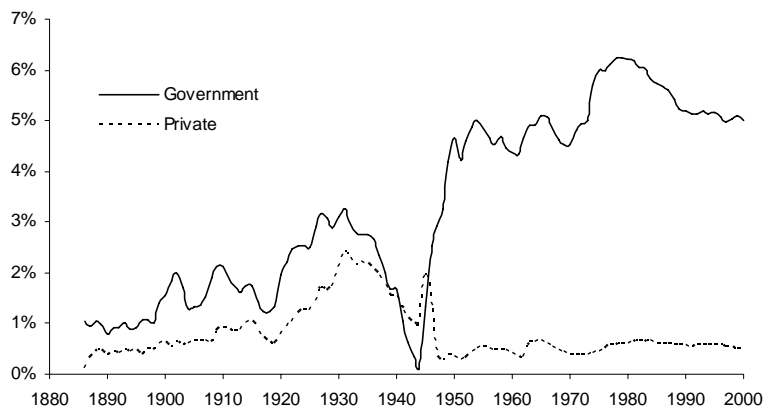
Source: A.8, table A.8.1.

secondary and higher education increase over time (figure 4.18). Especially after World War II the share of public expenditure on secondary education increases. Around 1950 we also see that the percentage expenditure on higher education starts increasing.

The second observation is that in the period prior to 1950 there is a complementarity of government and private expenditure on education (see figure 4.19). This is the same in India and Indonesia prior to World War II. However,

Figure 4.19

Government and private expenditure on education as a share of GDP in Japan, 1880-2000



Source: A.8, table A.8.1.

whereas after the War in Indonesia this complementarity remains and in India there is a substitution, figure 4.19 suggests that in Japan there is either no relation or a limited complementarity.

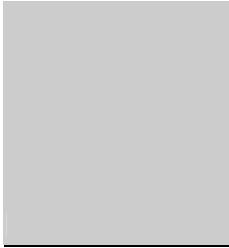
6. CONCLUSION

6.1 A comparison between India, Indonesia, and Japan

Both in section 2 on the literature and in sections 3 and 5 on Indonesia and Japan we noticed a development from primary to secondary, and finally to higher education. The exception to this pattern is India where total enrolments do increase in such a way but the relative share of each level of education only changes slightly. Table 4.4 gives a schematic overview of the development of education in these countries and some of

Table 4.4: An overview of the process of educational development in India, Indonesia, and Japan

Educational phase	Region	Approximate period	Underlying developments
Rise of mass education	Western countries*	1790-1940	*Economic growth, causing a demand for literate persons for example to read and write contracts. *Political developments that drew more and more citizens into the political process which necessitated the state to educate 'reliable citizens'.
	Non-Western countries*	1880-1980	*'Myth of progress'
	Japan	1800-1840	*Preserving independence *Economic developments
	Indonesia	1890-1990	*Training capable administrators *The idea of ethical policy. (economic and moral progress) *Removal of ethnic differences after the War. *Introduction of Bahasa Indonesia as the general language at schools.
	India	1870-1990	*The training of personnel for the government and industry. *The construction of an indigenous class that would support the British. To this end they had to supply first primary education before the Indians could move on to secondary and higher education. *The idea of ethical policy. This can be subdivided into economic and moral progress for the indigenous population by following the institutions of the colonizer country.
Rise of secondary education	Western countries*	1850-1970	*The rise in primary enrolments caused a larger base that could demand secondary education. *The economic structure of society changed in such a way that more secondary trained persons were necessary. *The social structure changed so that it became more accepted for the lower classes to follow secondary education.
	Non-Western countries*	1920-	*'Myth of progress'
	Japan	1890-1980	*The rise of primary education created a larger base from which persons could pursue secondary education. *Threat of Western countries led to higher levels of education. *Economic development necessitated the increase of secondary education. *The Sino-Japanese War made clear that increase of (vocational) secondary education was necessary to produce enough goods.
	Indonesia	1910-	*The rise of primary education created a larger base from which persons could pursue secondary education. *During the War vocationally trained persons were necessary in war-related industries. *After the War, international organisations demanded an increase in vocational related secondary education in order to obtain development loans. This changed in the 1980s to general education. *Easier access to secondary education (first with the introduction of the link schools in the 1920s and later with a reduction in private costs and better job opportunities.
	India	1870-	*To train a class of literati to support the British, an extension of secondary education was necessary. *The rise of primary education created a larger base from which persons could pursue secondary education.
Rise of higher education	Western countries*	1940-	*The rise in secondary enrolments caused a larger base that could demand secondary education. *The economic structure of society changed in such a way that more higher trained persons were necessary. *The social structure changed so that higher education became easier accessible and it became possible to reap the benefits from this education (less social discrimination on the labour market).
	Non-Western countries*	1960-	*'Myth of progress'
	Japan	1930-	*The rise in secondary enrolments caused a larger base that could demand secondary education. *Easier access to higher education.
	Indonesia	1950-	*The rise in secondary enrolments caused a larger base that could demand secondary education.
	India	1870-	*The rise in secondary enrolments caused a larger base that could demand secondary education.



