Labor Market Outcomes of Education:
Evidence for Selected Non-OECD Countries

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ABSTRACT

Based on recent data collected by the UNESCO Institute of Statistics and the OECD in the context of their joint "World Education Indicators" project, labor market outcomes of education can be reassessed for selected non-OECD countries (Brazil, Chile, Indonesia, Malaysia, Peru, Thailand and Uruguay) integrating particularly interesting characteristics of developing country labor markets such as high underemployment and informal sector employment. These specific data, available by level of educational attainment, gender and age, have not yet been published and are presented for the first time within this report. Based on the new information available, some light can be shed on ongoing discussions about perceived differences between OECD and non-OECD countries with respect to labor market outcomes of education. In fact, once the important characteristics of underemployment and informal sector employment are taken into account, the link between education and labor market prospects no longer differs significantly between the two country groups. In both groups, employment prospects, earnings and labor market participation tend to be positively related to the level of educational attainment. Across all levels of education, young people and women tend to be in the most unfavourable situation. However, gender discrepancies with respect to employment prospects appear to be more important in non-OECD than in OECD countries, and no structural trend can be observed that would indicate an improvement of the situation over time.

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1. INTRODUCTION

Several features are characteristic of the link between educational attainment and labor market outcomes in industrialized countries. First, a higher level of education is associated with better chances on the labor market: more highly educated people face a lower risk of unemployment (OECD 2001, pp. 270f.). Moreover, they have higher chances of being employed on stable life-time contracts (European Commission 2002, Ch A).

Finally, their incomes from work are above the incomes of those with lower educational attainment (OECD 2001, pp. 299f.). Second, besides having better chances on the labor market, more highly educated people also tend to participate more frequently in the labor force (OECD 2001, pp. 267ff.). And third, irrespective of their level of educational attainment, women and young people generally lag behind with regard to the labor market indicators mentioned above (European Commission 2002, Ch. A). Are these characteristic links between educational attainment and labor market outcomes similar for non-OECD countries? Or do labor markets in developing countries show different features which prevent these similarities? This report represents an attempt to answer these questions on the basis of new data for selected non-OECD countries collected by UNESCO and OECD in 2001 as a part of their joint World Education Indicators (WEI) pilot project. Some of these data have been published in OECD (2000), but the particularly interesting information on underemployment and informal sector employment by level of education has remained unpublished until now.[1]

In the literature available so far, the links between education and labor market outcomes appear to be much less clear for developing countries. In particular, the positive relationship between education and lower unemployment does not seem to hold (see e.g. Carlson 2001, p. 21, based on data from OECD 2000). However, analysis has been limited by the fact that internationally available data on labor market outcomes of education in non-OECD countries are scarce and incomplete. While the ILO provides some education related labor market indicators, the population outside the labor force is not taken into account. The ILO indicator of unemployment by educational attainment (ILO 2002, pp. 351ff.) for instance, allows a distinction among the unemployed according to their level of education, but no conclusion with respect to the share of the unemployed among people with a certain educational attainment. Moreover, the ILO does not provide any education related complementary information on underemployment and / or informal sector employment, two important characteristics of developing countries' labor markets. Finally, the ILO has not yet adopted the revised international standard classification of education (ISCED 97) so that any comparison with education related indicators from OECD and UNESCO is rendered rather difficult.

The data available from the UNESCO/OECD WEI project presented in this report do allow a much more detailed analysis of the link between education and labor market outcomes, and they are directly comparable to data from OECD countries (see OECD 2001, Ch. E). However, since full information on underemployment was considered crucial to complement the data on unemployment and labor force participation, the number of countries covered by this report is rather limited. Among the 16 countries covered by the WEI report in 2001 (UNESCO/OECD 2001b), only

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[1] *The electronic version of the full data set (UNESCO/OECD 2001a) is available from the OECD or from the authors (Contact: Karine Tremblay: karine.tremblay@oecd.org or k-michaelowa@hwwa.de).*

seven countries met the minimum data requirements for this study. These countries are: Brazil, Chile, Indonesia, Malaysia, Peru, Thailand and Uruguay.

While the number of countries is thus very limited, their spread over two continents (Asia and Latin America) and various levels of economic development appears to ensure enough variation to make the data set relevant for researchers and policymakers across the world. This report provides a detailed description of the data as well as some initial analysis. Following these introductory remarks, section 2 discusses the coverage, advantages and shortcomings of the data, and also provides the definitions of labor market indicators and educational classifications used throughout the report. Sections 3 to 6 actually present the data and try to compare the evidence for the countries covered here with the evidence for OECD member states.

2. COUNTRY COVERAGE, DATA AND DEFINITIONS

The data refer to seven WEI countries of which four are from Latin America, and three from Asia. The four Latin-American countries, Brazil, Chile, Uruguay and Peru, as well as the three Asian countries, Indonesia, Malaysia and Thailand, vary widely in terms of economic and human development. While Chile, Malaysia and Uruguay come relatively close to the living standards of some OECD countries, Indonesia and Peru show much more strongly the characteristics of typical (low income) developing countries. Thailand and Brazil may be classified as somewhere in between. Table 1 provides an overview of their ranks in terms of a few general development indicators.

Table 1

General Indicators of Development, 2000

	GDP per capita (US$, PPP)	Life Expectancy at Birth (total years)	Illiteracy Rate (% of populaion aged 15 or above)
Chile	*9417*	*76*	*4*
Malaysia	*9068*	*73*	*13*
Uruguay	*9035*	*74*	*2*
Brazil	*7625*	*68*	*15*
Thailand	*6402*	*69*	*5*
Peru	*4799*	*69*	*10*
Indonesia	*3043*	*66*	*13*
For reference			
Low income countries	*2012*	*59*	*38*
OECD countries	*27821*	*78*	*…*

Note: Countries listed in descending order with respect to their GDP per capita.
Source: World Bank (2002).

Given the relatively wide range of development levels covered by these countries, it should be possible to get some idea about potential links between education and the labor market. The available data on labor market outcomes of education can therefore be expected to provide some interesting insights, not only with respect to the individual

countries concerned, but also beyond the national level in a more strategic international perspective. The following statistical indicators are available from the WEI data set:

> *total population, labor force, unemployment and underemployment by level of educational attainment, gender and age (for all seven countries),*
>
> *informal sector employment by level of educational attainment, gender and age (for Chile, Peru and Thailand)*
>
> *mean incomes from work by level of educational attainment, gender and age (for Brazil, Chile, Peru, Thailand and Uruguay)*

All data refer to the reference year 1998. They were collected through national household and labor force surveys or represent projections from population censuses and were reported to the OECD by the WEI country representatives. Coverage and reliability of the data vary across countries.

3. THE IMPACT OF EDUCATION ON THE EMPLOYMENT SITUATION

Does education increase the chances to find employment? While the answer is clearly positive for OECD countries, there is an ongoing debate about the issue for developing countries. As opposed to the situation in industrialised countries, unemployment in developing countries appears to be particularly low at the lowest levels of educational attainment. Unemployment seems to be a problem of the highly educated rather than the uneducated segments of the population. Is this impression real or does it reflect data deficiencies or even a misinterpretation of existing information? What can the WEI data (UNESCO/OECD 2001a) contribute to the debate?

Before answering this question in sections 3.2 and 3.3, section 3.1 gives a brief overview over the overall employment situation in the seven countries covered by this report.

3.1. THE OVERALL EMPLOYMENT SITUATION

Looking at unemployment rates, at a first glance, the labor market situation in all seven countries appears to be surprisingly positive. For the population aged 25-64, all three Asian countries show unemployment rates at or below 2.5% despite the reference year 1998 at the peak of the Asian crisis. And even in the four Latin-American countries, the unemployment rate remains below 7 %. Taking all seven countries together, unemployment rates vary between 1.47% in Malaysia and 6.62% in Uruguay. Many OECD countries would be happy with these rates, since their own figures go far beyond. France, Finland, Greece, Italy and Spain for instance, had unemployment rates significantly above 10% during the same reference year (World Bank 2002).

How can this evidence be reconciled with the fact that at least in Latin America, labor market problems are considered by the local population as the single major problem of their countries (Duryea, Jaramillo and Pagés 2001, p. 2)? One answer could be that unemployment is particularly strong among the younger population not taken into account within the age group 25-64 considered here. Section 6 will show that there is some truth about this argument. However, the main issue is yet another one: Unemployment, taken alone, is simply a very inadequate indicator of the employment situation in developing countries. Many people in developing countries will do anything to find at least some work. If they have worked even for a period of just one hour during the reference period, they will statistically be considered as employed. This definition of

unemployment is highly inadequate to capture the labor market problems in developing countries. Despite being "employed" according to international statistical indicators, many people are looking for work and available for work, since their current employment is insufficient. This situation is captured by the notion of underemployment. Figure 1 shows, that once underemployment is taken into account, the labor market situation does look much less bright as before. In 1998, in Brazil and Peru, more than 15% of the labor force aged 25-64 were hit by underemployment. In four countries, un- and underemployment together were significantly higher than 10%. Grouping countries by geographic region, on average, despite the Asian crisis, labor market problems appear to be much stronger in Latin America (four countries to the left in Figure 1) than in East Asia (three countries to the right).

Figure 1
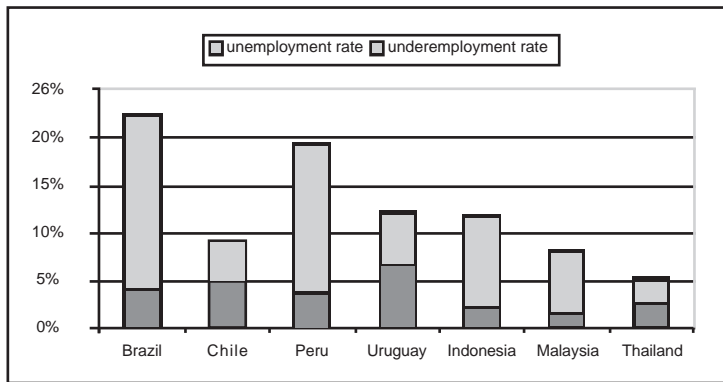
Note : Countries listed by region, in alphabetical order.
Source : UNESCO/OECD (2001a).

