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Education, Labor Market, and Development: A Review of the Trends and Issues in the Philippines for the Past 25 Years

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Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

**Education, Labor Market, and Development:
a Review of the Trends and Issues
in the Philippines for the Past 25 Years**

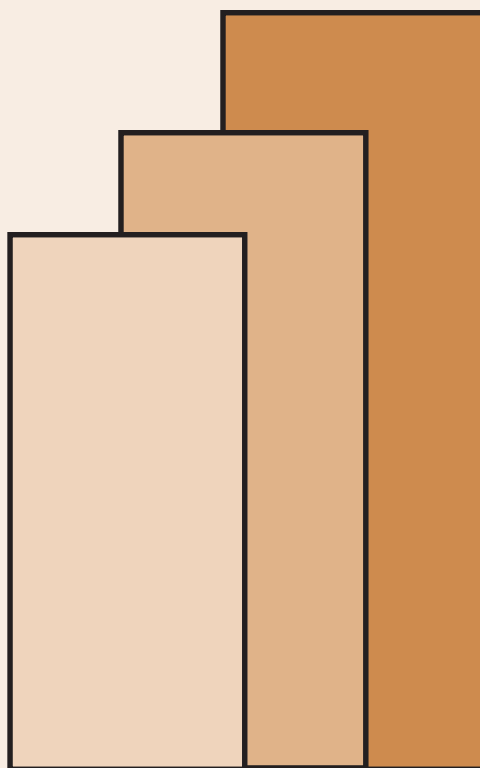
Aniceto C. Orbeta Jr.

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December 2002
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Abstract

This paper comprehensively reviews the developments in the education and labor markets in the Philippines in the past 25 years. It highlights the trends on how the labor market has used educated workers. It also reviews how education has contributed to national development. Furthermore, it summarizes the recommendations of several comprehensive reviews done for the sector in the last decade. Finally, it identifies research areas for the sector.

Keywords: education, labor, human resources

Paper prepared for the Symposium Series on Perspective Papers for the 25th Anniversary of the Philippine Institute for Development Studies.

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INTRODUCTION

It is common to hear the comment that Philippine education sector is the most extensively studied sector.¹ In fact, in this decade alone we have seen five study teams commissioned to comprehensively study the sector. In spite of this, consensus and action has been slow in coming as evidenced by many long-standing proposals never acted upon until very recently. It makes one wonder why a country known to have a highly educated populace approximating that of developed countries cannot agree to move forward in this important area. It is hard to believe that the proposals are not good enough because in all of these studies we have assembled the best research teams money can buy. Yet this is a reality that we find documented in this paper.

This paper reviews the experience in the Philippine education and labor markets in the past 25 years, focusing on the higher education sector. At the outset, it should be clear that it is not the intention of the paper to craft a new set of proposals considering that several highly qualified and well-funded teams of researchers have been commissioned to review the sector for the past decades, not to mention the independent researchers that have contributed to the continuing debate on issues in the sector. The last decade alone

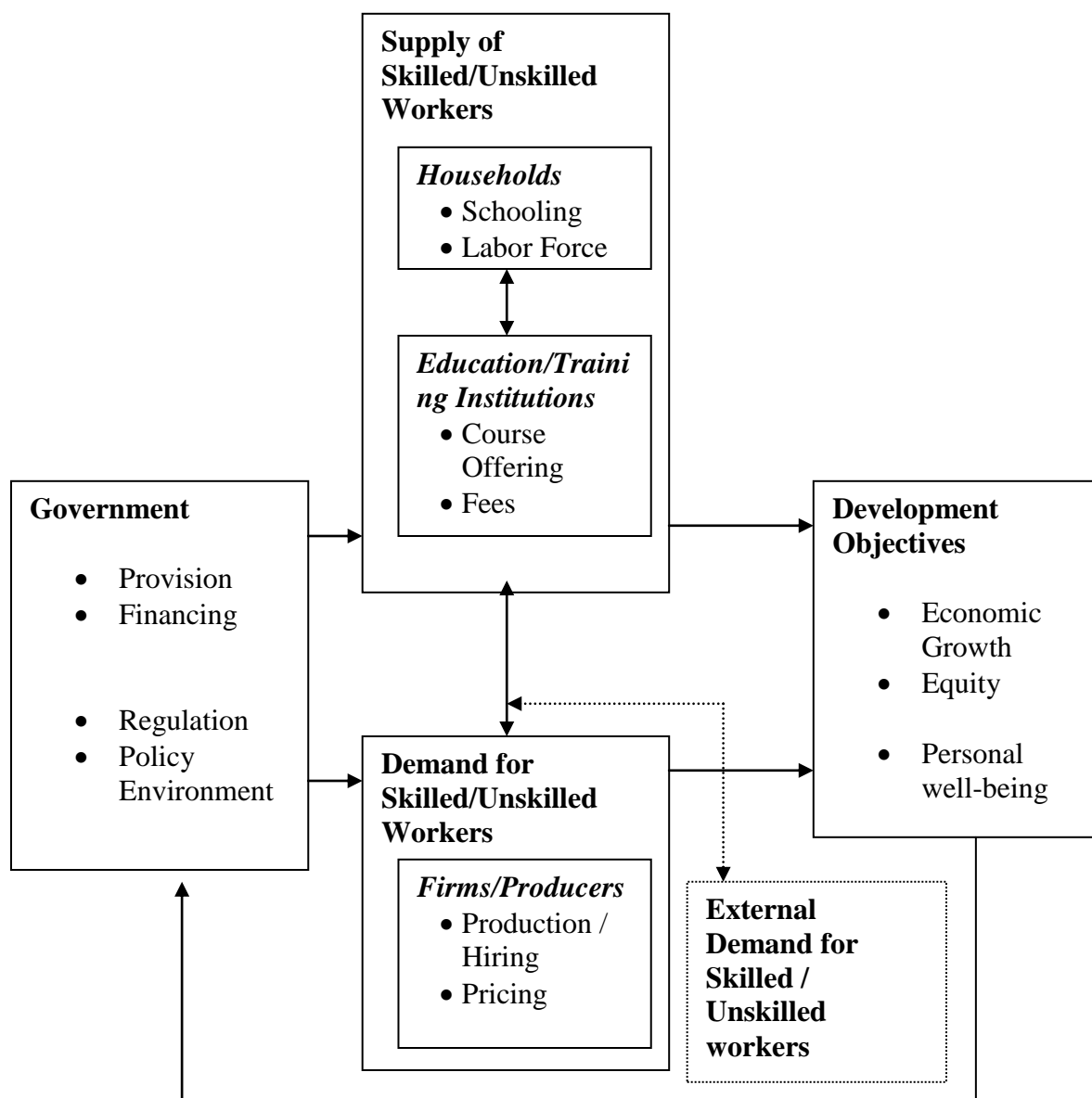
* Senior Research Fellow, Philippine Institute for Development Studies. The author acknowledges the excellent research assistance of Iris Acejo. This paper has benefited from the comments of participants to the Perspective Paper Symposium Series on 5 September 2002 organized by PIDS to elicit comments for this paper, particularly, Dr. Edita Tan. However, all remaining errors are the sole responsibility of the author. Opinions expressed here are of the author and not of the institution he is affiliated with.

¹ This remark, for instance, has been attributed to Bro. Andrew Gonzales, former education secretary, by Dr. Patricia Licuanan in a comment to Balmores (1990).

has witnessed at least five teams of researchers doing a comprehensive review of the sector, namely: (1) the Congressional Commission on Education (EDCOM), 1990-92; (2) the Oversight Committee of the Congressional Oversight Committee on Education (COCED), 1995; (3) the Task Force on Higher Education of the Commission on Higher Education (TF-CHED), 1995; (4) the ADB-World Bank (ADB-WB), 1998-1999; and (5) the Presidential Commission on Education Reforms (PCER), 2000. The objective of the paper, therefore, is to catalogue the studies in this area to highlight the issues that have been identified for the sector. It also updates the reader on the developments on each of these issues. Finally, the paper identifies some of the research issues that need to be addressed to achieve a consensus and issue a call to immediate action.

The paper is subdivided into six major sections. Section 2 is a description of the framework that guided the study. A discussion of the trends in education and labor markets in the past 25 years follows in Section 3. Section 4 discusses the role and performance of the education and labor markets in development. A review of the recent recommendations for the sector makes up Section 5. The final section presents the summary and recommendation for future research.

Figure 1. Education, Labor Market, and Development Framework



EDUCATION, LABOR MARKET, AND DEVELOPMENT FRAMEWORK

Figure 1 presents the education, labor market, and development framework that guides the organization of the paper. The framework highlights the roles and decisions of five agents, namely, government, households, education/training institutions, producers, and the external sector. The basic hypothesis underlying this framework is that the demand and supply of skilled and unskilled workers are outcomes of private decisions. However, there are several reasons why these decisions may not achieve society's development goals such as economic growth and equity and personal well-being. These reasons, in turn, define the appropriate role of government in these markets. Before going into these reasons, we must first discuss the basic roles and decisions of each of the agents. It should be clear that the intention is not to provide a comprehensive account of these roles and decisions. For instance, only "current" decisions are covered. "Past" decisions, e.g., on number of children, are ignored for simplicity. Since the framework is presented with the limited objective of providing a motivational background for the subsequent sections of the paper, some aspects are deemed not that crucial and consequently omitted.

Behind households' schooling decision and labor force participation are the primary motivations of better future income prospects and personal well-being. Education is known to lead not only to higher wages² but also to other non-labor market benefits, e.g., better nutrition and health, greater enjoyment of leisure, etc.³ Thus, as economists would like to put it, education has both investment and consumption motives. On the cost side, it involves both direct costs (e.g., tuition, instructional materials, transportation, and subsistence allowance while in school) and indirect costs, such as opportunity costs of being in school usually measured by forgone earnings if the child had chosen to work instead. Labor force participation, on the other hand, is the outcome of the income-leisure

² Higher wage is compensation for increased productivity. This is the human capital view of education. There are other views, such as the screening hypothesis, which holds that education merely screens applicants to reduce training cost rather than bestowing better cognitive abilities. See Spence (1973) for the seminal presentation of the idea and Weiss (1996) for a survey of the research in this area.

³ See, for instance, Haveman and Wolfe (1984) for a complete list of non-market benefits.

trade-off, both of which improve individual welfare. Labor force participation also directly affects schooling time. Hence, these two are commonly decided simultaneously.⁴

Education and training institutions decide on course offerings and the corresponding fees. On the one hand, they have to offer courses that produce skills that firms demand (external efficiency), otherwise enrollment and revenues suffer. On the other hand, enrollment and their ability to hire competent professors and other inputs depend on the fees they charge.

These decisions of the households on schooling and the education/training institutions and fees interact to produce skilled/unskilled workers. On the demand side for skilled/unskilled workers, firms decide over production volumes, pricing of outputs and hiring and input price offers. Production volumes are determined by product demand prospects. Product prices, among others, affect this demand. Input hiring and price offer decisions, including those for skilled/unskilled workers, are dependent on the production volume and product pricing. It is for this reason that labor demand, like other input demand, is often labeled as a derived demand. It also implies that outcomes in the education-labor market are determined not only by factors within the labor sector but by the general economic environment as well.