*The relatively high enrolment levels already at the start of the century meant that it was more common for persons in secondary education to progress to higher education.

*The industrialisation policy after World War II favoured vocational higher secondary and higher education.

*The de-linking of primary from secondary and higher education was only marginal and took place only since the 1930s. Consequently, an increase in primary education was linked with an increase in secondary and higher education.

*Literature (see section 2 of this chapter)

the underlying reasons for these patterns.

We can distinguish three important points. First, the shifts in educational enrolments in Japan are closer to those in the Western countries than those in the developing countries: a rise in mass education in the nineteenth century which was completed before World War II, followed by a rise in secondary education from the end of the nineteenth century on until the end of the twentieth century and, finally, a rise in higher education starting just before the War. This corresponds with the underlying reasons of these developments. Whereas in Japan it were mostly the threat of Western countries, economic development, and a change in the social structure that drove educational reforms, in India and Indonesia these reasons were mostly exogenous to the indigenous population.

Second, Indonesia follows almost exactly the pattern described in the literature. Although it lags to Japan and the Western countries, there is a clear tendency to move from increasing primary to increasing secondary and, finally, increasing higher enrolments. Yet, the reasons for this development were more exogenous to its society. Colonial development, the need to train capable administrators, the role of international organisations, and the idea that Western style education was necessary to join in economic growth caused a copying of the western-type education.

Third, whereas Japan and Indonesia developed from lower to higher education, India developed top down. In India the aim of the colonial government was, besides the training of capable administrators, also to create a class of literati that could support British rule of India. This necessitated a relatively high level of secondary and higher enrolments. Interestingly, this remained so over the entire twentieth century. Primary, secondary, and higher education, both in enrolments and expenditure on education grew about in the same relation. This, we attributed to the high starting point at the start of the century which made it newly enrolled primary

students more obvious to continue to secondary and higher education. In addition, this was influenced by the industrialisation policy after the war which favoured secondary and higher enrolments, even though there was also a strong incentive to create mass primary education. Finally, the de-linking of primary from secondary and higher education was a slow process which meant that an increase in primary education went hand in hand with increases in secondary and higher education.

6.2 The relationship between education and growth

It is likely that the different emphasis on different educational levels in different time periods also had an effect on its relation with economic growth. This can be derived both from the literature and our analysis above.

First there is the difference between public and private expenditure on education. In all three countries in the first half of the twentieth century, private expenditure on education moved together with public expenditure. As private expenditure can to some extent be seen as a measure of the economic importance of education for the individual, this indicates that the growth of education in the first half

Table 4.5: per student expenditure on education in current prices (yen), converted at exchange rate and PPP (Japan is set at 100)

Phase	Japan	India	Indonesia		
	n.a.	Exchange rate	PPP	Exchange rate	PPP
Public per student expenditure on education					
1913	100.0	56.7	114.4	135.1	241.2
1922	100.0	29.4	82.4	84.3	149.5
1930	100.0	37.9	68.5	82.2	192.3
1938	100.0	52.8	89.8	65.9	106.6
1952	100.0	25.4	31.3	31.4	28.5
1958	100.0	21.3	31.9	8.6	12.2
1969	100.0	4.3	8.4	3.3	10.5
1990	100.0	1.0	5.6	1.7	13.2
Private per student expenditure on education					
1913	100.0	75.0	153.3	151.7	270.0
1922	100.0	36.3	101.3	80.6	142.5
1930	100.0	25.4	45.6	37.9	88.6
1938	100.0	32.2	55.1	28.1	45.2
1952	100.0	61.0	75.2	26.9	24.3
1958	100.0	33.6	50.4	15.0	21.4
1969	100.0	5.0	9.6	6.5	20.8
1990	100.0	2.6	1.5	2.2	16.3

Note: The bold figures indicate per student expenditure in India and Indonesia that is higher than that in Japan.