The relative importance of underemployment as compared to unemployment appears to be related to the countries' level of economic development. In Chile and Uruguay, two countries with a relatively high per capita income, underemployment is less predominant than unemployment. Conversely, in Brazil, Indonesia and Peru, per capita income is relatively low and underemployment is more than four times as frequent as unemployment. Figure 2 which relates the two indicators for the year 1998 shows no linear correlation but rather suggests a level effect at a threshold of about 8000 US$.[2] The only obvious exception is Thailand where the relative importance of underemployment is not much stronger than in Chile and Uruguay despite a GDP per capita below 6000 US$.

[2] *Obviously these are tentative inferences given the small number of observation.*
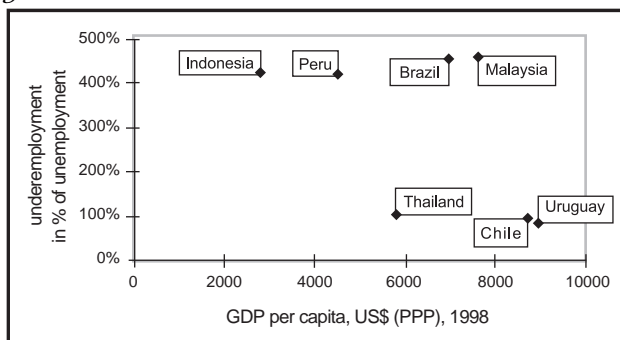
Figure 2

It can be concluded that in middle- and - even more - in low-income countries, underemployment is an indispensable complementary measure to assess the situation on the labor market. But even un- and underemployment taken together may not suffice to capture the full extent of the problem. Informal sector employment is another employment category to be considered. It is irrelevant for high-income OECD countries, but highly relevant for low- and middle income countries. Among the three countries for which data are available in the WEI data set, Chile is the economically most advanced, but still displays an informal sector employment rate of 40%. In Peru and Thailand, informal sector employment as a share of the labor force amounts to 55% and 73% respectively (see Figure 3).

Figure 3
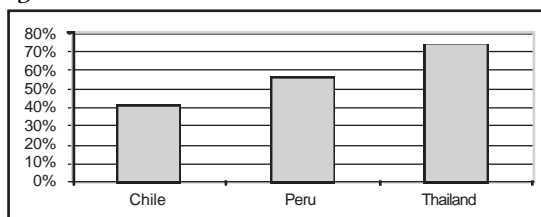
Note : Slide downward adjustment of original data for Peru (see note on Figure 7).
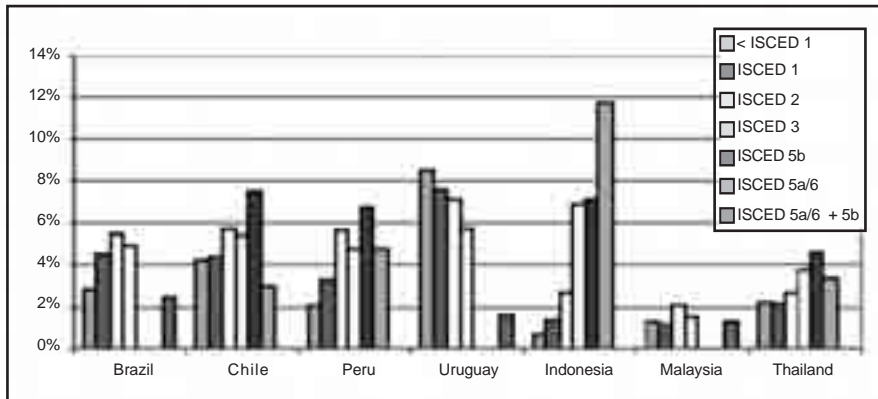
Source : UNESCO/OECD (2001a).

These high rates imply a considerable segmentation of the labor market. Minimum wages, social security coverage and other formal regulations only hold for the "primary", and not for the "secondary" (informal) sector. By definition, informal sector enterprises are not officially registered, they generally don't pay taxes, and they do not have employees on formal contracts. Both factors lead to considerable job insecurity. If, at one point, the tax collector is not willing to "overlook" the existence of a firm any more, and claims belated payments for preceding years, the whole business may not be able to survive. Moreover, earnings in the informal sector tend to be relatively low. This does not necessarily mean that the informal sector is generally less efficient or dynamic – to the contrary. It does imply, however, that there are serious problems with respect to the formal labor market. It thus appears that even in Thailand – despite its low rates of both un- and underemployment – the overall labor market situation may be less bright

than one might have expected at first glance. Finally, it should be noted that informal sector employment often coincides with underemployment. Since the quantitative relevance of the overlap is not specified in the data, no conclusion can be drawn as to the overall rate of persons hit by at least one form of labor market problems. Nevertheless, the data clearly show the importance of both underemployment and informal sector employment. If these concepts are so important to assess the overall labor market situation in non-OECD countries, one should expect that they will be equally important to correctly assess the relationship between education and labor market outcomes.

3.2. THE IMPACT OF EDUCATION ON THE EMPLOYMENT SITUATION

In order to present the relationship between educational attainment and the employment situation, the relevant indicators discussed above have to be disaggregated by level of education. With respect to the unemployment rate, this disaggregation is depicted in Figure 4. For each country, the column to the left shows the unemployment rate of persons with the lowest level of educational attainment (below completed primary) while the column to the right indicates the unemployment rate of persons with tertiary education. Wherever this was possible, a distinction was made between the more theoretically (ISCED 5a/6) and the more occupationally/technically oriented tertiary programs (ISCED 5b). Where the data did not allow for this distinction, the corresponding columns are left empty and a column even further to the right indicates the overall unemployment rate for persons with tertiary attainment.

Figure 4

Source : UNESCO/OECD (2001a).

Looking at Figure 4, the most obvious impression is the lack of any clear relationship between educational attainment and unemployment. With the exception of Uruguay, in none of the seven countries, a rising educational attainment level generally reduces the rate of unemployment. Thus only Uruguay, the country with the highest GDP per capita in the reference year, presents the typical relationship observed in OECD member countries. In Indonesia, the poorest country presented here, the situation seems to be

reverse. For all other countries, the relationship can be best described by an inverted Ushape, at least when the particularly high unemployment rates for ISCED 5b qualifications are not taken into account. Apart from ISCED 5b, the highest unemployment rates are observed for persons with lower secondary attainment (in Brazil, Chile, Peru and Malaysia) and upper secondary attainment (in Thailand). Secondary attainment thus corresponds to the peak of the inverted U. This reproduces the findings of several earlier studies (see e.g. Mehar 1995; Tilak 1991, p. 369 and Wilczynski 1989, pp. 122f.).

While the differences between OECD and economically less advanced countries are obvious, the reasons why this is the case have been a matter of considerable debate. The relatively high unemployment of skilled as compared to unskilled persons in developing countries is often associated with labor market regulations leading to attractive (formal sector) wage levels which in turn provoke the excess supply of skilled labor. In other cases, the oversupply seems to be provoked by government policies promoting secondary and tertiary education irrespective of stagnating demand on the labor markets (Wilczynski 1989, p. 126). In Indonesia, where the unemployment rate is clearly the highest for the most highly educated segment of the population, oversupply of tertiary education seems to have been particularly strong (Hanisch 2001, p. 16). In other countries, crowding out effects were reported with respect to occupations typically requiring secondary attainment. Despite their over-qualification, persons with tertiary education took up these positions thereby transferring the unemployment problem from the highly skilled to the skilled and semi-skilled labor force (Carlson 2001, p. 18; Tilak 1991, p. 369; Wilczynski 1989, p. 126).[3]

At the same time, low unemployment rates in the least educated segment of the population are often explained by the strong correlation of low education and poverty which might distort the "real" impact of education on labor market prospects. For 16 Latin American countries, Duryéa and Székely (1998, p. 14) report that, on average, a 21-year old among the poorest 30% of the income distribution attends school for five years less than a person of the same age in the richest decile. Low rates of unemployment among unskilled groups of the labor force are then simply explained by poverty, whereby poverty is expected to force people into any type of employment - even if it does not match personal interests and skills, if it is underpaid, unstable and/or available only for a few hours a month. In the absence of general social security systems, only the better off segments of the population can actually afford unemployment (Durth, Körner and Michaelowa 2002, p. 50). Under the assumption that most of the skilled unemployed would actually find at least some employment if they were ready to accept lower wages and less prestigious jobs than desired, skilled unemployment in developing countries has often been referred to as voluntary unemployment, search unemployment or even "luxury unemployment" (see e.g. World Bank 1989; Udall and Sinclair 1982).

This view has been seriously challenged by other studies, in particular during the 1990s. In many countries, skilled unemployment rates have simply become too high to be realistically considered as voluntary or search unemployment. With rising unemployment, expectations go down and even university graduates will be ready to accept informal sector small scale blue collar businesses at some point. However, despite the flexibility of the informal labor market, employment for some parts of the labor force will simply not be available. Even self employment is not always a realistic

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[3] *This argument is relevant for OECD countries as well. For a theoretical underpinning, see Saint-Paul (1994).*

option. University graduates lacking the relevant personal relations to "insiders" in the informal market may find themselves in a particularly difficult situation (Turnham and Eröcal 1990, pp. 28 and 30f.).

Mazumdar (1994, p. 512) attempts to disentangle the effects of poverty and low educational attainment through multivariate regression analysis. For the case of Malaysia, he reports that unemployment rises with increasing education, but falls with increasing income levels. Other studies equally tend to find a positive correlation between poverty and unemployment (Rodgers 1989; Inter-American Development Bank 1987) although the direction of causality is not always clear. This seems to contradict the argument that in developing countries, the low skilled cannot afford to be unemployed while the more highly skilled can. In fact, it suggests that the relationship between educational attainment and unemployment which differs from OECD countries is related to the excess supply argument outlined above, rather than to the distortion of the effect of education through the correlation with poverty. Turnham and Eröcal (1990, p. 26f.) further suggest, that the relationship observed between education and unemployment may be simply related to the fact that the youngest generation in the labor force happens to be both, relatively well educated and – due to their lack of experience and connections - more difficult to integrate into the labor market.

Finally, Carlson (2001, pp. 21f.) suspects that low skilled unemployment could actually be greatly underestimated due to difficulties in measuring the concept of "seeking work". Many persons belonging to the low skilled segment of the population may be discouraged workers who have given up looking for jobs. Duryea, Jaramillo and Pagés (2001, p. 7) also note that there may be a downward bias of unemployment due to the lack of incentives for registration if no unemployment insurance is available. This problem may be particularly strong at the low skill level since insurance systems, where they exist, tend to cover merely the white collar formal sector jobs (see e.g. Mazza 2000, pp. 30 and 35 for Brazil).