The other component of the demand comes from other countries. This is placed in broken-line boxes and arrows to indicate that this will not be dealt with in the paper. Those who are interested please refer, for example, to Tan (2000).

Like any market, the education-labor markets will only function efficiently under certain conditions. One requirement is free flow of information. The students, for instance, need information on the costs, rates of returns and probabilities of employment at each level of education and for each field of specialization to be able to decide correctly on which career-education to pursue. Education institutions, on the other hand, need information on the relative magnitudes of demand for each level and for each field

⁴ See, for instance, Orbeta (2000) for an empirical implementation of this idea.

of specialization. Another issue is the absence of allied markets. For instance, if there is no loan market for education, students who have the ability but do not have available resources cannot pursue their desired education investments.

Even if the markets are complete and information is available freely, there are still other factors that will prevent the education-labor markets from functioning efficiently. The factors can be grouped into two: externalities and public goods. Externalities exist if, for instance, educated workers make their co-workers more (less) productive. Under this scenario, since those who benefit from (or are negatively affected by) the presence of an educated worker are not party to his decision to acquire higher education, this means lower (higher) than the socially optimal demand for education. The correct outcomes can only be achieved if these beneficial (detrimental) effects are considered in the investment decision. A common example of the public good aspect of basic education is that an educated citizenry enhances and enriches participation in democratic processes.

Another example lies in research and development. R&D benefits everybody, so there will be under-provision if this is left to private decisions. Finally, even if private the education-labor markets are functioning efficiently, the outcome may be inequitable, thereby undermining social cohesion. This is not difficult to see. For instance, if financing is left to individuals and households, market outcomes may be inequitable, with only the children of the rich families getting the best quality but expensive education that the poor but equally able children cannot afford. The system then, rather than enhancing social equity, perpetuates inequity. These so-called market failures define the appropriate roles of government in these markets. To fulfill these roles, government has four instruments, namely: direct provision, financing, providing the appropriate policy environment and regulation.

Looking at these markets from the foregoing perspective is by no means novel. In fact, Tan (1995) gives a very similar framework. The specific addition in the current framework is the explicit identification of society's development objectives that have often been cited as the motivations for government interventions in these markets.

Another rendition of a substantial portion of the framework is provided in Mingat and Tan (1996). They provided a matrix looking at the education decision from a cost-benefit perspective both from the individual and society's point of view. The matrix is shown in Annex A for easy reference.

DEVELOPMENTS IN EDUCATION AND LABOR MARKETS

Trends in Household Income, School Attendance, and Labor Supply

School-age population and school attendance. Since the country has not been able to reduce its population growth rate unlike other countries in the region,⁵ the growth of school-age population is obviously among the fastest in the region. In addition, school participation rate continues to rise at all levels and is known to be higher than those of neighboring countries with higher income per capita. In fact, the country's school attendance rate approximates those of developed countries (Table 1) and several papers have pointed out that the country is an outlier in terms of school attendance (e.g., Behrman and Schneider 1994; Behrman 1990). De Dios (1995) describes the importance Filipino families place on education: "Makapagpatapos is still the standard by which successful parenting is measured; the stereotype of good parents, bordering on caricature, is still those who scrimp and save to send their children to school and on to college."

Working-age population and the labor force. Changes in the labor supply come from two factors—the working-age population and the labor force participation rates. Bloom and Freeman (1988) call the former the "accounting effects" and the latter "behavioral effects." This is because the growth in the working age population is proportional to the overall population growth. Labor force participation, on the other hand, is the result of many factors, including labor market, household, and individual factors. The participation rate of men is almost always not given as much attention as that of women. This is

⁵ Please refer to Orbeta and Pernia (1999), who show a comparison of demographic developments in several Asian countries.

because the latter is much more dynamic while the former is always very high and hardly varies.

The working-age population has grown by 3.6 percent before the 1980s only to decline to 2.5 percent-2.7 percent in the 1990s (Table 2). The growth was essentially the same for both men and women. The growth in the labor force has a very similar pattern except that it was higher compared to the growth of the working-age population before the 1980s, growing at 4.5 percent and slowing down to 2.7 percent in the first half of the 1990s and 1.9 percent in the second half (Table 3). However, there was substantial difference between the growth of men and women workers. The growth of men workers is slower than that for women. For instance, between 1980 and 1985 women workers grew by more than 4 percent while men workers grow by only 3 percent. The difference lay in the continued rise in the labor force participation rate of women. The labor force participation rate of men fluctuated only between 80 and 82 percent in the 1980s, and had declined to 80 percent by 2000 (Table 4). The labor force participation rate of women, on the other hand, rose steadily from 40 percent before 1980s to 48 percent by 2000. Thus, the ratio between the labor force participation rate of women to men rose from 49 percent in 1976 to 60 percent in 2000.

It is also interesting to look at the change in labor force participation by age groups. As is common in many countries, there is a rising labor force participation rate up to the age group 35-44 and a declining one from age 45 onwards (Figure 2). However, there are distinct differences in the labor force participation pattern by sex. While men's labor participation rate has declined for those beyond the prime age (Figure 3), women for all age groups, except for the very young workers (15-19), showed an increasing labor force participation rate (Figure 4). The declining labor force participation rate among very young workers is easy to understand, given the rising enrollment rates in the high school and tertiary levels. There is no broadly accepted explanation for the rise of the labor force participation rates among older women. One of the popular explanations is that declining household incomes may have prompted women to work.

Income, poverty, and inequality. Income and its distribution are among the primary determinants of school attendance and labor force participation. It is easy to understand why studies here and abroad show positive dependence of school attendance on income (e.g., Orbeta and Alba 1999, Paqueo 1986 for the Philippines). Income has two distinct effects on school attendance. One, higher average attendance accompanies higher average income. Two, children in higher-income groups tend to have higher probability of school attendance than those from lower-income groups. The evidence on this will be shown later in the paper. Tan et al. (2002) assert that in a low-income economy, the inequity in education will even be more intense than the inequality in income.

Progress in poverty alleviation has been slow due to several reasons, foremost of which is the inconsistent growth performance (Balisacan 1995; Reyes 2002). In fact, the number of the poor has been rising, not declining. In addition, the reduction in poverty incidence is only happening in urban areas where school attendance is expected to be higher than in rural areas, as will be shown later in the paper. Despite these constraining factors, school attendance continues to be high and rising. It can be said that had we been more successful in reducing the incidence of poverty or have done better to improve income inequality, we would have seen even higher-average school attendance rates.

There are several competing theories on the effects of income and poverty on labor force participation. The backward bending supply curve hypothesis, for instance, argues that, other things being equal, labor force participation rises with income up to a certain threshold beyond which labor force participation is expected to decline. As for the labor force participation of women, there is the additional dimension on whether women are complementary rather than primary workers. The complementary worker hypothesis argues that women participate in the labor force only if household income falls below a certain threshold.

Education expenditures. From the Family Income and Expenditure Survey (FIES), households, on average, spent 4.2 percent of their total expenditures on education in 2000 (Table 5). The corresponding figure stood at 2.9 percent in 1988, steadily rising to 4.2

percent in 2000. By income decile, higher-income groups tend to spend more on education than lower-income groups. This is not surprising since education is a normal good.

As a crude measure of affordability of tertiary education, we compare household expenditures in FIES 1994 with the cost of education in the FAPE survey, 1995 (Table 6). Even if a family sends only one child to college, it appears that only households from the 7th -income decile can afford to pay for just even the tuition in public schools and only households in the highest-income decile can pay for tuition in the private schools. This explains why the majority of tertiary students flock to low-cost, albeit low-quality, programs and schools. Alonzo (1995), in addition, points out that it may not pay to invest in high-quality education if the economy does not demand/pay enough to justify the investment.

To understand the structure of household education expenditure, Maglen and Mansan (1999) show the distribution of household expenditures by type (school fees, voluntary contribution, and other private costs) and by level (elementary, secondary, and tertiary) of education for 1997. On average 17 percent goes to school fees and 81 percent goes to other costs for public education. For private education the corresponding proportions are 52 percent and 48 percent, respectively. By level of schooling, public elementary education school fees comprise 15 percent of household expenditures while other costs comprise 83 percent. The corresponding proportions for private elementary education are 49 percent and 51 percent, respectively. For public tertiary education, 27 percent goes to school fees while 72 percent goes to other costs. The corresponding proportions for private tertiary education are 55 percent and 45 percent, respectively (Table 7).

Higher Education Trends

As noted earlier, several studies done during the last decade characterized the higher education (HE) system in the country (e.g., Johanson 1999; Task Force on Higher Education 1995; Sta. Maria 1994; Tan 1992; Balmores 1990). What follows is a

summary of these in-depth reviews, plus some updates. We describe the HE system in terms of inputs (enrollment, types of schools, program accreditation, qualification of the faculty), outputs (professional orientation and quality of graduates), and costs.

Inputs

Enrollment. As mentioned earlier, the country is known to have high enrollment rates at all levels, approximating those of developed countries. Another feature of the Philippine education sector is that, unlike many other countries, enrollment in higher education has always been predominantly private. Balmores (1990) says the country has one of the most extensive private tertiary education systems in the world. Enrollment, however, in public institutions more than doubled during the period 1970-1971 and 2000-2001, from 10.8 percent to 26.9 percent (Table 8). There are, at least, two reasons for this development. One is the rising number of public tertiary schools. Two, students increasingly may have found private education less affordable so they turn to public schools, as shown earlier.

Types of schools. The distribution of the types of schools shows the underlying motivation of the higher education system. James (1991), for instance, argues that the subdivision is important because the underlying motivations differ by type of school. It is also said that these differences would help analysts understand their operations and structure of output. The public sector consists of state universities and colleges (SUCs) and other public institutions⁶ while private schools can be subdivided into sectarian and nonsectarian institutions. She argues that private nonprofit institutions (mostly religious or sectarian) are aiming at the prestige and high-quality market. These institutions are associated with small classes, selective admissions, small enrollments, high tuition, and receive considerable grant money. The private for-profit institutions (nonsectarian) are aiming at the mass market. These institutions are associated with large classes, nonselective admissions, large enrollment, low tuition, and presumably high profits. The public institutions are characterized as low-cost with selective enrollments given that

⁶ CHED further subdivides the other public HEIs into CHED-supervised institutions (CHIs) and local universities and colleges (LUCs).

these are dependent on the government budget. Tan (2001), on the other hand, provides a different summary of the underlying motivations—that private schools are free to respond to student demand while public schools were opened in response to political pressure.

Table 9 shows that in March 2002, 88 percent of the HEIs were private. Sixty-six percent were nonsectarian and 22 percent were sectarian. Twelve percent were public, of which 8 percent were SUCs. Immediately after the war, it used to be mostly private schools but after the surge of public institutions in the 1970s, the current proportion has been substantially maintained in the last three decades.

The internal efficiency of the schools confirms some of the hypothesis in James (1991). In a pioneering detailed study on cost-quality data on both private and public HEIs, the 1995 Task Force on Higher Education study on efficiency (Tan 1995) revealed very significant conclusions, namely, (1) private sector unit costs vary widely and that the variation is determined by quality (proxied by performance in professional board examinations) but only in some fields (e.g., those with smaller enrollments) and locations (in the NCR than in the provinces); (2) public sector unit costs also vary widely but these are largely determined by enrollment size (i.e., those with larger enrollments have lower units costs and vice versa); and (3) the HEIs that have strong science programs appear to have largely underutilized capacity.