Source: Exchange rate and PPP see appendix A.3.

of the century met the demand from the economy. However, after the War this changed for India and to a lesser extent Japan. In Japan there was almost no relation between public and private expenditure on education. This had mostly to do with the lowering of school fees. Simply said, it was not necessary anymore for an individual to invest a large share of his income in education. However, in India, an increase in government expenditure went hand in hand with a lowering of private expenditure. This also had the interesting consequence that there apparently was a maximum investment in education. People did not think it economically interesting to invest anymore themselves. In Indonesia, this was not the case. Both public and private education kept growing together after the War. However, we have to keep in mind that the increase was much higher in Japan than in Indonesia. Indeed, table 4.5 shows that after the 1920s/1930s per student expenditure on education were higher in Japan than in India and Indonesia and the difference remained growing.⁸⁹

This suggests that the relation between education and the economy changed over time. Looking at the effect of education on growth by dividing the countries in the sample in 4 groups with a supposed different educational development, Azariadis and Drazen (1990) suggest that this is indeed the case. Yet, the fact that after the War also the enrolment composition changed suggests that the level of education also had an effect on the relation between education and growth. Indeed, generally, economists found that primary and secondary education exert a positive influence on growth while higher education exerts a negative or insignificant effect (Barro 1991; McMahon 1998). The negative effect of higher education is often attributed to the decline in the quality of higher education due to the strong increase in enrolments that took place at this level, especially in developed countries in the last three or four decades.⁹⁰

⁸⁹ The higher levels of public and private expenditure in India and Indonesia at the start of the twentieth century are largely caused by the nature of their education systems. Whereas in Japan there was much cheap primary education, in Indonesia there were more elitist second and first class schools. Desa schools were only on a massive scale introduced in the 1910s when we see that the difference with Japan reduces. In India, there was a relative high level of more expensive secondary and higher education. In addition, in the first decades of the twentieth century, education in Japan experienced low finance.

⁹⁰ An alternative option is of course the existence of a different lag structure of higher education in regressions. It is possible that secondary education has an initially negative effect which becomes positive in the long run for example due to faster adoption of foreign technologies.

6.3 Some hypotheses on the relationship between educational development and economic growth

The main conclusion is that the development of educational institutions had an impact on both the patterns of formal education development (see section 6.1 of this chapter) and on the relation between the amount of education and economic growth (section 6.2 of this chapter). The question is now how we can test this. What effect does this development of educational institutions have on the relationship between human capital and economic growth?

One could come to the conclusion that, if the relation between education and growth changes over time, if the relation between each level of education and economic growth is different, and if there is a changing enrolment composition, **the changes in the enrolment composition are to a large extent the cause of the changing relationship between human capital and economic growth**. Hence, the phases with a changing focus on primary, secondary, or higher enrolments we found in this chapter must mirror the changes in the human capital coefficient.

This would only be true if we followed the human capital model, i.e. if the education produced at each level exactly matches the demand for that level of education in the economy. This would also be true if there were institutional obstacles which remain constant over time. In that case, **the relationship between education and growth would be lower but still changing with the enrolment ratio** (see for example Bowman and Andersen 1963, 253). An especially good example of this case is India where we argued that the initial focus on higher education kept its influence over the entire twentieth century. Even though it is unlikely that the occupational structure remained the same over time, still the educational structure only changed slightly.

In sum, to test the presence of educational institutions we have to check (1) whether the change in importance of the different levels of education coincides with changes in the human capital coefficient and (2) whether the human capital coefficients in India and Indonesia are lower than those in Japan. In addition, because India and Indonesia started later with increasing mass education, and because the less optimal institutions cause a slower growth in enrolments, we might also test whether the patterns found in point (1) take place earlier in Japan than they do in India and Indonesia.

6.4 Limitations

Our study focuses on a time series, not on a cross-section. This allowed us in this chapter to analyse the role of educational institutions. However, although giving a better opportunity to historically analyse the development and consequences of education-related institutions, it makes it more difficult to analyse the role of standard institutional measures such as property rights. These measures are often stable in the sense that one observation in the past (for example 1900) is used to explain economic growth at the end of the twentieth century. Hence, this sort of analysis requires a cross-section set-up which we cannot perform due to the small sample (only three countries). However, the educational institutions sketched in the previous sections have implications for the size of the human capital coefficient, and the breakpoints in the relationship between human capital and economic growth. Therefore, a confirmation of these hypotheses (which we will address in chapter 7) is also a confirmation of the importance of educational institutions in India, Indonesia, and Japan.

However, before turning to this analysis, we first have to elaborate on the stock of human capital. So far we largely used formal education which, as indicated in chapter 2, is only a limited proxy of human capital if one wants to estimate growth models. Therefore we start in the next chapter by estimating an alternative human capital stock. As an estimate of the human capital coefficient also depends on the growth theory used, we use our newly estimated human capital stock to distinguish between the different growth theories in chapter 6. The effect of human capital forming institutions on economic growth (in the form of the hypotheses presented here) will be discussed in chapter 7.