The above partly complementary, partly contradicting arguments can in fact be regrouped into four categories:

arguments related to excess supply of skilled labor either at secondary or at tertiary level or both,

arguments related to a distortion due to the correlation between educational achievement and income,

arguments related to a distortion due to overlying effects related to specific age groups, and

arguments related to data problems.

Some of these arguments can be directly checked against the more recent evidence provided by the WEI data set. Data on underemployment and informal sector employment by level of education will give some idea about the relevance of the argument that the low skilled poor find at least some work in these segments of the labor market. Disaggregating by age group will further allow to gain some insight with respect to potential distortions related to generational effects.

Data problems due to an incomplete registration of the unemployed do not seem to be a real problem in this data set since data were collected through census and household surveys and not provided by registration offices. It remains relevant, however, to consider the possibility of an underestimation of unemployment due to a high percentage of discouraged workers. This can be taken into account by comparing labor market indicators based on the labor force with labor market indicators based on the population as a whole. Finally, arguments related to access supply of skilled labor

can be checked against the earnings associated with different levels of educational attainment.

The remainder of this section begins the assessment of the various arguments by completing the evidence on unemployment by the evidence on underemployment. If the low unemployment rates of the low skilled population can be explained by the fact that they are forced to take up any kind of work, even if it is just for a few hours a month,
there should be a particularly high share of low skilled workers among the underemployed. In fact, their high share among the underemployed should outbalance their relatively low share among the unemployed so that overall, the relationship between education and combined un- and underemployment should come closer to the relationship between education and unemployment observed in OECD countries.

Figure 5 shows that indeed, in four out of six countries where low unskilled unemployment was observed, unskilled underemployment shows the expected high levels. Education generally seems to reduce the risk to be underemployed in all four countries, Brazil, Chile, Malaysia and Thailand, with the only exception being the relatively high level of tertiary underemployment in Malaysia.

Figure 5
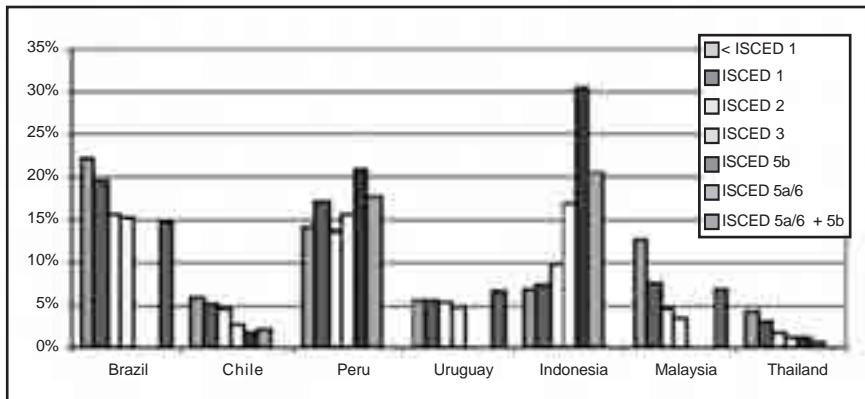
Source : UNESCO/OECD (2001a).

Adding up un- and underemployment, the structural relationship observed with respect to underemployment dominates. While the typical OEDC situation of shrinking unemployment with rising education did hold for Uruguay only, broadening the indicator by considering both un- and underemployment leads to five out of seven countries broadly consistent with the OECD scenario. This suggests that in the majority of the countries presented here, education tends to be beneficial for employment prospects. Apparently, in industrialized and most developing countries alike, unskilled persons face the most serious problems of adequate integration into the labor market.

Figure 6
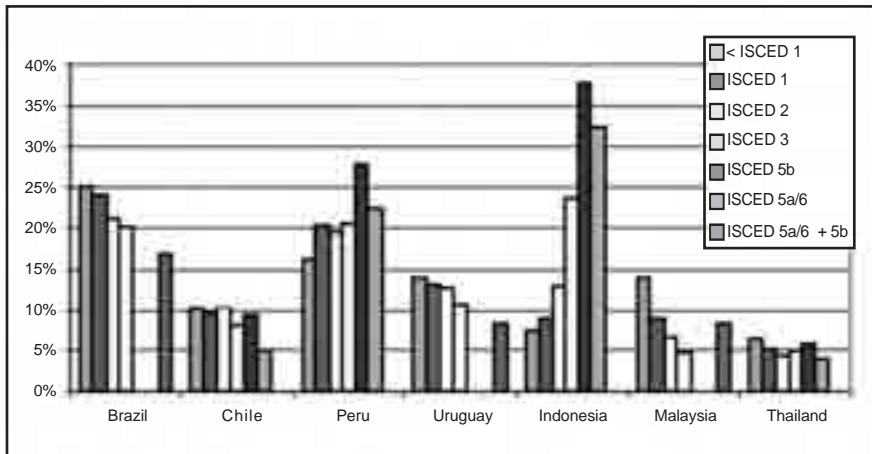
Source : UNESCO/OECD (2001a).

Among the countries analyzed here, the most obvious exceptions to this rule are Indonesia and Peru where un- and underemployment on the one hand and education on the other hand appear to be positively and not negatively correlated. In Peru, considerable low skill underemployment leads to a rather flat slope. Nevertheless, it becomes obvious that in both cases, the inverse relationship between unemployment and education cannot be adequately explained by the need of the unskilled poor to take up any kind of employment available. At the same time and even more clearly, combined un- and underemployment rates beyond 20% and beyond 30% for Peruvian and Indonesian tertiary graduates respectively, are inconsistent with arguments related to voluntary unemployment.

Excess supply of skilled labor could provide a more realistic explanation of the situation in both cases. Indonesia and Peru were the countries with the lowest GDP per capita in 1998. Possibly, economic development, technological change and the associated employment opportunities for skilled labor were not able to follow the rapid increase in human capital creation throughout the 1990s. For the Indonesian case, Hanisch (2001, pp. 16f.) suggests that, in particular, the strong increase in graduates from the law, social and cultural faculties could not be absorbed by the labor market. In many cases, these graduates are reported to have founded NGOs and entered into self-employment. This may contribute to the explanation of the high rates of underemployment for persons with tertiary education attainment observed in Indonesia. The Asian crisis is expected to have further aggravated the labor market prospects of university graduates (Hanisch 2001, p. 17).

In Malaysia, although overall, education seems to exert a positive influence on employment opportunities, this does not seem to be the case for tertiary education graduates either. The argument of excess supply of highly skilled labor may therefore be relevant here as well. This would be consistent with the Mazumdar's (1994, pp. 511 and 515) observations already for the late 1980s.

Another irregularity should be noted with respect to several country-cases in Figure 6. In all countries for which separate information on the more practical / technical / occupationally oriented tertiary education (ISCED 5b) is available, the corresponding un- and underemployment rates disturb the general trend relating

education and employment prospects. In fact, in all cases, labor market prospects of this group of graduates seem to be particularly bad. This is surprising since a more vocational or technical orientation of studies is often recommended (see e.g. Carlson 2001, pp. 15-17; Sussangkarn 1994, p. 606). Indeed, the occupationally oriented ISCED 5b programs should be expected to be geared towards a particularly smooth entry into the labor market.

Why this is not the case, is difficult to say. There appears to be some problem with the concrete implementation of current programs listed in this category. Sussangkarn (1994, p. 607) notes for Thailand, that technical programs often lack the relevant facilities (e.g. machinery and computers) adapted to modern technologies. Carlson (2001, p. 22) reports that in Latin America, many students enrolled in ISCED 5b programs actually intend to use these programs only as a "stepping stone or parking space" until they are admitted to traditional ISCED 5a university programs that offer higher wage premiums. This underlines the relatively bad reputation of ISCED 5b programs in the way they are implemented today.

At the same time, it is not clear whether ISCED 5b has always been correctly specified by the reporting countries. According to the data, the share of students enrolled in these programs is very small. It is not clear whether all relevant programs have been taken into account. Moreover, since in none of the countries ISCED 4 programs are listed separately, there is a high probability that post secondary, non tertiary programs will at least partly be included in this category. Box 4 reports the detailed information Chile, Indonesia, Peru and Thailand, the four countries with separate data for ISCED 5b, provided about the national programs covered by this level of education. Whatever the specification problems may have been, these programs apparently require a specific check with respect to their ability to create human capital relevant to the labor market.

Summarizing the results of this section, it can be concluded that the analysis of underemployment by level of education provides strong support to the argument that low unemployment rates of the unskilled are related to their poverty and their need to take up any work available to them. Their share among the underemployed is therefore very high. Once this effect is taken into account, the education-employment relationship observed does not differ significantly any more from the one typically observed in OECD countries. Notable exceptions are Indonesia and Peru, where the reverse relationship persists with particularly high unemployment rates of the (highly) skilled. In these countries and, to a lesser extent, in Malaysia, oversupply of skilled labor seems to be the relevant explanation of skilled unemployment. At least in some disciplines, labor market demand for persons with high attainment levels did not match the speed of human capital creation. Particularly striking examples are ISCED 5b programs whose graduates appear to have extremely bad employment prospects in all countries for which separate data are available.

## *3.3. THE IMPACT OF EDUCATION ON INFORMAL SECTOR EMPLOYMENT*

If the above conclusions are correct, this should be reflected as well in informal sector employment by level of education. In fact, it is the informal sector which is traditionally thought to be flexible enough to provide at least some employment opportunities for the unskilled poor desperately looking for work. In line with the observation of low unskilled unemployment, but high unskilled underemployment, and in line with the

explanation of the poor being forced to seize any work opportunity available, it should therefore be expected that the share of the unskilled poor among the persons employed in the informal sector is particularly high. At the same time, at least as long as there is no serious excess supply of skilled labor, graduates of higher level educational programs should be less strongly represented among the workers in the informal sector.

The implied negative relationship between the level of educational attainment and employment in the informal sector is often reported in the literature (e.g. Funkhouser 1996, p. 1742; Mazumdar 1994, pp. 500f.). The reasons given are generally related to the highly flexible informal sector employment relations already mentioned above. Griffin and Edwards (1993, p. 246), for instance, argue that in flexible employment relations, educational degrees are less relevant as a screening device. The formal sector with its long-term contracts and wage rigidities – especially in the civil service – (see e.g. Oladeji 1997, p. 356) requires educational degrees as a minimum guarantee of the abilities required. The unskilled are therefore constrained to accept informal sector employment, and even more so, as they are generally too poor to remain unemployed while waiting for better job opportunities in the formal sector.