Accreditation. Accreditation conveys some information on the quality of programs being offered by HEIs. As of 1998, there were 529 (597 as posted on the CHED website (www.ched.gov.ph) accredited programs out of thousands and 198 (150 on CHED website) institutions with accredited programs. This represents only 13 percent of the total number of institutions. In 2001, this number of accredited programs increased to 743 and the number of institutions to 160. As Tan (2001) notes, this has to be qualified by the fact that the mere application for accreditation classifies the program as Level I-accredited. In addition, in appreciating the number of programs accredited, it must be realized that it might be the case that large numbers of programs accredited are

concentrated in very few institutions with other institutions having only one or two programs accredited. Thus, it is better to look at the proportion of institutions with accredited programs than the accredited programs themselves. An even more pessimistic view is that our accreditation system is just too complicated to be a useful indicator of quality (Tan 2002).

Quality of faculty. Based on the academic backgrounds of the faculty in the HEIs, during the period 2000-2001, the majority (58 percent) only had baccalaureate degrees, 26 percent had M.A.s, while 8 percent had Ph.D.s. Balmores (1990) finds a similar pattern of distribution of the academic qualifications of HEI faculty in the 1980s, indicating very minimal progress in this area after 20 years.

There is virtually no research in the HEIs except those required for graduate degrees. Tulao (1999) enumerates the constraints to the growth of research in graduate schools: (1) Both faculty and students are in graduate schools on a part-time basis; (2) Graduate programs are concentrated in three fields: education, MBA, and lately, public administration programs; (3) Lack of funding, owing to the private character of many graduate schools; there being no immediate and tangible returns; and owing to the tremendous costs involved. In terms of graduate education, Cortes (1994) has an even more revealing summary of characteristics: (1) It is manned by underqualified and in some instances, unqualified faculty; (2) Ghost-writing of graduate education theses is fairly common, and poor research advising—a case of “blind leading the blind”—result in conceptually bankrupt and methodologically flawed theses and dissertations.

Johanson (1999) has identified several historical reasons for the low qualification of college faculty. First, many schools were upgraded from lower-level institutions, with the faculty fit only for secondary level teaching, to higher-level institutions. Second, the generally low salaries do not make acquiring graduate education attractive.

Instructional facilities. The importance of instructional facilities, such as the library, laboratories, and, more recently, Internet connection, cannot be overemphasized.

However, there is very limited information on the state of instructional facilities of the HEIs. In terms of library facilities, Balmores (1990) cite Cortes's (1984) survey of colleges and universities offering bachelor of science programs in selected fields of science, and mathematics in various regions of the country. The survey shows that the median number of titles in the 28 institutions covered ranges from 2,501 to 5,000. Only four institutions have books exceeding 20,000. Other surveys in specific regions turned out slightly higher book densities but a very low utilization rate of books, that is, from 0 to 5 borrowings per year. There is virtually no information on laboratory facilities. In terms of Internet facilities, several universities have linked up with one another electronically through a project called the Philippine Network Foundation (PHNET; www.ph.net). This link-up was organized by the Department of Science and Technology in 1993. It has been limited, however, to big universities in selected regions, namely, Ateneo, De La Salle, UP Diliman, UP Los Baños, University of Sto. Tomas, University of San Carlos (Cebu), St. Louis University (Baguio), and Xavier University (Cagayan de Oro). One can expect a wider coverage in recent years although there are no readily available data supporting this.

Outputs

Professional orientation of graduates. Table 10 shows that up to 2000 the bulk of graduates are in business (27 percent), although this figure has been declining. The next large groups are found in education (13 percent), engineering (13 percent), medical fields (10 percent) and social sciences (10 percent). There is also a rapid rise in IT graduates in recent years—from 1 percent in 1984-85 to 7 percent in 2000-01. This has been the orientation of the graduates in the last three decades.

It used to be that education and teacher training were the most popular fields of study. Now business and social science take the bulk of college enrollees. This undoubtedly contributed to the domination of these fields of specialization among the graduates.

Quality of graduates. A common measure of the quality of graduates is the proportion passing the professional board examinations (PBE). The average passing rate over so

many years has been below 40 percent⁷ (Table 11). This means that more than 60 percent of college graduates are not qualified to practice their chosen professions.

Costs . There are several patterns in the unit costs of education. From Maglen and Manasan (1999) we see that the unit of basic education (elementary and secondary) is higher in private schools compared to public schools basic education, for tertiary education it is the opposite. In fact, the unit cost of private tertiary education ranged from only 27 in 1986 to 49 percent in 1997 (Table 12).

As mentioned earlier, unit costs in both private and public HEIs vary widely (Tan 1995). Costs in private institutions increase with quality (proxied by the proportion of passing the board examination) while those of SUCs vary with enrollment. SUCs with have larger enrollments tend to have lower unit costs.

Finally, it is also worth repeating here that the cost of tertiary education, as shown earlier, is way beyond the reach of most Filipino families.

Johanson (1999) provides a summary of the Philippine higher education system:

The Philippine system of higher education offers diversity of content, quality, and price. Very high-quality exists at high prices in some selective private institutions. Huge government subsidies are provided per student at the very highly selective and high-quality UP system. However, low quality and relatively low costs of mass private education (“diploma mills”) also characterize the system. In effect differentiated products are offered.

⁷ The Long-Term Higher Education Development Plan 2001-2010 indicates the average passing percentage at 40.97 in 1995 and 44.38 in 1999, slightly higher than the figure shown in Table 11.

Labor Market Trends

There are several reviews of labor market trends during the last 25 years covering the whole post-war period up to the present. The studies include Tidalgo and Esguerra (1984), Reyes, Milan and Sanchez (1989), Esguerra (1995) and Jurado and Sanchez (1998)). Tidalgo and Esguerra (1984) reviewed the employment policies and experience in the 1970s. Reyes, Milan, and Sanchez (1989) analyzed the post-war employment policies and employment in the 1980s. Esguerra (1995) looked into the employment experience from 1980 to 1994. Finally, Jurado and Sanchez (1998) examined the employment experience and policy of the Ramos administration (1992-1998). This section summarizes the highlights in employment generation in the past 25 years. (Please refer to the abovementioned studies for other labor market issues.) It looks at employment trends by industry, occupation, and class of worker.

Table 15 shows that employment grew by 3.7 percent in the 1980s and 2.3 percent in the 1990s. One only needs to look at the slow output growth rate of 1.8 percent and 3.2 percent for the two periods, respectively, to find an explanation for this growth pattern. These are obviously slower compared to the growth in the labor force (Table 3). This explains the high unemployment rate in the country, which is among the highest in the region (Orbeta and Pernia 1999; Manning 1999).

Employment, wages, productivity, and unit labor cost by Industry. The share of agriculture in employment has been declining from 52 percent in 1978 to 37 percent in 2000 (Table 13). Employment share is rising not in the industrial sector but in the service sectors. In the industrial sector the share of manufacturing, the biggest employer, fluctuated between 9 percent and 11 percent, and which is reflective of its share in output. The share of mining is also stagnant at less than 1 percent. Construction has a rising share from 3 percent in 1978 to 5 percent in 2000 even its output has declined during the last decade. The electricity, gas, and water subsector has shown fast growth in employment, although its share in total employment is under 1 percent. All subsectors in the services sector have increasing share in employment. The largest contributors to employment are the community, social and personal services, and wholesale and retail trade. The share of

the former in employment continuously rose from 16 percent in 1978 to 20 percent in 2000. For the latter, the share increased from 10 percent to 17 percent for the same period. Transport, storage and communication's share in employment has also risen from 4 percent in 1978 to 7 percent in 2000. Only the share in employment of the finance, insurance, real estate, and business subsectors has not risen as fast.

The structure of wages by industry shows that, relative to the average wage for the whole economy, wages in the agriculture sector increased slightly between 1978 and 2000. For the mining sector, the wage structure rose in the early 1980s and declined in the middle of this period and early 1990s, before rising up again in 2000. The manufacturing sector wages showed a declining trend. Wages in the construction subsector show the same trend as the average wages while those for electricity, gas, and water show an increasing trend. Wages in the transportation, storage and communications as well as in the community, social and personal services exhibited an increasing trend. While wages in the wholesale and retail trade as well as in finance, insurance, real estate and business services have declined relative to the average wage.

The productivity trend shows that the average unit labor cost for the whole economy increased by 30 percent between 1978 and 2000. Except for manufacturing and finance, insurance, real estate, and business, whose unit labor costs declined, all other sectors have increasing unit labor costs, led by construction, (175 percent by 1990), transportation, storage and communication (152 percent), community, social and personal services (142 percentage points), and mining and quarrying (105 percent).

As the bulk of our exports comes from the manufacturing sector, the decline in unit labor cost in that sector is good news. But the bad news is that that decline in unit labor cost came from a decline in wages rather than increases in productivity. It is worth noting that those causing the increase in unit labor cost were the nontradeable sectors and that nontradeable sector wages were rising while those for tradables, notably manufacturing, were declining. In theory the rise in wages in the nontradable sector follows that of the rise in wages in the tradable sectors. The opposite happened in the case at hand.

Employment and wages by occupation. In terms of the occupations, it is still the agricultural workers that dominate even though their share declined from 52 percent in 1978 to 37 percent in 2000 (Table 14). This group is followed by the production, transport equipment operators, and laborers whose share in employment steadily rose from 19 percent to 24 percent between 1978 and 2000. This can be the result of several factors. One is the rise in manufactured exports (Orbeta 2002). The share of the transportation, storage, and communication as well as the construction sectors is also rising. Sales workers also have an increasing share from 11 percent in 1978 to 16 percent in 2000. The same trend was observed among the service workers, with their share increasing from 8 percent in 1978 to 11 percent in 2000. Again, these two can be explained by the expanding share of the wholesale and retail trade as well as the community and service sectors. The share of clerical workers was stagnant at around 4 percent. The same thing happened among professional, technical, and related workers, as the corresponding rate has remained at around 5 to 6 percent between 1978 and 2000. Esguerra (1995) argues that this indicates scarcity in skilled manpower. This paper, in a later section, provides an alternative explanation, namely, that this is largely due to the low passing rates in board examinations and the rising “low-quality” college graduates. The share of administrative, executive, and managerial workers, on the other hand, increased slightly from 1 percent in 1978 to 2.3 percent in 2000.

The structure of wages is such that relative to average earnings, administrative, executive, and managerial workers are paid as much as 6.2 times; professionals as much as 2.4 times; clerical workers and service workers a little over the average; production workers about the same as the average; while service and agriculture workers earn below the average. Over the years, the structure of wages by occupation appears toward converging to the average.

Employment by class. Table 15 shows that the proportion of wage and salary workers rose from 45 percent in 1976 to 50 percent in 2000. As the share of government wage workers remains at around 8 percent, this means that the increase comes from the private sector. The proportion of own-account workers has not moved much over the last two

and a half decades, but the proportion of unpaid family workers has declined. Esguerra (1994) explains that this decline is consistent with the rural-to-urban migration and the decline in the proportion of agricultural, animal husbandry, and forestry-related sectors, saying that most of the unpaid family workers are predominantly agricultural workers.