For all countries providing information on informal sector employment by level of educational attainment, data are consistent with these arguments. Chile and Thailand show an unambiguous negative relationship between informal sector employment and educational attainment levels. In Peru, for all population groups with attainment levels up to lower secondary education, informal sector employment rates are about the same. Only from upper secondary education onwards, informal sector employment decreases. Overall, the decrease is less strong than in the other two countries (see Figure 7).

Figure 7
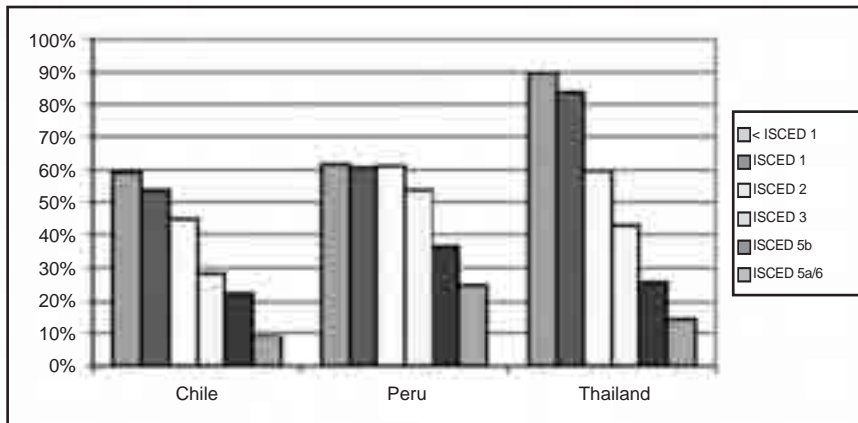
Note : Original Peruvian data for ISCED 5b include an obvious reporting error for males aged 45-54 (over 250% of the labour force reported to be employed in the informal sector). This appears to be a wrong setting of the decimal point which was corrected here.

Source : UNESCO/OECD (2001a).

This evidence matches the evidence on underemployment presented in the previous section. To a large extent, underemployment and informal sector employment seem to go hand in hand. As opposed to Chile and Thailand, section 3.2 indicated that Peru

suffers from considerable excess supply of skilled labor. Given the serious shortage of employment opportunities in the formal sector, not only unskilled, but also a considerable number of skilled and highly skilled persons search employment in the informal sector.

At the same time, it is obvious that informal sector employment is not only a question of how many people are unable to find employment in the formal sector and constrained to search work elsewhere. It is also a question of how strong the absorption capacity of the informal labor market really is. Turnham and Erökal (1990, pp. 27f. and 31) suggest that entry into the informal sector often requires personal relations with those already established there, and that persons with higher educational attainment often lack these relevant contacts. Moreover, informal sector employment may be determined at least partly by personal comparative advantages, e.g. in the fields of entrepreneurship, specific technical knowledge or handicrafts (Yamada 1996, pp. 306 and 308). Most people choosing higher educational programs can be expected to have their comparative advantages in other, often more general or theoretical fields. The question therefore arises, whether the informal sector is really flexible enough to integrate even this group of people if the formal labor market does not provide the desired employment opportunities. This absorption capacity of the informal sector certainly varies from country to country. Funkhouser (1996, p. 47) provides some evidence of national differences in institutional characteristics of the informal sector that may also be relevant here. Turnham and Erökal (1990, pp. 31f.) suggest that the Peruvian capital Lima provides a relatively more supportive environment for self employment in the informal sector than other major cities in developing countries.

Summarizing this section, it can be concluded, that the evidence on informal sector employment presented here, is consistent with the results of the discussion of un- and underemployment. Overall, there is a clearly negative relationship between the level of educational attainment and informal sector employment. Yet, the capacity of the informal sector to integrate highly skilled persons varies across countries. It is relatively high for Peru with informal sector employment rates of 25% and 35% for persons with ISCED 5a and 5b attainment respectively. At the same time, it seems that in this country, excess supply of skilled labor in the formal sector pushes people into the informal sector.

3.4. *THE IMPACT ON EMPLOYMENT RECONSIDERED: HIDDEN EFFECTS OF EDUCATION RELATED TO LABOR MARKET PARTICIPATION*

So far, employment data have been presented in relation to the labor force, a procedure that corresponds to the standard presentation of labor market statistics. However, it is sometimes argued that the corresponding indicators may hide labor market problems due to discouraged workers, i.e. due to people who do not seek work simply because they know that they won't find any, and who are therefore not included in the labor force. In fact, Carlson (2001, pp. 21f.) suggests that, in developing countries, a particularly high rate of discouraged workers among persons with low educational attainment could provide an alternative explanation for the observed relatively low unemployment rate of the unskilled poor. This argument reflects an extremely pessimistic view of the absorption capacity of the labor market (including the informal sector), since it implies that many people will not even find some employment, whatever little and whatever badly remunerated. This view is shared by other authors (see e.g. Turnham and Erökal 1990, pp. 30ff.).

Looking at labor force participation rates in Figure 8, it becomes clear that there is indeed a positive relationship between labor force participation and educational attainment, i.e. the unskilled tend to remain outside of the active population much more often than the skilled do. And if all people without work (i.e. inactive, supposedly discouraged, and unemployed) are related to the total population - thereby creating a revised "unemployment rate" - the untypical features of the original unemployment rate in relation to educational attainment (reverse U-shape or upward slope) do indeed disappear for most countries, just as in the case where underemployment was taken into account. This relationship is presented in Figure 9.

However, there is one problem about this story: A strong positive relationship between labor force participation and educational attainment is typical for developed and developing countries alike. It does not seem very logical to explain differences with respect to unemployment, by similarities with respect to labor force participation. There may of course be differences between OECD and non-OECD countries with respect to the reasons why people do not belong to the active population. Indeed, discouragement may be more prevalent in less advanced countries, while in industrialized countries with well functioning social security systems and family allowances for child-caring, the free decision to remain inactive may dominate. However, these two effects cannot be disentangled on the basis of the available data. One might also suggest, along the lines of earlier arguments, that many people in poor countries can actually not afford to be "discouraged". Turned differently: In countries with higher incomes, people will tend to give up search more easily.

While it remains unclear whether the effect is related to free choice or to more easy discouragement or both, Figure 8 shows, that, among the seven countries covered by this report, labor force participation of the unskilled is the lowest for those countries with the highest GDP per capita (Chile, Uruguay and Malaysia). These are the countries where the positive relationship between labor force participation and educational attainment is the most obvious.
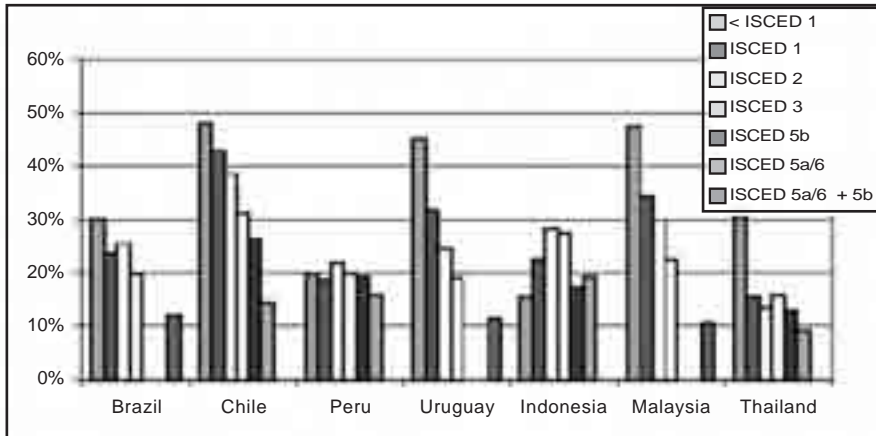
Figure 8
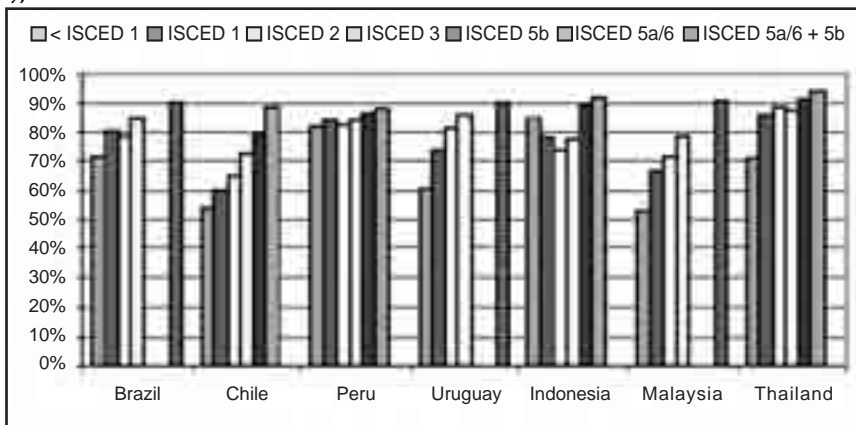
Note : The high labour force participation rates of low skilled persons in Indonesia is apparently overestimated due to errors in the data for some age segments of the male labour force (reported labour force rates>100%).

Source : UNESCO/OECD (2001a).

This particular situation for Chile Uruguay and Malaysia is reflected in Figure 9, since in all three countries, the share of unskilled persons (<ISCED 1) without work within the total population amounts to levels as high as 45-50%. Generally, the percentage of people without work is higher in these countries. This also shows, that the share of people without work is certainly not a sensible indicator of the labor market problems even in developing countries, and that it should certainly not replace the unemployment rate, despite the problem of discouraged workers. The same is true if persons with insufficient work are added to those without work. This cannot replace the combined un- and underemployment rate. For the sake of completeness, persons with none or insufficient work as a share of total population are presented in Figure 10.