The structure of wages⁸ shows that wage and salary workers, on the average, earn slightly higher than the average wages and while own-account workers earn slightly lower than the average. The pattern may be the result of high variability in the earnings of own-account workers with majority converging in the lower end of the earnings range.

Government in the Education and Labor Markets

Education

Government intervention in the higher education (HE) sector consists of direct provision, financing, and regulation.

Provision. As noted earlier, the government operates public HEIs. As of the last count (July 18, 2002; CHED website) there are now 170 such institutions, 111 of which are SUCs, 42 local universities/colleges, and the rest are specialized government institutions (Table 9).

Financing. Maglen and Mansan (1999) enumerate the following forms of public expenditures in public education: (a) direct expenditures on public education institutions; (b) subsidies to private providers, mainly through the Education Service contracting (ESC) component of GASTPE; (c) subsidies extended directly to students, through the Tuition Fee Subsidy (TFS) component of GASTPE, and also through scholarships and the subsidy element in “study now-pay later” schemes; (d) tax exemptions for private nonprofit providers; (e) tax exemptions on contributions to private nonprofit providers. For tertiary education, direct expenditure on public education institutions comprises the biggest component of public expenditures.

⁸ Wages by class of workers are based on the unpublished tables of the LFS.

Regulation. CHED has supervisory responsibilities over the 1,452 HEIs operating in the country, which boast at least 8,000 academic programs. By law (RA 7722), among the powers of the Commission are: (a) set minimum standards for programs and HEIs recommended by panel of experts; (b) to monitor and evaluate the performance of relevant programs and HEIs for incentives or sanctions that include program termination or school closure. It has been said that CHED should move from a regulatory to a development mode.

Labor Market

The general mandate of government in the labor market is the promotion of gainful employment, the advancement of workers' welfare, and the maintenance of industrial peace. The most direct intervention of government in the labor market lies in the setting of minimum wages and enforcement of labor standards. The other roles include employment facilitation, arbitration of labor conflicts, and providing stable macroeconomic environment so that economic activities and employment can flourish.

Minimum wage settings are done at the Regional Tripartite Wage and Productivity Boards, with government as one of the parties, together with the labor sector and employers. The DOLE likewise enforces labor standards in the workplace.

The employment information and facilitation activities of the DOLE are done primarily through the Public Employment Service Office (PESO) network. It also has bodies that preside over labor disputes, mainly the NLRC.

EDUCATION, LABOR MARKETS, AND DEVELOPMENT

Education of the Labor Force

As mentioned earlier, one distinguishing feature of Philippine development is the very high school attendance rates, particularly at the higher levels of schooling. Naturally, this becomes evident in the educational attainment of the working-age

population (Table 2), the labor force, the employed, even the unemployed and underemployed. Another distinct feature is that educational attainment is higher among women than men and there are no signs that the gap is closing.

Education of the Working-Age Population. Given the continued high attendance rates mentioned above, it is not surprising to find a rising proportion of the working-age population having continuously improving educational attainment (Table 2). The proportion of those without education declined from 10 percent in 1975 to 4 percent in 1995.⁹ On the other hand, the proportion of those with some high school and those with college education has increased. Based on the estimated average years¹⁰ of schooling, this pattern translates to 5.8 years in 1975 to 7.9 years 25 years latter.

Education of the labor force. If one looks at the labor force, one clearly sees the rising educational attainment of the workforce. Between 1976 and 2000 the proportion of high school graduates almost doubled from 27 percent to 46 percent (Figure 5). The corresponding proportion among men increased from 26 percent to 43 percent and 31 percent to 51 percent for women. For those who are at least college graduates, the proportion increased from 9 percent to 12 percent between 1976 and 2000. For men the increase is from 6 percent to 9 percent while for women this is 14 percent to 18 percent. In 1976 the largest group of the labor force consisted of those with some elementary school education (29 percent). By 2000 those with high school diplomas made up the biggest group of workers (22 percent) (Table 16). In terms of average years, schooling increased from 6.4 to 8.1 years between 1976 to 2000.

Education of the employed. Given the high educational attainment of the labor force, it is expected that the education attainment of the employed should also follow this trend. The proportion of the employed with at least high school diplomas increased from 27 percent to 46 percent between 1976 and 2000 (Figure 6). For men the proportion increased from 26 percent to 43 percent and for women from 31 percent to 50 percent.

⁹ The most recent census is for year 2000 but no detailed tabulations have been released except the population count.

¹⁰ Computed as weighted average of the median years of schooling for each level.

Among those with at least college diplomas, the proportion increased from 9 percent to 12 percent from 1976 to 2000 (Figure 6). Males with diplomas increased from 6 percent to 9 percent and women from 14 percent to 18 percent. In 1976 the largest proportion of employed workers had some elementary education (29 percent). By 2000 the bulk consisted of high school graduates (22 percent) (Table 16). By average years of schooling, this pattern translates to an increase from 6.4 to 8.0 from 1976 to 2000.

Education of the unemployed. It is disturbing to note that even the highly educated have not been spared from unemployment, and this is not showing signs of declining. The proportion of those who are at least high school graduates among the unemployed increased from 43 percent to 60 percent from 1976-2000 (Figure 7). Among men this proportion increased from 42 percent to 57 percent and among women, from 43 percent to 64 percent. The proportion of those who were at least college graduates among the unemployed increased from 12 percent to 16 percent between 1976 and 2000. The corresponding increase among men was from 9 percent to 13 percent and 14 percent to 21 percent among women. In 1976, the largest group among the unemployed consisted of elementary graduates (22 percent); by 2000 the largest group comprised high school graduates (28 percent). The college graduates among the unemployed stood at 16 percent, bigger than the proportion of elementary graduates (13 percent) (Table 16). The proportion of those with at least high school or college diplomas among the unemployed was higher than the corresponding figure among the employed. In terms of the average years of schooling, this pattern translates to an increase from 8.1 to 9 years between 1976 and 2000. This is higher than the average years of schooling of the employed. This difference in average schooling of unemployed and the employed peaked to more than 2 years in the 1980, which has since declined, albeit slowly. Given that investments in education continue to rise, it appears that students seem to consider the slow employment generation as a temporary phenomenon.

Such proportion includes those who are waiting for better jobs. Canlas (1992) says many of the educated are currently unemployed by choice. Accordingly, they are in the process of searching for better job offers and that this search could be part of their

investments. Nevertheless, the large and increasing proportion of the educated unemployed is disturbing, to say the least.

Education of the underemployed. Among the underemployed¹¹ the educated are also heavily represented. The proportion of the underemployed who are at least college graduates increased from 23 percent to 37 percent between 1976 and 2000 (Figure 8). (There are no readily available sex-disaggregated data on the underemployed.) While the proportion of the underemployed who are at least high school graduates continued to increase from 23 percent in 1976 to 37 percent in 2000, the underemployed among those who are at least college graduates has not changed much in the last 25 years, hovering between 5 percent and 7 percent. This suggests that the increasing proportion of the underemployed is among high school graduates and college undergraduates (Table 17). In terms of average years of schooling, this pattern increased from 6.0 to 7.4 between 1976 and 2000. It is worth noting that the education of the underemployed is, at least, not as high as those who are unemployed.

Labor Market Utilization of College Graduates

Given this rising education of the workforce, how does the labor market utilize educated labor? To answer this question, this section presents the utilization rates among college graduates in different occupations, industries, and class of workers.

By occupation. In determining the utilization of college graduates by occupation groups, we classify them either as “high quality” (i.e., employed as professionals, technical, and related workers, or in administrative and managerial categories); or as “low quality” (Freeman 1981). Table 18 shows a very glaring decline at 23 percent in the proportion of college graduates practicing their professions during the period 1976-2000. This is not surprising if one considers that, as mentioned earlier, only 40 percent of graduates pass professional examinations. The redeeming fact is that the proportion of college graduates occupying administrative and managerial positions increased by almost

¹¹ Refers to those who wanted additional hours or work.

4 percent between 1976 and 2000. On the other hand, there is a substantial increase in the proportion of college graduates in the sales category, increasing by more than 10 percent between 1976 to 2000. Service, agricultural, and production-related categories also have modest increases in the share of employed college graduates. Fortunately, there was a slight decline (-0.7 percent) in the proportion of college graduates in the clerical category during the same period. Overall, therefore, there is an increase in the low quality use of college graduates. This may be taken as an indicator of oversupply of college graduates given the lackluster economic growth performance.

Based on the CHED Tracer study (CHED 1995) (as well as in earlier HELMs surveys) a greater proportion of better-quality occupations, e.g., professionals and technical as well as managerial and executive positions, are held by graduates of such schools as public (UP) and private (Ateneo and de La Salle).

By industry. The NSO publishes the distribution of occupations by highest grade completed using the LFS results. There are no data, however, for other workers' classifications such as by industry as well as by class.¹² To fill this gap, the author did cross-tabulations of these other categories using available public files of the LFS. Unfortunately, the earliest available set of data covered only 1988. Table 19 shows that in terms of magnitude, the employment of college graduates in different industries has not changed much in the last decade. There is a decline, however, in the proportion of college graduates in the agricultural sector; hardly none in the industrial sector and with some increase in the service sector. This is roughly consistent with the trends in the share of employment by sector, i.e., a decline of employment in the agriculture sector, rising employment shares in the industrial and more so in the services sector (Table 13). The manufacturing sector increased its use of college graduates, particularly males, between 1988 and 1995. The service sectors posted an increase in the proportion of college graduates, particularly females (32 percent), in finance, insurance, and real estate by 1.8 percent between 1988 and 2000 (3.2 percent). For wholesale and retail trade, a similar increase covered more females (3.6 percent) than males (2.2 percent), especially between 1995 and 2000 compared to the period 1988-1995. It was different, however, in the

¹² These are included in the unpublished tables of the LFS which are now difficult to find.

transportation, storage and communication sector, which had a larger proportion of male college graduates (3.5 percent) than female (0.8 percent). Finally, there was a substantial decline (-6.1 percent) in the proportion of college graduates in the community, social, and personal services category, where both male and female workers were affected.

Considering that an increasing proportion of our exports are manufactured products, an increase in the proportion of college graduates in this sector appears to be a good use for them. Note, however, that the manufacture exports are assembly-type electronic products and garments that do not need college graduate skills and the fact that the sector is showing a declining wage index. The increase in the proportion of college graduates in the wholesale and retail trade as well as in finance, insurance, and real estate may explain the continued concentration of graduates in business and related fields.

By class. In terms of class of workers, there is decline of -3.3 percent in the proportion of college graduates among the wage and salary workers and an increase of 3.8 percent in the proportion of the self-employed and a negligible increase for the unpaid family worker category between 1988-2000 (Table 20). With respect to wage and salary workers, the government and government corporations are losing college graduates heavily, particularly female (-11.4 percent) whereas the private sector has increased its share of college graduates. More college graduates, male and female alike, are choosing to be self-employed. There is no telling whether the shift means higher-quality employment. In terms of earnings, the average earnings of self-employed workers are lower than those of wage and salary workers (Table 15).

Summary. From the foregoing discussions it is clear that in terms of occupational classification, there appears to be a deterioration in the quality of jobs held by college graduates, with heavy losses in the professional and technical category. In terms of grouping by industry, the sectors with an increasing share in employment tend to have also employed more college graduates. Finally, in terms of class of workers, there appears to be a considerable shift away from wage and salary workers category to self-employment among college graduates. Loss of college graduates is heavy in government offices and corporations.

Returns on Education Investments

Rate of return calculation of education investments is a natural offshoot of the human capital theory. Just like any other investments, returns on educational investments at different levels and in different fields of specializations have been computed and compared to guide policymakers in assessing the appropriateness of the allocation within and across sectors.

There are several methods of computing the rate of returns on investment in education, but only two are predominant. One is the Mincerian equation,¹³ the other is the “elaborate” method.¹⁴ Psacharopoulos (1993) provides a detailed description of the different methodologies. Even though widely accepted, such methodologies have been met with criticisms. The basic Mincerian equation, for instance, has been criticized for its assumption of negligible direct and opportunity cost of human capital investments. This apparently flawed assumption has been addressed by the elaborate method. Other criticisms include the ability bias¹⁵ and the more recent endogeneity of the schooling variable (Malluccio 1997). The use of static (one-period) age-earnings profile has also been criticized because of the perception that it may not represent the true age-earning profile across periods. Likewise, the direct and opportunity costs are almost always also estimates for one period rather than across time. Sample selection problems, particularly for women workers, are expected to affect the estimates but largely ignored. Alonzo (1995) reiterates some of these criticisms. For Philippine estimates, he specifically points

¹³ $\log y = a + bS + cEX + dEX^2$ is the basic Mincerian equation, where y is earnings, S is years of schooling, and EX is labor market experience; b is the rate of return to schooling. This is attributed to Mincer (1974).

¹⁴ The “elaborate” method computes the age-earning profile by level of education and computes for the discount rate that equates the stream of education benefits to the stream of education costs. Besides addressing the presumption of negligible direct and indirect cost of education in the Mincerian equation, social and private returns can be computed using this method and through use of appropriate costs.

¹⁵ It is argued that those who have more intelligence, more self-discipline and greater motivation or those with more “ability” do well in the labor market which, incidentally, are also the same explanation that a student do well in school. Empirical validations of this idea, however, have found small ability effects (Ashenfelter and Krueger, 1994; Blackburn and Neumark, 1993; and Angrist and Krueger, 1992)

out that ignoring OCWs,¹⁶ as is most often done for lack of age-earnings data, will result in underestimates of the rates of return.

Table 21 provides a summary of the patterns of the rates of returns around the world. Psacharopoulos (1993) provides a summary of the patterns: (a) among the three main levels of education, primary education continues to exhibit the highest social profitability in all world regions; (b) private returns are higher than social returns because of public subsidies and the degree of subsidy increases with the level of education, which is regressive; (c) social and private returns at all levels generally decline by the level of a country's per capita income; (d) overall, the returns to female education are higher than those to male education, but at individual levels of education the pattern is more mixed; (e) the returns to the academic secondary school track are higher than the vocational track, since unit cost of vocational education is much higher; (f) the returns for those who work in the private (competitive) sector of the economy are higher than the public (noncompetitive) sector, and the returns in the self-employment (unregulated) sector of the economy are higher than in the dependent employment sector.

There are several attempts at estimating the rates of return to schooling using Philippine data. Table 22 summarizes the results of the earlier estimates. Estimates using more recent data are provided in Gerochi (2002) (Table 23). The estimates reveal that, compared to other developing countries, the country's investment in education may not be as high even though it is still above the commonly accepted threshold of 10 percent. In general, the returns are rising slightly, except for high school graduates,¹⁷ which may explain the still rising participation rates in all levels discussed earlier. The private returns are highest among elementary graduates in the order of more than 20 percent while those for high school and college graduates are about the same at about 15 percent. Between the sexes, the rates of return for women are higher than those of men, particularly at the high school and college graduate levels. In view of the higher average attainment rates among women compared to men, it is likely that self-selection is in favor of women who

¹⁶ Tan (1995) did an illustrative calculation of the net earnings for OCWs by different occupations. The calculation showed that professionals earn more, have longer contracts, and pay less placement fees.

¹⁷ When we discuss returns by level, they always refer to returns as compared with the next lower level, i.e., returns for high school graduates means returns as against elementary graduates.

have better prospects in the world of work may be operating.¹⁸ The Mincerian coefficients, which are considered to be an estimate of private return, show similar patterns, confirming the results of the elaborate method. It is also worth noting that the Mincerian coefficients with correction for self-selection is lower compared to the uncorrected ones. The social returns across level do not differ as much as the private returns. This is partly explained by the limited accounting of the social benefits.¹⁹ If full public benefits were included, social returns would increase, particularly for the lower levels of education. Thus, the degree of subsidization is highest at the elementary levels. This is expected to further increase if full social benefits have been accounted for. In addition, the degree of subsidization is rising at the secondary levels and declining at the tertiary level. This result is not surprising because unlike most countries, tertiary education in the Philippines is mostly private.

Education and Economic Growth

Early neoclassical growth models did not consider education as an input to production. It was in 1960s when education was given a first look as an explanation to the unexplained residual in growth accounting exercises. Toward the middle of the 1960s, micro studies based on the “human capital investment” concept began to measure the rates of return of education.²⁰ The dissatisfaction with the neoclassical growth model was reinforced by its inability to explain the phenomenal growth of some countries, particularly in East Asia. This gave birth to the endogenous growth literature, which also explains why human capital investments are important to economic growth (Barro and Sala-i-Martin 1995). Empirical estimations following ideas arising from the endogenous growth theory using mostly cross-country data, however, have yielded mixed results.

In the Philippines, there are several attempts at quantitatively estimating the contribution of education to economic growth. This paper discusses two of the most

¹⁸ Gerochi (2002) acknowledges the limited set of selection variables included.

¹⁹ While public expenditures on education are considered on the cost side, only earnings are considered on the benefit side. Thus, they do not include other social benefits of education.

²⁰ This literature also spawned challenges to the human capital concept and included the screening hypothesis.

recent ones as illustrative examples of these efforts. Alonzo (1995) provides a recent accounting of the sources of growth in the Philippines. Cororaton (2002) summarizes the results of his estimates on the contribution of education to total factor productivity (TFP).

Alonzo (1995) did a growth accounting analysis for the period 1961-1991, which he divided into four periods, namely, 1961-1965, 1965-1976, 1976-1981, and 1981-1991. In the exercise, he used the growth in net domestic product using 1985 prices; physical capital based on estimates in Sanchez (1983); labor quantity based on employment from the third-quarter round of the LFS; and index of labor quality based on the average years of schooling, as embodied in the employed labor force, weighted by the observed relative earnings by schooling completed based on the 1988 LFS. Finally, he also employed the assumption of Sanchez (1983) that gave equal share in total output for labor and capital. Considering only “raw” labor, he finds that labor has been accounting for more output growth than capital. After considering improvements in labor quality, he concluded that much of the output growth was explained by both quantity and quality of the labor force. Table 6 of the paper shows the contribution of education as the sum of the “maintenance”²¹ investments and investments that improve the educational qualifications of workers. In particular, the contribution of education ranges from 11.8 percent in 1961-1965 to 59.2 percent in 1981-1991 (Figure 9). The contribution of raw labor ranges from 18.2 percent in 1961-65 to 110.4 percent in 1981-1991. The contribution of capital, on the other hand, ranges from 5.5 percent in 1961-65 and –18.7 percent between 1981 and 1991.

Another measure of the importance of education in economic growth is its contribution to the TFP. In contrast to the preceding analysis, which considers education as labor-augmenting input, education here is used to explain disembodied technical progress. Cororaton (2002) uses empirically estimated production functions to compute the contribution of labor quality to total factor productivity from 1967 to 2000, which he divided into seven periods. “Labor quality” is here represented by a disaggregation of workers into skilled and unskilled. “Skilled workers” refer to those that are at least high

²¹ “Maintenance” investments are those aspects of investments that are required to maintain the current educational qualification of workers.

school graduates. He finds that the contribution of labor quality to TFP had been declining from 2.11 percent in 1967-72 to 0.16 in 1991-1993, rising slowly to around 0.52 percent in 1998-2000 (Figure 10). He gives several probable implications for this result: (a) deterioration in the quality of education necessary for productivity improvement, (b) deterioration in the marginal productivity of workers with higher education and in the efficiency of education itself, and (c) brain drain due to the surge in the number of Filipinos working abroad.

Here we find two studies employing alternative methods of estimating the contribution of education to economic growth arrive at a similar impact pattern, i.e., the contribution of education to output growth (Alonzo 1995) or TFP (Cororaton 2002) declined from mid-1960s to 1980, then exhibited some resurgence after this period. It is interesting to note that the resurgence roughly coincides with the liberalization of the economy (Medalla et al. 1998).

Equity in Education

Education is known to promote social mobility and therefore contributes to improving equity. In fact, it is one of the often-mentioned justifications for public intervention in the education sector. There are two modes by which one can measure whether the education system is indeed serving this end. One is through the distribution of education opportunities across income groups at any given time. This can be measured by school attendance among different socioeconomic groups. The other is through intergenerational distribution of educational opportunities. This is measured by comparing the educational attainment of parents and children. How have we performed in this area in the last 25 years?

Social Selectivity

In assessing social selectivity in the education system, one needs to define the subgroups in society according to such criteria as sex, geographic origin, income, and occupation of students' parents, and so on (Tan and Mingat 1992). We use some of these

categories to describe our performance in terms of distribution of educational opportunities.

School attendance by income decile. Comparing school attendance by income class, sex, and geographical location can give good indications of the equity of access to the educational system. In appreciating disparities in school attendance, it should be understood that school attendance should be viewed as the result of the interaction of the demand and supply of schooling, as illustrated in the framework in Figure 1. Demand is largely dependent on income based on the consumption motive, and on returns based on the investment motive. Supply, on the other hand, is dependent on availability of schools and other inputs. Thus, we expect children from richer households to have higher attendance rates from the demand perspective. In the same way, we expect children in urban areas to have higher school attendance both from the demand (income) and supply perspectives.

Using data from the merged LFS and FIES surveys in 1988 and 2000,²² cross tabulations were done by income decile on school attendance by sex and by urbanity. The cross-tabulations confirmed some of the oft-repeated stylized facts on school attendance, namely, (a) rising attendance rates among all levels with nearly universal attendance at the elementary level; (b) attendance rates among women are higher compared to men in all levels, with seemingly rising disparity in tertiary education; (c) higher attendance in urban compared to rural areas, with decreasing disparity.

The disparity by income groupings yields one obvious pattern—that school attendance at the elementary²³ level is not as disparate as those for secondary and tertiary levels (Figure 11). One can, of course, cite two reasons for this. One is the near universal

²² The 1988 LFS is the earliest public-use file that is available to the author. It has the needed school attendance variable and a corresponding FIES survey for the same year based on income groupings. The October round of the LFS and the FIES for the same year were merged using household identification variables as well as age and sex of the household head. School attendance is based on the usual occupation variable, which identifies for family members 10 years old and over.