Comparing Figures 9 and 10 shows that, except Indonesia, the relationship with educational attainment remains stable for each individual country. However, due to the higher level of underemployment in the poorer countries, the average percentage of people without sufficient work in the poorer countries comes close to the average level in the richer countries.
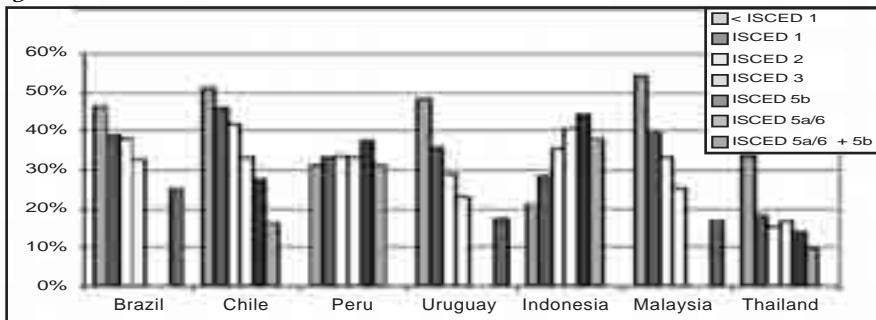
Figure 9

Note : Persons without work = total population - employed population.
Source : UNESCO/OECD (2001a).

Figure 10

*Note : Persons with no or insufficient work - total population - (employed - underemployed population).*
Source : UNESCO/OECD (2001a).

All in all, this section indicated that labor force participation is positively linked to educational attainment in less developed countries and OECD countries alike. The reasons may differ reflecting different parts of discouraged workers and persons simply preferring to stay inactive. Since these reasons cannot be disentangled, indicators relating persons without or without sufficient work to total population, do not make sense as "revised" indicators of the employment problems in less developed countries. In fact, the indicator of combined un- and underemployment still appears to provide the most realistic picture of their labor market situation. Considering labor force participation does not lead to a revision of the arguments presented in the previous sections. It does, however, provide an interesting insight into the propensity to work at different levels of educational attainment.

4. THE IMPACT OF EDUCATION ON EARNINGS

Having looked at the impact of educational attainment on employment, it remains to examine whether the positive effect of education also holds with respect to incomes. For OECD countries, again, there is a clearly positive link. The earnings differential is particularly high between upper secondary and tertiary education while it tends to be less pronounced between lower attainment levels (OECD 2001, p. 299). Figure 11 shows that the data indicate exactly the same relationship for the countries xamined in this report. Data are available for Brazil, Chile, Peru, Uruguay and Thailand. Indicators of mean incomes from work (for simplicity referred to as "earnings" in the following) are not presented in absolute terms but only relative to earnings of persons with upper secondary attainment (ISCED 3). Even for OECD countries, this technique is used to avoid problems of cross-national incompatibility of earnings definitions (OECD 2001, pp. 299 and 302).

Figure 11
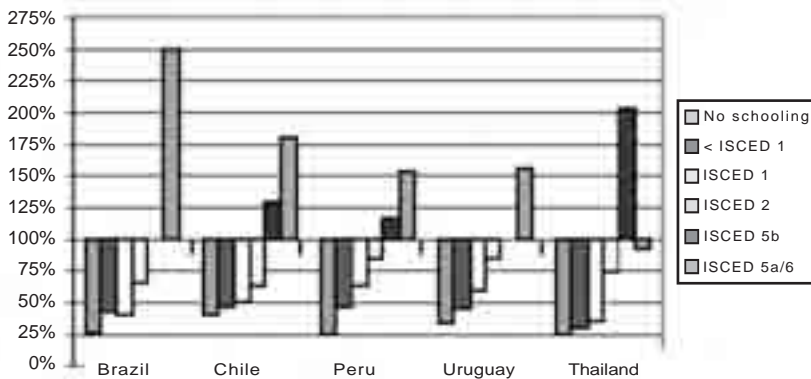
Note : Given that the figures are ratios of weighted averages of earnings across different age groups, they can differ significantly from what one would expect looking at each age cohort individually (see Figure 19). At ISCED 5a/6 in Brazil, for instance, no individual age cohort shows relative earnings as high as the overall 250%. This is possible due to the different weights of age groups at ISCED 3 and 5a/6.

Source : UNESCO/OECD (2001a).

The earnings differential is particularly strong for Brazil, stronger than in any other country presented here, and stronger than in any of the OECD countries presented in OECD (2001) (see also Carlson 2001, p. 24). Both in OECD countries and the countries discussed in this report, the theoretically oriented tertiary education (ISCED 5a/6) generally leads to the highest earnings differential. In Thailand, however, the more professionally oriented practical / technical tertiary education programs ISCED 5b lead to considerably higher earnings. Earnings are high despite the rather mediocre employment prospects of graduates from these programs. The opposite is true in Chile and Peru where ISCED 5b appears to be much less rewarding than ISCED 5a. As opposed to the case of Thailand, in these two countries, earnings seem to have adjusted to the relatively bad employment prospects of ISCED 5b graduates on the labor market (see Figure 6, section 3.2). In Brazil and Chile, a strong increase in earnings can also be observed from ISCED 2 to ISCED 3.

Before concluding this section, it should be noted that the concept of relative earnings used here is different from the concept of rates of return to education. As opposed to relative earnings, rates of return to education take into account the opportunity costs that arise from additional education. Due to high foregone earnings, these opportunity costs are particularly important for higher levels of education. This is why the highest rates of return are generally observed for the lowest level of education (e.g. Psacharopoulos 1993, p. 1332). From an investor's point of view, despite the particularly high earnings differences observed between ISCED 3 and 5a/6, investment in lower levels of education may still be more rewarding.

The OECD indicator of relative earnings used here also differs from the concept of pure wage differentials since it reflects variations in wage rates and coverage, i.e. in the time spend in employment which is itself correlated to the level of education. Therefore, the differences observed here are greater than those which could be observed by a comparison of wage rates alone (OECD 2001, p. 302).

All in all, it should be retained from this section that the link between education and earnings just as the link between education and employment is substantially the same
for OECD and non-OECD countries. In both cases, the level of educational attainment is positively correlated with labor market prospects. While with respect to employment, this effect became obvious only after giving due consideration to the problem of underemployment, the positive relation between education and earnings is straightforward and holds - almost without exception - for all countries and levels of education.

5. GENDER EFFECTS

So far, labor market prospects by level of education have been discussed without any distinction between women and men. From industrialised countries, however, it is well known that, at a given level of educational attainment, labor market prospects of women are generally lower than those of men. Women tend to be less often part of the active population, and if they are, they are more often found in low-pay and unstable positions (OECD 2001, pp. 267ff., 299ff.).

Looking at labor market participation first, Figure 12 shows the expected gender differences, just as in the typical OECD case. Comparing labor market participation rates of men (line on top) with those of women (columns), it becomes clear that the share of economically active men is much higher, in particular for low levels of

educational attainment. The widening gap with lower levels of education is related to the fact that for women, generally, the positive relationship between educational attainment and labor force participation is much stronger than for men. This is a common result already reported in other studies (see e.g. Duryea and Székely 1998, p. 22). The most extreme cases are Chile, Uruguay and Malaysia where, for persons without completed primary education, male labor force participation rates are about twice as high as female rates. At the same time, among tertiary education graduates, labor force participation rates of men exceed those of women by only about 10%. Gender differences with respect to the strength of the correlation between educational attainment and economic activity are equally observed in OECD countries (OECD 2001, p. 273).

It can be observed that, except for Thailand where labor market participation rates of women are generally high, the increase in female economic activity is particularly strong from ISCED 3 onwards (see also Cameron, Dowling and Worswick 1997, p. 21). In fact, in two countries, Peru and Indonesia, exceptions to the general trend discussed above, female labor force participation rates actually decrease until ISCED 2 and increase only from there onwards.

Figure 12
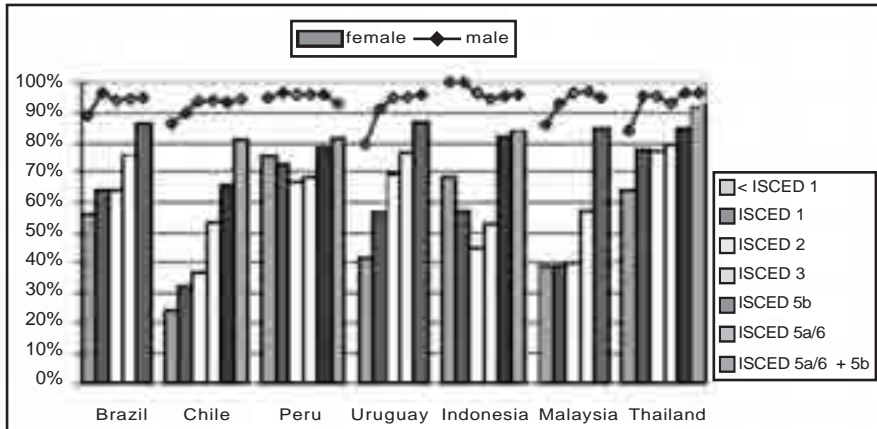
Note : Labour force participation rates of low skilled men in Indonesia are reported to lie above 100%. For consistency reasons, these figures were reduced to 100% here.

Source : UNESCO/OECD (2001a).

It is interesting to note that again, the two poorest countries represent the two exceptions, with a U-shaped relationship rather than a monotonous increase of female labor force participation along with educational attainment. This may give further support to the argument that in poor countries without general social security systems, many uneducated persons can simply not afford to stay out of the labor force, even though the incomes they can expect are meagre, and even though, in the particular case of women, they will have to carry out many other additional activities (household and child caring). The U-shaped relationship has frequently been found for other developing countries as well (Cameron, Dowling and Worswick 2001, p. 460). Even within OECD countries, it has been observed for Korea (OECD 2001, p. 267).

The relationship shows how the additional benefit of increased earnings is weighed against the disutility of additional work in the different countries. Expected

returns to employment increase while the utility of additional earnings decreases with rising education (assuming a positive correlation between education and wealth). The disutility of additional work may also decrease with rising education since the type of work tends to change from hard physical work to desk work and intellectual work. Moreover, educated women in wealthier households can more easily reduce additional tasks related to housework and child caring so that employment on the labor market can substitute for rather than cumulate with other work. On the national level, the predominance of either of these effects at a given level of educational attainment is not only a matter of national wealth, but also of traditional gender roles as well as of the inner family relationship between male and female education and income (see e.g. Cameron, Dowling and Worswick 1997, pp. 3, 14, 21 and 24ff.).

Women are not just underrepresented within the labor force. Once they are in the labor force, they face considerably greater problems of un- and underemployment. While relatively high female unemployment has already been mentioned as a characteristic feature of many OECD countries, gender discrepancies tend to be much smaller there than in the economically less advanced countries considered here. In fact, in the OECD, female unemployment rates twice or thrice as high as male rates are rare exceptions across all countries and levels of educational attainment. They can be observed in Spain, and, for some ISCED levels, in Greece, Italy and Portugal. In about half of the OECD countries, gender differences are hardly perceivable (OECD 2001, p. 271).