²³ This is limited to 10-12 years old for comparability reasons, as mentioned in the earlier footnote. Secondary refers to 13-16 years old and tertiary to 16-24 years old.

attendance at this level and the other is that this sector is dominated by public provision (Table 8). Thus, subsequent analysis will only dwell on the secondary and tertiary levels. Secondary level is where the disparity starts to show, with more evident rising attendance rates among children in higher-income groups. Between 1988 and 2000, the increase in school attendance appeared to be parallel across income groups. This can be construed as the effect of the free secondary education policy mandated by Free Public Secondary Education Act of 1988 or RA 6655 in 1988. In fact, there was clear shifting in the distribution enrollment from the private to the public sector during the last decade (Table 8). Of course, one has to deduce from this the enrollment-boosting impact of higher per capita incomes. What is worrisome is that the policy appears to have no equity impact. Thus while the policy may have increased attendance at the secondary level, it has not created a clear impact on equalizing access to secondary education. For the tertiary sector, the disparity in access based on income is even more evident, with children from higher-income households clearly having high attendance rates than those from lower-income households, as shown by the larger difference between the maximum and minimum attendance rates (Table 24). Again, the disparity in access based on income did not change much between 1988 and 2000. If enrollment in this level is predominantly private (Table 8), then it is relatively less disturbing.

In terms of gender, the disparity based on income is much more pronounced among males compared to females in both secondary and tertiary levels (Figures 12, 13), i.e., the difference between maximum and minimum attendance rates are bigger for males than for females. In addition, the disparity among males based on income is much more evident; among females, the children from upper middle classes have higher attendance rates than those from the highest-income groups. A common explanation for this phenomenon is that there are better employment opportunities for males compared to females among the schooling-age population. Again, the disparities between males and females have been sustained during the last decade.

Based on maximum and minimum attendance rates across income groups, the disparity based on income is much more pronounced in rural compared to urban areas (Figures 14, 15). Between 1988 and 2000 the increase in attendance rates for both

secondary and tertiary levels and for all income groups was higher in rural areas compared to urban areas, which explain the decline in urban-rural disparity in terms of average school attendance. Again, the tendency for children from the higher middle income households to have higher attendance rates compared to those from the highest income households is evident in the secondary, but not in the tertiary, level both in the urban and rural areas.

Socioeconomic status of student and graduates. Higher education is known to be biased for the upper-income classes. In public HEIs, selective admission discriminates against poor students. Rationing is expected in most SUCs because of the low tuition and limited budget, particularly for the better-quality ones. Johanson (1999) points out that UP, for instance, rejects 95 percent of applicants, CLSU 75 percent, and USEP in Davao 90 percent. The admission process typically does not include equity criteria. In the private HE sector, high-quality institutions have both selective admissions and higher tuition fees. These constitute a double hurdle for poor students.

The CHED Tracer Study has found that 74 percent of graduates of public institutions come from the two lowest income classes (with less than P100,000 per capita)²⁴ compared to 61 percent of graduates of private institutions. This suggests that public institutions graduate more students from the lower-income classes than private institutions. Johanson (1999) counters that this can be misleading if not viewed in the light of the distribution of graduates by type of institution. For instance, if one would apply the same percentages to graduates by type of institution in 1996, public institutions would graduate 65,000 and private ones 147,000 from low-income groups. This means private institutions graduate 2.3 times more than public institutions from low-income families.

²⁴ This is undoubtedly a high cut-off rate for defining poorer households. If one uses the FIES definition for 1997, the highest threshold is under 15,000 per capita (14,299 to be exact for the National Capital Region). This amounts to 75,000 household income for an average family of five. Thus, this proportion will drop drastically if this poverty threshold is used.

Incidence of government expenditure. A benefit incidence²⁵ analysis of government expenditure on education by Manasan and Villanueva (2002) reveals that although overall government expenditure in education is pro-poor, the incidence by level shows that only the expenditure on basic education is pro-poor while those for TVET and higher education are anti-poor.

Gender. As noted earlier, the higher attendance rates among females is one unique feature of Philippine development. Johanson (1999) highlighted the dominance of females in higher education (as much as 60 percent of enrollment in 1996/97). Teacher training has the heaviest female enrollment at 78 percent, business studies 75 percent, medical fields 74 percent, and engineering 22 percent. He points out that the overall problem lies in keeping males in the system. This phenomenon has been noted also in the HELMS surveys (CHED 1995; Arcelo and Sanyal 1987).

Intergenerational Occupational and Social Mobility

Education is known to contribute to intergenerational social mobility. However, if the distribution of educational opportunities is restricted to the upper-income groups, it will not only contribute to perpetuating the prevailing social hierarchy but also to widening disparities between the higher- and lower-income groups across generations.

One indicator of intergenerational mobility is the distribution of school attendance of school-age children by the education of their parents. Table 25 gives a simple cross-tabulation of school attendance of children ages 10 to 12 (elementary), 13 to 16 (secondary), and 17 to 24 (tertiary), using data from the 1988 and 2000 October rounds of the LFS. Several interesting patterns can be observed from the table. In 1988, those whose parents had elementary education were 9 percent more likely to attend elementary school compared to those whose parents did not complete grade school. This figure increases to 17 percent and 23 percent for those whose parents completed high school and college education, respectively. The disparity increases as one considers the higher

²⁵ Benefit incidence analysis compares the cumulative share of benefits from public spending against the cumulative share in population by income class.

educational levels of parents. The disparity drops in higher education levels if the parents have lower educational attainment. This pattern is reversed for those whose parents have higher educational attainment. For instance, based on the same 1988 data, the difference of 9 percent increased school attendance among children whose parents had elementary education compared to those whose parents had none drops to 3 percent at the tertiary level. For those whose parents have college education, the difference is 12 percent at the elementary level and 28 percent at the tertiary levels. In 2000, the pattern of disparities in probability of enrollment remains and even shows a tendency to deteriorate, particularly for parents with elementary and high school education.

Based on changes in probability of enrollment across time, there is an overall improvement in the probability of enrollment across varying educational backgrounds among parents. Owing to the near-universal enrollment rates in the elementary grades, not much change is expected at this level. The largest increases in probability of enrollment are found among high school children whose parents only had elementary education, and among tertiary school individuals whose parents had high school education.

It is evident from the foregoing that families strive to improve the stock of educational attainment across generations. While this is commendable, it is worrying that unless those with lower educational attainment catch up inter-generationally by increasing enrollment propensities among their children, social inequity will steadily increase over time.

Data from three rounds of the Higher Education and Labor Market Studies (HELMS) reinforce the foregoing findings. The surveys gathered information on the educational backgrounds of the parents of respondent higher education graduates. Table 26 shows the distribution of college graduates by the educational background of their fathers, which has not changed over the past 15 years or so; the majority (around 60 percent) of the graduates have parents who also had college education. This, however, has not been tempered by the fact that through time there has been a declining proportion of

individuals (parents included) with lower educational attainment. Thus, unless the proportion of graduates with parents having lower educational attainments increases, social inequity is bound to stay, if not worsen.

Another way of looking at intergenerational disparity is by comparing the occupation of our college graduates with those of their parents. Professionals, technical as well as administrative, managerial, and executive occupations are known to command bigger pays on the average. If the children of parents in these kinds of work continue to land in the same occupations in increasing proportions, then inequity will increase, notwithstanding the economic benefits of such a pattern. Table 26 shows the distribution of employed graduates by their own and their fathers' occupations based on the HELM surveys. It is clear that college graduates whose parents are in the professional and managerial occupation not only continue to capture these occupations but also manifest in increasing proportions.

Future Prospects and Education

The high unemployment and underemployment rates among educated workers have spurred debates on whether better matching can be achieved by educational planning. Educational planning (i.e., picking skills or courses that the education sector should offer or promote) is commonly justified by such a disturbing pattern, which is taken as an indication of the mismatch between what is the education sector produces and what the labor market needs. Beyond the matching of skills and labor demands, the question to ask is: Should we have an activist human resource policy?

There are at least two fundamental hypotheses on the usefulness of education planning. One, the information required to do education planning is much too costly to generate. Two, it is not clear that government has clear advantage over the private sector in producing such information. This position implies that the higher education market, being mostly private, is flexible enough to address shifts in the demand for educated labor (e.g., Canlas 1992; Alonzo 1992). A corollary position is that the best that the

government can do is to address problems of market failure, externalities, and public goods (e.g., Tan 1995) to make the market respond better to market changes. The other, of course, holds that education planning is necessary to address the rising unemployment of educated workers.

Against this background, what kinds of information do we need to be able to carve scenarios for the sector? Can such information adequately guide the education sector in determining appropriate responses to specific labor requirements?

World Bank (1997) says computers, telecommunications, biotechnology, and robotics will dominate the world economy in the next century. This belief prompts it to warn against the low local valued-added in skills-intensive products that reflect weak domestic technological capabilities. Johanson (1999) cites at least three reasons why the comparative advantage for the Philippines will not be likely in the sectors and enterprises that require mass unskilled labor, namely: (a) the cheap low skilled labor in China and other Asia countries (Bangladesh, India, and Indonesia); (b) the recent currency devaluation by other Asian countries; and (c) the relatively high minimum wage in the Philippines. He supports this argument by citing the very high growth rates of exports requiring skilled labor and a very low growth or stagnation among those using unskilled labor (Table 27). He adds that the Philippines is competitive in skills-intensive products because of the relative abundance of educated and skilled (or at least trainable) labor. The Philippines, he points out, “could aim for global excellence in software, health care services and biotechnology.”

In a review of the educational policies of the High-Performing Asian Economies (HPAEs),²⁶ Mingat (1998) provides the following salient features: (a) a strong priority for primary education at the early stages of economic development; (b) basic education is considered a collective good such that education beyond this level is considered partly private investment; (c) higher education outcomes, both in quantity (i.e., average duration of study) and quality (i.e., high retention rates within cycles of study and high level of

²⁶ The countries include South Korea, Taiwan, Hong Kong, Singapore, and Japan.

formal student learning) have been achieved while keeping the burden for public finance within limits; the role of private financing was instrumental in achieving this result; and (d) a more even distribution of public spending on education.

In a review of theoretical and empirical evidence of a human resource-led development, Behrman (1990) contends that there maybe a priori reasons for supporting an activist human resource policy. For one, knowledge is associated with externalities. For another, public goods and increasing returns to scale are engines of the new growth theory. However, he warns that “there is surprisingly little evidence for the proposition that human resource investments cause substantial development.” In an uncertain world, he concludes, beyond taking care of market failures, a balance should be kept between human resources and other investments in the sense of equalizing social rates of returns and placing high value on flexibility.

Assessing the state of education and science and technology (S&T) capabilities, Tan (2001a) forms not too encouraging conclusions. Expressing her thoughts on the statement, “the rhetoric of alarm about the challenges posed and opportunities opened by globalization has not been translated into any significant action,” she concludes the following: (a) The S&T manpower capability is small; (b) R&D gets very meager support, with small budgets amounting to just about 0.11 percent of GDP; (c) the top three universities which have been declared as centers of excellence in science programs have not really developed their capabilities to achieve global competitiveness; at the very least, they are just starting to offer advance technology fields in material science, computer science, microbiology, and biotechnology; (d) a very small proportion of the 2.2 million college students are in sciences (9 percent) and mathematics and computers (6.9 percent); there is a significant proportion of students (13.8 percent) in engineering but they are not in cutting-edge fields such as electronics and computer science; and (e) publication record is dismal. She then laments the lack of focus on education and S&T planning. In her view, instead of a strong prioritization, the system gives in to populist tendencies. Cororaton (2002) gives a similar assessment.

Unfortunately, as discussed earlier, the bulk of Philippine higher education has been thriving on low-cost, low-quality education because there is no demand for high quality education (James 1991; Tan 1995; Alonzo 1995). Therefore, it should not come as a surprise that the surge in IT offerings, for example, would continue in the usual training mold of offering it at low cost, i.e., more lectures with very few hands-on exercises. Thus, many IT graduates end up as call center attendants rather than as, say, systems analysts and programmers. If the Philippines has to succeed in skills-intensive products, its strategy must emphasize greater quality, which is required in creative applications of well-understood basic concepts. But then again, unless the labor market provides a clear signal that high-quality graduates are in demand, the education system will continue to produce low-cost, low-quality graduates.

Paderanga (1990) says the problem of the education sector lies not in the sector itself but in the industrial structure. He argues for the importance of making industries responsive to market signals rather than putting them under more protective cover, leading to labor market segmentation. Such segmentation in turn creates an environment for inefficient responses from rational students, who increase their credentials while waiting for a job in the high-wage sector. The liberalization effort, in spite of the problems, have made substantial progress toward this end (Medalla et al. 1998). Therefore, there should be an increasing demand for better use of educated labor and an appropriate response from the educational system. The resurgence starting in 1980 of the contribution of education to economic growth (Alonzo 1995) and on the TFP (Cororaton 2002) may provide some positive indications. The magnitudes, however, are small and appear to be tentative. In addition, as mentioned earlier there appears to be a continued decline in the high quality use and the rise of low quality use of college-educated labor.

The foregoing discussion highlights, once more, the interdependence of economic and human resource policies. The only clear message is that beyond good basic education, uncertainty requires that markets be (i.e., education and labor, including the allied markets) allowed to respond more freely to changes in industrial structure. Of course, it is presumed that industries were made to respond freely to market signals as well.

REVIEW OF RECENT HIGHER EDUCATION REFORM PROPOSALS

Several study teams have been formed during the past decade to study the higher education sector comprehensively. These include: (1) the Congressional Commission on Education (EDCOM), 1990-92; (2) the Congressional Oversight Committee on Education (COCED), 1995; (3) Task Force on Higher Education of the CHED (TF-CHED), 1995; (4) the ADB-World Bank (ADB-WB), 1998-1999; (5) the Presidential Commission on Education Reforms (PCER), 2000. Each of these study teams came up with proposals that mostly complemented each other. This section presents a summary of these proposals and updates on their implementation. In the interest of brevity, the review is limited to the major proposals, grouped on the basis of their contribution to improving efficiency or equity. The motivation for this grouping is that these are well-accepted reasons for government intervention in any market. Efficiency is defined as “the least cost per unit output or the highest number of graduates that can be produced for a given budget.” It is also common to differentiate between internal and external efficiency (Mingat and Tan 1987; Task force of Higher Education 1995). The former refers to the internal efficiency of educational institutions, the latter to the relevance or contribution of education outputs to national development. Improving quality, a very important issue in Philippine higher education, is subsumed under efficiency because it can be defined as such. For instance, efficiency can be defined based on a level of quality, i.e., the least cost of producing a graduate of a specific quality or the highest number of graduates of a given quality for a given budget. Equity, on the other hand, refers to the distribution of education opportunities across socioeconomic groups.

Improving Efficiency

Rationalizing public investments in higher education. While there are other public interventions in the HE sector, the primary avenue up to the present is the subsidy through the SUCs. In fact, the bulk of government resources in tertiary education is in

SUCs. The inefficiencies arise from two sources: (a) the subsidy is not well targeted, since subsidy is given to whoever gets admitted regardless of income, effort expended, and field of study; (b) SUCs have varying unit costs that are not related to quality but to enrollment size, larger enrollments having lower per-student cost.

The study teams (PCER 2000; ADB-WB 1999; TF-CHED 1995) indicate that the use of public funds for higher education must be based on either improving equity of access or promoting fields of studies that are needed for development. Thus, subsidies must be targeted to poor students and to activities that have externalities or on those with public good character. Examples of the latter are graduate education programs on specific fields and research and development. ADB-WB (1999) calls this “concentration of public resources” while the PCER 2000 describes this as “changing the basis for the subsidy.”

Related to all this is the long-standing proposed moratorium on the creation and conversion of SUCs, reiterated recently as in PCER (2000). The ADB-WB (1999) study proposed that the role of the private sector in the HE sector should be reaffirmed and public financing be based on a per-capita norm and only on sanctioned areas and not through SUCs. The study further proposed that government resources be focused on graduate education and research and stop or lower funding of others or turn them over to private operation.

Steps have been taken toward implementing this proposal. CHED has attached virtually all CHED-supervised institutions to the nearby SUCs. The move toward concentrating subsidies on few priority areas, however, appears to be an uphill battle. For instance, a provision in RA 8445 amending the GASTPE law (RA 6728) provides tuition fee supplements for higher education students enrolled in priority course programs determined by CHED. However, Maglen and Manasan (1999) consider these schemes small. This means identifying priority areas remains a problem. This is discussed in the subsection on external efficiency.

Complementary to this is the proposal that SUCs be given financial autonomy both in retaining income generated and allocating these resources (ADB-WB 1999; TF-CHED

1995). This is designed to give them flexibility to respond to market demand. Part of this proposal is allowing them to charge full-cost and compete with the private HEIs for students, scholarships, and research grants. RA 8292, otherwise known as the Higher Education Modernization Act of 1997, has granted broad corporate powers to the boards of SUCs previously enjoyed only by UP, specifically the retention and allocation of earnings generated, among others.

Thus, steps have been taken to implement some of the major proposals in this area, but much of it is still in its initial stages of implementation. It remains to be seen if the momentum will be sustained to its intended end. The key indicator is SUCs evolving into financially independent institutions charging full fees and competing with the private HEIs for students and grant money for priority areas in instruction (e.g., graduate training and science and technology) and research.

Provision of information. Decisions of students on which careers to pursue are dependent on good information on what courses are available, the costs and employment opportunities. TF-CHED (1995) proposed that results of the assessment of the quality councils, accreditation status, fees, and programs for each institution be regularly provided. Labor market information, particularly employment and earnings, as well as scholarship and loan facilities, shall likewise be provided.

Commenting on educational institutions and science and technology planners, Tan (1999) says, “ignorance appears to have led to ad-hockery that necessarily led to failure.” She also points out that much of the information has already been collected but not analyzed and made available to the public in a manner useful to the target users. In fact some of the data sets identified by the study have been incorporated in this paper in simple cross-tabulations analysis. It is surprising why these have not been disseminated well to students and schools.

EO 273, which created the NCCE, provides for the strengthening of the units responsible for education and training statistics. Comprehensive and periodic provision of

education and labor market information should be a continuing concern. This has to be developed in coordination with the NSCB, NSO, and other statistical agencies.

Student loans. Inefficiency will result if bright students will not be able to pursue their education investments options because they lack financing. Since government resources will never be enough to finance the tertiary school-going population, an expanded loan program has been proposed (TF-CHED 1995; ADB-WB 1999). This proposal seeks to grant loans to those who may not qualify in scholarship schemes but have the ability to complete a degree program.

RA 6014, otherwise known as the Law on Loans to Students was passed on August 4, 1969. It created a students loan fund to be administered by a students' loan fund authority. The law provides an appropriation of at least P10,000 worth of educational loans in the General Appropriations Act. Qualification criteria include some equity provision, i.e., parents' annual income must not exceed P2,500 and they must not own real estate asset with an assessed value of more than P5,000. Such provision was reinstituted in RA 6228 (i.e., the Government Assistance to Students and Teachers in Private Education (GASTPE) law), called "Study Now, Pay Later Plan (SNPL)." It was signed on June 10, 1989 and its amended version (RA 8445) on February 24, 1998. A cursory review of the SPNL program administered by CHED (Maglen and Manasan, 1999) shows that in 1997 it had benefited some 2,266 students with a budget of P31 million. The maximum loan amount then was P10,000 per annum, which must be used in "priority" courses of study. The review also showed that only 70 percent of the borrowers had paid some of their debts and there was no record indicating the amount outstanding or those in arrears. It was further shown that CHED neither had the staff nor the capacity to run a loan collection agency. Hence the recommendation to have implemented through private banks. All of these findings merely reinforced those by earlier surveys of many government-administered credit programs in other areas. What's more, the law, as applied, deviates from the original proposal of providing a more comprehensive program that would not be treated like a scholarship program but one that would address the financial constraints that tend to get in the way of one's educational pursuits.

External efficiency. The HELMS studies including the latest CHED Tracer Study, called for an improvement in employment generation and stronger linkages between academe and business and industry sector. The same proposal is also articulated in EDCOM (1992). TF-CHED (1995) called for a quadripartite body composed of government, educational institutions, employers, and student organizations to identify priority areas for instruction and research required for national development. Again, the question is, can a good forecast of the future human resource demands of the economy be made?

As mentioned earlier, some analysts voiced reservations over this proposal. Canlas (1992), for instance, points out that the information may not be sufficient for planners to pick priority areas that would be relevant for the future. This is a very similar problem, he says, as those posed by the choice of industrial policy. He adds that even if information is available, there is no indication that government can generate it better than the private sector. This latter issue can be addressed by the quadripartite body proposed by TF-CHED (1995). However, the issue of whether there is enough information to allow the selection of priority areas that will be relevant to the future remains. The experience of manpower planning worldwide is not too encouraging. The alternative is letting the education-labor market function better by addressing specific market failures, (e.g., financial constraints and poor information) so it can better respond to market changes.

The Long-term Higher Education Development Plan 2001-2010 provides a list of priority areas, including agriculture, engineering and technology, fisheries, forestry, health-related disciplines, information technology, maritime, mathematics, sciences, teacher education, and veterinary medicine. The list virtually included all disciplines except for business, law, and social sciences. In addition, there is no mention of the justifications for the choice.

Improving quality. Proposals to improve quality consist of upgrading inputs into the education process, namely, faculty, facilities, pre-college preparation, accreditation, periodic assessment, and testing.