Figure 13 shows that among the seven countries considered here, only Thailand has very similar un- and underemployment rates for men (columns) and women (line on top). In Chile, Peru and Uruguay both un- and underemployment rates are about twice as high for women as the respective rates for men. In Brazil, they are twice to four times as high for high and low ISCED levels respectively. The most extreme case, however, is Indonesia. In this country, combined un- and underemployment is about six times as high for women as for men.
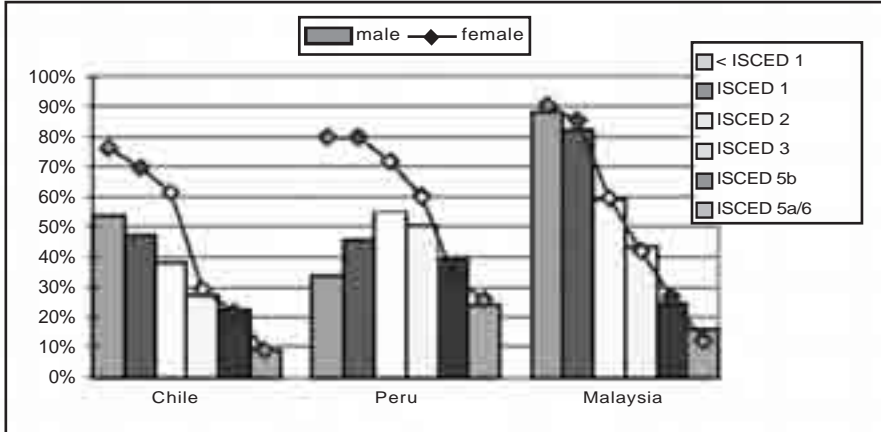
Figure 13
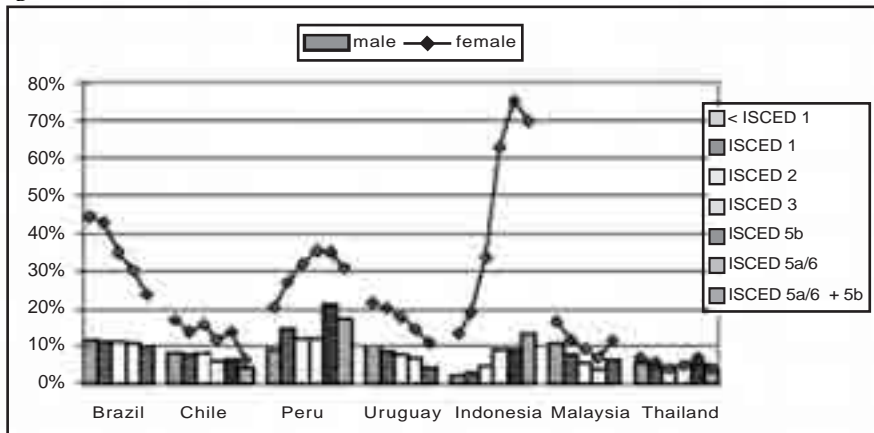
This is mainly due to extremely high female underemployment and may be at least partly related to the particular situation of the Asian crisis. Hanisch (2001, p. 12) reports that in 1998, at the peak of the Asian crisis, many Indonesian women decided to become

economically active in order to help improve their family's income situation. High female un- and underemployment rates during this year would therefore be related to the increased female labor market participation rather than to women being hit more than proportionally by dismissals provoked by the crisis.
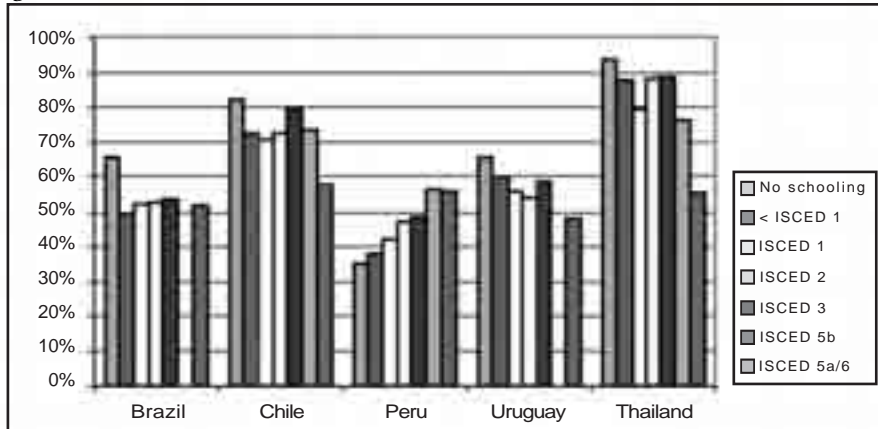
Figure 14

Figure 15

Figure 14 shows that, overall, the relatively difficult labor market situation of women is also reflected in higher informal sector employment rates. This is a common result for many developing countries (see e.g. Funkhouser 1996, p. 1776). Among the three countries for which data are available here, only Thailand again depicts no discernible gender differences. In Chile and Peru, at the lowest ISCED level, informal sector employment rates of women exceed those of men by about 50% and 100% respectively. In both countries, however, gender differences in informal sector

employment diminish with increasing levels of education. With ISCED 5b attainment in Peru, the gender situation even gets reversed.

Considering the link between education and informal sector employment in general, Figure 14 shows that for women, the correlation is strictly negative in all three countries. Slight discrepancies from the general trend observed in Peru (Figure 7, section 3.3) are solely related to characteristics of the male labor force.

Figure 15 finally shows gender differences with respect to earnings. In all five countries for which these data are available, women's mean incomes from employment are substantially lower than men's.

It appears that on average, gender related earnings differentials are similar to those observed in the OECD. At given ISCED levels, women in Brazil, Peru and Uruguay earn only around 60% of their male colleagues. At the highest level of educational attainment, female earnings remain below 60% of male earnings in all countries. In all countries except Peru, the least divergence between male and female earnings can be observed for persons without schooling. Neglecting the additional effect of education on the employment situation, this would indicate that, at the exception of Peru, returns to education are higher for men than they are for women. Whether the relatively higher propensity of educated women to be employed can outweigh this effect, remains an open question. International evidence of gender differences in returns to education is mixed depending, for instance, on levels of educational attainment. However, selectivity correction for women outside the labor force does not seem to change the general trends (Psacharopoulos 1993, pp. 1327 and 1329).

To some extent, the earnings differential may be related to relatively high female underemployment and informal sector employment. Assuming that informal sector employment generally goes hand in hand with lower pay, one explanation for female relative earnings rising with educational attainment in Peru could be the remarkably strong education related relative decrease of female informal sector employment in this country. Voluntary part-time employment may also decrease women's mean earnings, at least in the better off, i.e. generally more highly educated segments of the population. Note that higher female unemployment and lower labor force participation rates do not interfere with the data presented here since mean incomes are calculated only with respect to those persons who effectively had at least some earnings during the reference period.

Reflecting upon the explanations of gender differences on the labor market, Behrman and Zhang (1995, pp. 35f.) argue that both earnings differentials and gender specific employment patterns are strongly related to gender differences with respect to traditional roles in the family, especially concerning child care and household work. They emphasize that the time a person is expected to spend in the labor force is highly influential for the employer's (and the employee's) decisions about investment in human capital. For example, in societies where most highly skilled women only work for a few years after their graduation, after which they get married and drop out of the labor force, employment prospects will be particularly bad. Moreover, since work experience is generally valued by higher wages, periods spent outside the labor force also have a direct negative effect on earnings. Finally, many low skilled jobs in developing countries require physical strength which is a comparative advantage of men.

In OECD countries, the main determinants of gender differences on the labor market are similar. With respect to the earnings differential, OECD (2001, p. 302) mentions the different amount of time, men and women spend in the labor force, and the relatively high incidence of part-time work among women. Moreover, gender specific choices of career and occupation are emphasized. Another interesting explanation is

related to the fact that, traditionally, within the family, men's professional choice is made prior to women's. This restricts the geographic area where women can search for work and matching of skills and job openings becomes more difficult. Women therefore often work in positions for which they are overqualified which, at a given level of educational attainment, leads to lower incomes from employment (Büchel and van Ham 2002). These are only some of a wider range of possible explanations.

All in all, comparing gender differences in OECD countries on the one hand, and in less advanced countries on the other hand, similarities are more obvious than differences. With respect to all indicators available for both country groups, obvious gender differences exist to the detriment of women. The size of the gender differential does not seem to be significantly different for OECD and non-OECD countries with respect to labor force participation and earnings, a fact that is partly due to the wide variation within the two country groups. Even the U-shaped relationship between education and labor force participation found in Peru and Indonesia is not merely a characteristic of developing countries since it has equally been observed in Korea. Besides poverty, other factors such as traditional gender relations must therefore be important determinants of this relationship. With respect to un- and underemployment, across all levels of education, the gender differential seems to be more important in the less advanced economies than in the OECD.

6. AGE GROUP EFFECTS

So far, the whole population from age 25 to 64 has been considered in both, figures and analysis. It is the purpose of this chapter to differentiate between different age groups and to add some insights on labor market outcomes of persons below the age of 25. In order to uniformly exclude students from the youngest age groups, for persons of 15-19 years, only ISCED levels 1 and <1 are considered here. Persons aged 20-24 are considered up to ISCED 3.

The differentiation by age should provide some insight about

potential difficulties concerning the labor market integration of younger segments of the labor force such as typically observed in OECD countries,

the relevance of age cohort effects to explain the strong employment problems observed for persons with relatively high educational attainment in developing countries (Turnham and Eröcal (1990, p. 26f., see section 3.2), and

developments in the relationship between education and labor market outcomes over time.

Figure 16 presents combined un- and underemployment rates by age group and level of education. Across different levels of education, employment problems seem to be particularly strong for the younger age groups (Chile, Uruguay, Thailand), for the oldest age group (Malaysia) or both (Brazil, Peru, Indonesia). Similar to the problems of youth unemployment observed in OECD countries, on average, here as well, the situation appears to be the most difficult for younger people. It is not clear whether the important employment problems of the younger age cohorts should be interpreted as a reflection of the transition problems from education to the labor market or rather as a deterioration of the labor market situation over time. The second interpretation would

imply labor market saturation with older people leaving less entry chances for newcomers. The first would underscore the high value of already existing work

experience for finding new employment. It is probable that there is some truth in both arguments, with weights depending on countries. Given that youth un- and underemployment is particularly strong in many countries, Turnham and Eröcal's (1990, p. 26f.) argument of a bias in the correlation between educational attainment and employment may be true. It is based on the assumption that educational attainment has continuously risen over time so that the high coincidence of high educational attainment and unemployment may actually be a spurious relationship.
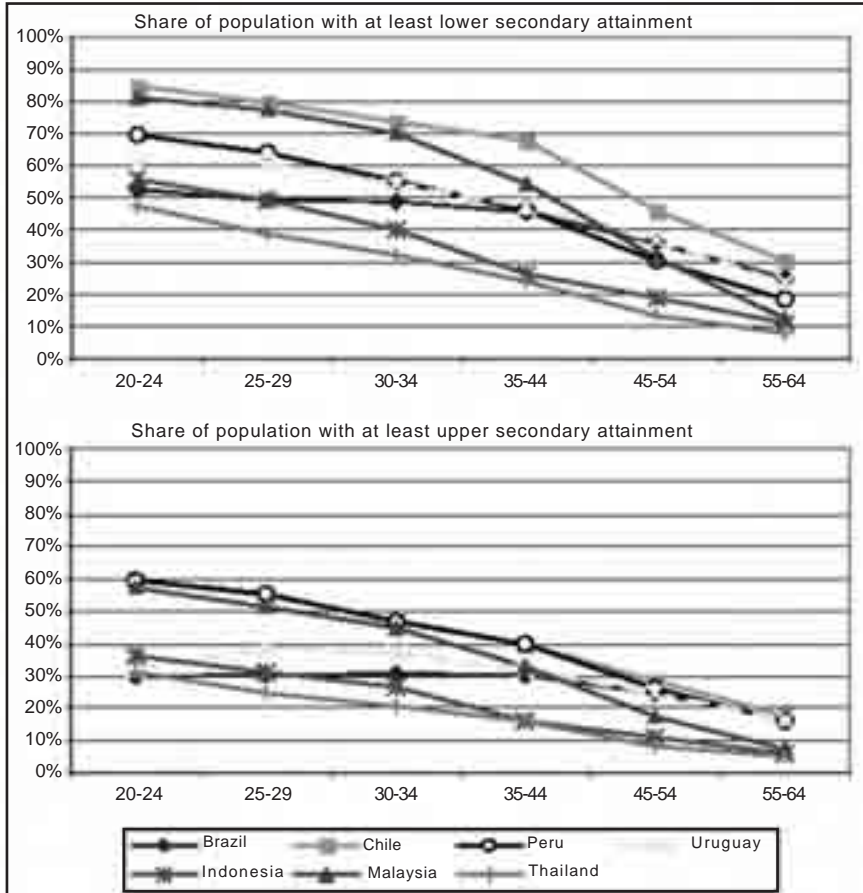
Figure 16
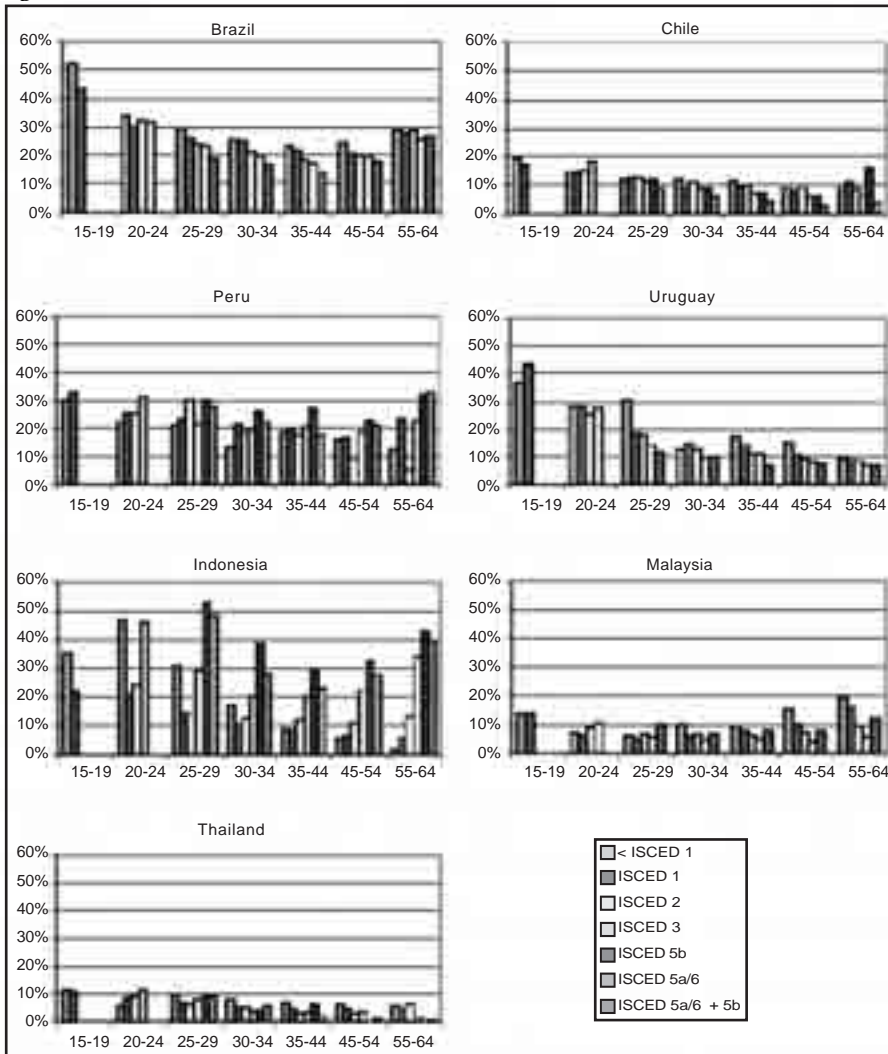
Source : UNESCO/OECD (2001a).

Figure 17 shows that in all countries considered here, educational attainment has indeed improved considerably over time. Across all countries, upper secondary attainment has

risen from below 20% among the population aged 55-64 to between 31 (Brazil) and 60% (Chile) for the population aged 20-24. Similarly, 30% or less of the 55-64 yearolds reached a minimum of lower secondary attainment, while the respective shares among the 20-24 year-olds lie between 48% in Thailand and 81% in Malaysia.

Figure 17

Source : UNESCO/OECD (2001a).

Looking at all age levels without distinction may thus indeed lead to a false interpretation of the relationship between employment prospects and education. At the same time, Figure 16 shows that, despite differences in the level of un- and underemployment between the different age groups, the structural relationship between educational attainment and employment prospects appears to be rather stable. In Peru and Indonesia, where the relatively bad employment prospects of the highly skilled observed on the basis of unemployment persisted when taking into account underemployment (see section 3.2), the same relationship prevails across different age groups. Therefore, the relatively bad employment prospects of the highly skilled in these countries are clearly not a matter of misinterpretation due to cohort effects but a matter

of particularly serious labor market problems in this segment of the population. Again, the argument is confirmed that in Peru and Indonesia, supply of human capital rose faster than economic development and the absorption capacity of the labor market.

In other countries where a positive relationship between employment prospects and educational attainment had been observed, this relationship tends to hold for all age groups - most clearly in Brazil and Uruguay, and with a few outliers in the remaining countries.

With respect to informal sector employment as well, it can be checked to what extent a distinction between age groups might have influenced the pattern of its overall negative correlation with education. In fact, it is sometimes suggested that employment on the informal labor market is more relevant for older age groups since practical experience is particularly valued there (see e.g. Turnham and Eröcal 1990, p. 31). Indeed Figure 18 indicates that in Chile and Thailand, for each level of educational attainment, informal sector employment tends to increase with age. Thus given that younger people are generally more highly skilled, without disaggregation by age group, the effect of education on informal sector employment may actually have been overestimated. However, just as in the case of un- and underemployment, the overall structural relationship observed across age groups remains stable when looking at the individual age cohorts. In all three countries for which data on informal sector employment are available, its relevance decreases significantly with increasing levels of educational attainment. Only the youngest age groups in Chile and Thailand, and the oldest age groups in Peru represent some exceptions. In Peru where the younger age groups are more strongly represented on the informal labor market than the older age groups, differentiation between the age cohorts permits to discern the education-informal sector employment relationship even more clearly than before.
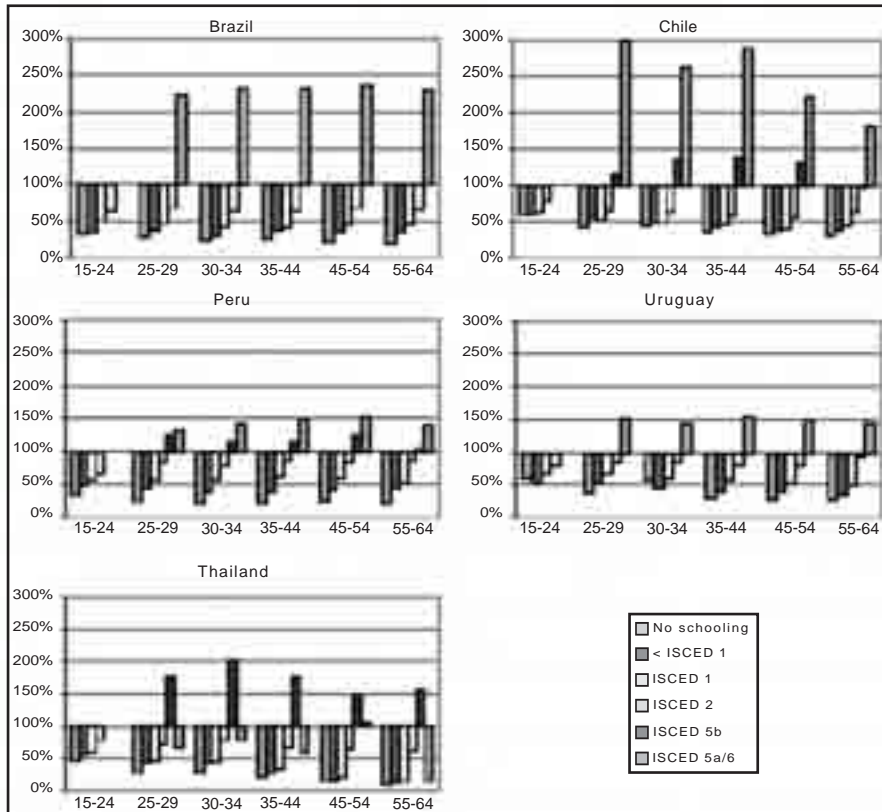
Figure 18
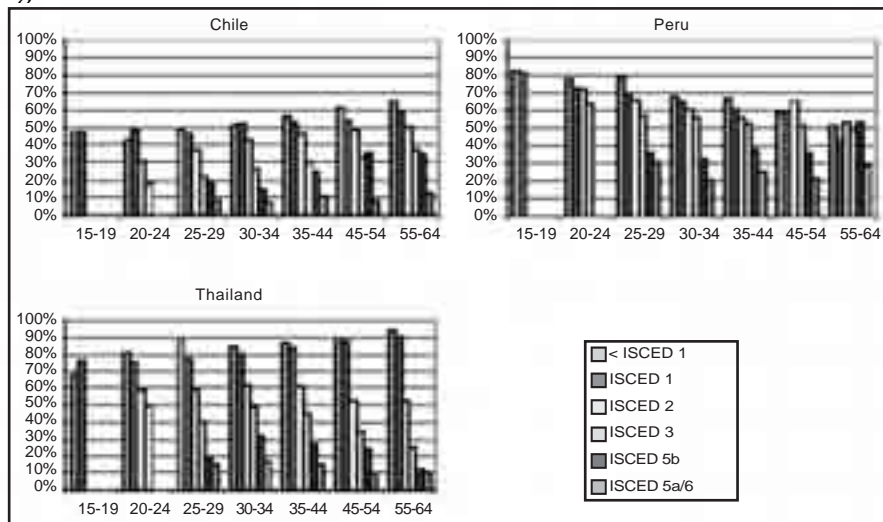
Source : UNESCO/OECD (2001a).

Besides looking at employment prospects, age disaggregation may also be interesting with respect to earnings. The relative earnings of highly skilled and low

skilled workers as compared to persons with upper secondary attainment can be expected to give some insight about the changing valuation of human capital over time. Among the younger population where human capital supply is relatively high, returns to education might be lower. At the same time, the opposite could be true: Given that many people reach relatively high levels of education, those who do not could face particularly bad earnings prospects.

Figure 19 shows that in fact, for most countries, none of the two effects appears in the data. Only in Chile and Peru, for graduates of theoretically oriented tertiary education, a structural relationship between age cohorts and relative income levels can be observed. In Chile, this implies particularly high returns to education for young ISCED 5a/6 graduates. This could reflect a move of the economy towards knowledge intensive activities where recent graduates clearly have an advantage. With the exception of the oldest age group and at generally much lower returns to education across all age cohorts, the opposite is true for Peru. Apparently, the increasing saturation of the labor market for university graduates in this country finds its reflection in lower incomes - either through lower wages or through higher rates of underemployment.
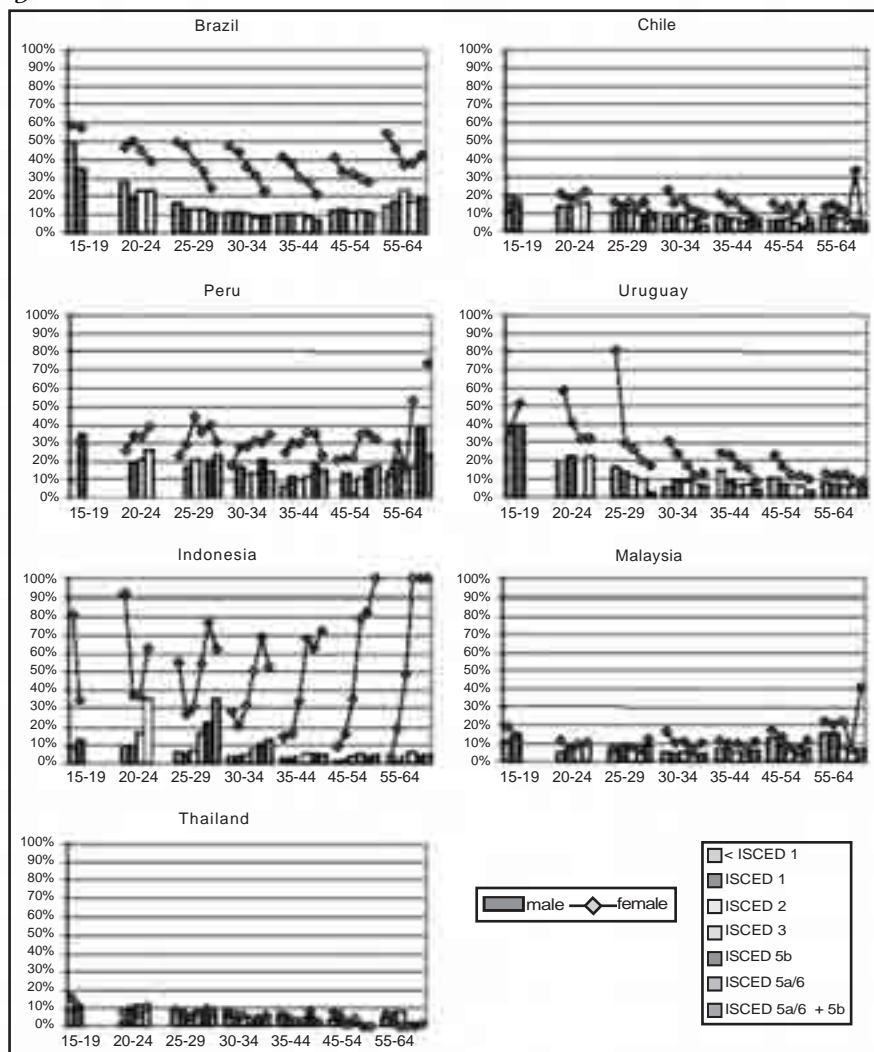
Figure 19

Source : UNESCO/OECD (2001a).

Finally, the development of gender differences in labor market outcomes of education can also be examined over different age cohorts. Figure 20 depicts combined un- and underemployment rates for which the most significant gender differences had been observed in section 5.

Figure 20

Note : Indonesia reports combined un- and underemployment rates above 100% for skilled women above 45 years of age. For consistency reasons, these figures are reduced to 100% here.

Source : UNESCO/OECD (2001a).

It turns out that once again, no structural effect of age can be observed. Apart from a few outliers gender differences tend to remain about constant, both with respect

to their overall relevance across levels of education and with respect to their correlation with educational attainment.

Summing up this section, it can be noted that given the high correlation between age and educational attainment, indicators of labor market outcomes of education that do not take this into account may be biased. However, for all countries presented here, this bias is not strong enough to change the observed structural relationships. In fact, for all variables presented, the structural relationship between educational attainment and labor market outcomes appears to be relatively stable across different age groups.

7. CONCLUSIONS

Labor market outcomes of education belong to the standard statistics available for industrialised countries. For these countries, the availability of these statistics allowed us to establish a number of stable correlations between educational attainment and various indicators of prospects on the labor market.

Due to the lack of consistent, relevant and comparable data, similarly clear relationships have not yet been established for non-OECD countries. In fact, in particular with resect to unemployment, statistical indicators for developing countries have sometimes been misinterpreted as showing that labor market problems are irrelevant for the unskilled poor, generally of relatively little relevance for developing countries, and, if at all, a problem of a relatively small minority of persons from high income groups considered to be the only ones actually able to afford being unemployed.

It is the advantage of the new UNESCO/OECD (2001a) data set presented in this report that it adds the relevant variables of underemployment and informal sector employment to the statistics available by level of educational attainment for non-OECD countries. Despite limited country coverage and some remaining inconsistencies in the data and definitions, these data clearly show that if information on labor market outcomes is adjusted by taking into account underemployment and informal sector employment, employment problems in less developed countries not only come out much more clearly, but also generally show the positive relationship between educational attainment and labor market outcomes typically observed in OECD countries. Only in exceptional cases (Indonesia and Peru) does excess supply of skilled labor appear to lead to relatively strong employment problems for persons with high levels of educational attainment.

For most other countries, it can be observed that it is the relatively much higher
underemployment among persons with low levels of educational attainment which, despite a generally low unemployment rate, leads to their particularly high level of combined un- and underemployment and to the relatively lower levels for persons with higher educational attainment. This suggests that, in countries without broadly accessible social security systems, there is some truth in the argument that the unskilled, generally poor parts of the population cannot afford to be fully unemployed. At the same time, this often implies that the little work they find is clearly insufficient. In fact, it may be limited to just a few hours per month.

Other explanations with respect to the low rates of low skill unemployment found in the literature are based on the potential bias of the bivariate correlation due to the lack of differentiation between different age groups. Younger persons without much previous experience on the labor market tend to have particularly bad employment

prospects while, at the same time, being generally more highly educated than older persons.

It can be shown on the basis of the data available here that there is some truth in this argument. However, even though the initial effect may be overestimated, differentiation between age groups does not lead to a changed structural relationship between the level of educational attainment and employment prospects. In fact the same tendencies observed for the entire data set are found again for almost all individual age cohorts.

Apart from employment prospects, other indicators equally tend to reflect the typical links between education and labor market outcomes observed in the OECD. This is true for education related labor force participation rates and relative earnings, as well as with respect to the structural disadvantage of women and young people. All in all, it can thus be concluded that once the relevant additional characteristics of labor markets in less developed countries are taken into account, the overall relationship between educational attainment and labor market outcomes is very similar to the one typically observed in industrialised countries.

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APPENDIX

Box 1

Original data sources and methods		
	Source	*Method*
Brazil	*IBGE - Instituto Brasilieiro de Geografia e Estatistica*	*Estimations based on the 1998 national household Survey* *Note: Survey excludes rural areas of northern states.*
Chile	*INE - Istituto Nacional de Estadísticas*	*Projections based on the population census of 1992; national survey of employment*
Indonesia	*Ministry of Education*	*Projection of population census*
Malaysia	*Department of Statistics Malaysia*	*Vital registration and census (component method based on natural increase); 1998 labor force survey*
Peru	*INEI – Istituto Nacional de Estadística e Informática*	*1998 household survey*
Thailand	*National Statistical Office (NSO) Office of the Prime Minister*	*Labor force survey*
Uraguay	*Instituto Nacional de Estadística 1998 based*	*1998 permanent household survey and projections based on the census of 1996*