Even if it is standing policy that college faculty should have at least master's degrees, the fact is that until today the majority of tertiary education faculty have only bachelor's degrees. This has been long identified as one of the major reasons for the low quality of tertiary education output (Balmores 1990; PCER 2000). Thus, it has been proposed that a massive program of upgrading be launched to increase the proportion of those with Master's degrees from the current 30 percent to 70 percent (PCER 2000). A College Faculty Development Fund is already provided for in the original GASTPE law (RA 6728) that was enacted to fund scholarships for graduate degrees and nondegree workshops for faculty members in private HEIs. There is very little information on the program except that CHED (n.d.) states that government has allocated P28 million a year since 1990 for the program. CHED has also funded several other faculty development efforts, including the Mindanao Advanced Education Project (P276 million over five years); General Education faculty upgrading in the Visayas; and a post-graduate scholarship program (P100 million). In addition, it is currently in the process of discussing a loan facility for faculty development from the Asian Development Bank for a comprehensive effort at faculty upgrading. Johanson (1999) identifies some significant constraints to faculty improvement: a) lack of staff; b) personal reasons (e.g., individuals concerned cannot leave their families for extended periods, or they cannot afford the loss of income) that prevent some faculty members from pursuing fellowships. Hence it has been recommended that upgrading should be done onsite, i.e., via the Internet. He also says out that the low salaries do not make acquiring graduate education attractive.

Another long-identified problem is the poor quality or even absence of essential facilities such as laboratories and library in most HEIs. To address this issue, ADB-WB (1999) has proposed the setting up of a special loan facility for the upgrading of buildings and equipment for private HEIs. In response to the EDCOM (1992) proposal, to date 271 Centers of Excellence (COE)/Center of Development (COD) have been identified and given financial support from P1 to P3 million a year over a three-year period for faculty

development, equipment purchase, international conferences, networking activities, etc. Tan (2001a), however, says the COE/CODs would need more than this much allocation to improve their facilities.

Still another issue that persists to this day is that, unlike other countries that have 12 years of pre-college preparation, the country only has 10. This has been cited as one of the primary reasons for the poor quality of our tertiary education (PCER 2000). It was then proposed that a year be added to pre-college education to avoid dropouts and expensive repetitions.

Evaluation and assessment are key to establishing the quality of graduates. Thus, a National Educational Evaluation and Testing System (NEETS) is deemed vital to the conduct of periodic evaluation and assessment (PCER 2000). This proposed body is covered by the same EO that created the National Coordination Council for Education (NCCE). In the same vein, the poor performance in PBEs should be used to weed out poor program offerings and institutions. Johanson (1999) says CHED is supporting PRC's call to look into nonperforming programs and institutions by using its regulatory power to close such programs and institutions running them.

Accreditation has always been acknowledged as a key component of quality improvement. TF-CHED (1995) says that every stage of the accreditation process yields significant improvements in the accredited institutions. Accreditation has been a trigger for institutional development and accountability. EDCOM (1992) therefore proposes the strengthening of voluntary accreditation at the regional and specific program level through the participation of corresponding professional associations and experts. Today there are four accrediting agencies catering to various types of schools and employing different procedures and standards. Still, the present accreditation process is too complex to be useful. A standardized and simplified set of criteria for accreditation that will apply to all types of institutions is therefore in order (PCER 2000).

ADB-WB (1999) has proposed that government prepare and finance a plan for quality improvements that will include the following: (1) raising the level of student intake; (2)

making accreditation financially attractive; (3) publishing information about cost-effectiveness of institutions; (4) expanding graduate education in top-quality institutions; (5) using the Internet for staff upgrading, library improvement, and student development; (6) reviving regional programs to disseminate best-quality teaching; (7) and improving professional licensing exams and databases.

Improving coordination. As an offshoot of the trifocalization in 1994, coordination became a concern. Thus a call was issued for a mechanism for coordinating the various levels of education. The National Coordinating Council for Education (NCCE) was proposed by the PCER and was subsequently created through Executive Order 273, signed in August 2000. The council members include the DepED secretary, the chairperson of CHED, and the director-general of the TESDA. The mandate of the council is as follows: (a) to serve as the regular forum for trans-subsectoral consultations on cross-cutting policies and programs; (b) to harmonize goals and objectives for the entire education system and to dovetail them to national development plans; (c) to review existing and proposed programs and projects for tighter intersubsector coordination; (d) to set priorities for the education system and recommend corresponding financial requirements; (e) to pursue and monitor implementation of the reforms proposed by the PCER; (f) to establish, oversee, and monitor the implementation of the National Educational Evaluation and Testing System (NEETS) and its operations; (g) to designate and provide guidelines for Philippine representatives in international and national conferences/meetings with cross-cutting themes or concerns in education; and (h) to convene a biennial National Congress on Education for the purpose of assessing, updating/upgrading, and strengthening the educational system and its components.

Improving Equity

Expanded scholarship. The direct provision of tertiary education has been justified on the basis of improving access to higher education for the poor. As pointed out earlier, data show that while there is a higher proportion of students in SUCS belonging to lower-income groups (less than P100,000 annual income) compared to private HEIs, when applied to the number of enrollees, more students from lower-income groups are enrolled

in private HEIs (CHED Tracer Study 1999). It has also been established that up to now the unit cost of tertiary education is higher in public HEIs than in private ones. Therefore, the same allocation for students in SUCs could have financed more students if they were simply given vouchers that they could use in the school of their choice. Expanded scholarship has been identified as a better way of improving equity in access. This is because, unlike subsidy through the SUCs which have selective admission policy that is not geared accommodate poor students, scholarships can be targeted to poor but bright students.

Socialized tuition fees. This scheme calls for academically qualified students to pay according to their means. For instance, students with means should pay the full cost of their education while the poor students get discounts.

SUMMARY AND RESEARCH ISSUES

The paper has presented a framework showing the interrelatedness of education and labor markets. The framework has facilitated the review and analysis of the trends, issues, and recent reform proposals in a much more structured manner.

The review highlights the fact that the country is known to have very high school attendance rates approximating developed country levels. It also shows that this trend is continuing even if there is slow growth and employment generation. In the higher education sector, the private sector dominates. Government's intervention is primarily through the SUCs, where enrollment has doubled in the last 30 years. Unit costs vary greatly. In the private sector the difference in fees is attributed mainly to differences in quality. In the public sector, on the other hand, enrollment size largely determines lower unit costs. This indicates internal inefficiencies, i.e., one can close smaller schools and transfer the students to a nearby larger school to decrease average unit costs. The low overall quality in output, as evidenced by the low passing rates in professional board examination, is another cause for concern. On the input side, the reasons identified to explain this low quality in output include the generally low educational qualification of

faculty and the poor or even outright lack of essential facilities, such as laboratory and library.

On the labor market side, the slow growth in employment generation is spawned largely by the boom-bust output growth performance. The movement of workers is from agricultural sector to the service sectors and not the high productivity industrial sectors. The proportion of professional and technical workers has hardly increased but there are substantial increases in the proportion of sales, services, and production workers. The proportion of agricultural workers has declined substantially even though it remains to be the largest occupational group. There is also an increase in wage and salary workers and a slight decline in the own-account workers.

As a result of increasing high school attendance rates at all levels, the educational qualification of workers has also increased over the years. In fact, the average educational qualifications of both the unemployed and the underemployed have also improved.

In terms of utilization of college graduates among the employed, there has been a drastic decline in the proportion of college graduates in the professional and technical category and a corresponding rise in sales, service, agriculture, and production-related occupations. Thus, overall, the quality of jobs held by college graduates has deteriorated. There is not much shift in the proportion of college graduates in employment across industries. Among the discernible movements are increases in proportion in the manufacturing; finance, insurance and real estate and wholesale and retail trade sectors. Community and personal services, however, are the heavy losers of college graduates. Finally, there is a decline in the proportion of college graduates among the wage and salary workers, particularly government agencies and corporations, and a rise among the own-account workers.

The rates of return to schooling appear to be slightly rising and still higher than the accepted threshold of 10 percent. The contribution of education to economic growth and TFP has been declining up to 1980 but has since shown some resurgence, although the magnitudes are small and appear to be tentative.

The review also highlights the continuing disparity in access to higher education by income class. In terms of gender, attendance rate is higher among females compared to males, in contrast to many countries. Disparity in school attendance is steadily increasing across income groups in rural compared to urban areas. However, it appears that the increase in average school attendance in rural compared to urban areas in the past decade was higher thereby contributing to a reduction in urban-rural disparity in average school attendance rates.

There is an ongoing debate on the role of education on the future prospects of the country. Should the country promote specific fields, and if yes which ones? Two schools of thought have been proffered. One argues that there is not enough information to make a choice that will withstand the uncertainty in the markets. The appropriate strategy, according to this view, is to address market failures in the education, labor, and allied markets. The other view, of course, holds that educational planning is required to minimize wastage from increasing unemployment of college graduates.

The recent reform proposals were grouped into those that contribute to efficiency and those that help achieve equity. The major proposal to improve efficiency is to rationalize government investments in tertiary education, particularly the SUCs, where most of government resources in tertiary education are concentrated. The next set of proposals to increase efficiency is addressed at easing information and financing constraints. The final set pertains to actions designed to improve quality. The proposals to improve equity consist of an expanded scholarship program and cross-subsidy schemes between rich and poor students.

What research issues are likely to improve the consensus on the reform proposals? Considering the number of studies that have been done in this area, the general theme of future studies should move from justifying the reform proposals to designing the components of the proposals.

The first set of studies should tackle the design issues in the proposals to deal with market failures in the education and labor markets, i.e., information and financing. They are as follows:

- a) Tan (1999) has rightly pointed out that essential data to improve education investment choices are available but not processed and made available to the public. Some data sets, such as the passing rate in professional board examinations (PBEs), even if available, have remained to be difficult to obtain particularly at the school level.²⁷ Unemployment and rate of return studies need to be done more regularly at more disaggregated levels, e.g. by discipline. Here we need much more regular collection of comprehensive data on costs and returns both at the household and government levels. The LFS have started to include basic pay in all the quarterly rounds of the survey since January 2001. Before this earnings data are only generated in the October round of the survey. Comprehensive cost data for different types of HEIs, however, is still difficult to obtain.
- b) Configuring the expanded student loans program is one important study to make. The HAAS study is a step in the right direction, unfortunately, this not readily available. Among others, the study must answer questions as to why student loans are not available and what will make it attractive to private financial institutions.

The next set of studies must focus on the rationalization of government investment in higher education issues. They are outlined below:

- a) The transition from the current block subsidy, regardless of recipient and field of study, to full-cost tuition-based financing for SUCs need to be carefully studied so that the transition will be orderly. Efficiency and equity impacts from such a shift needs to be fully accounted and analyzed.

²⁷ Tan (2002) has indicated that PBE results enrollment and fees since 1997 are available at the school level from the CHED database. This should be made available to researchers and publicized in a more regular manner.

- b) The identification of which fields of studies and activities have externalities and have public good character worthy of government subsidy needs to be undertaken. In addition, how grants will be administered and awarded also needs to be clarified.

The next set of studies deal with the proposals to improve quality.

- a) Funds, although limited, to finance improvement in faculty and facilities have been established but both the budget and the uptake are very limited. There is a need to study closely the incentives behind faculty and facilities upgrading.
- b) There is a need to determine the best way of financing these investments in improving quality

The next set of studies pertains to proposals aimed at improving equity.

- a) The design of the expanded scholarship program is crucial for improving equity of the HE sector that has been charged with elitism. The work of Tan et al. (2002a) is a path breaking work in this area. This should be followed by more detailed studies on details of the scholarship program using the experience from current programs. Evaluating the equity impact of the current scholarship programs should be prerequisite to the design of a new expanded scholarship program.

The following external efficiency studies need to be undertaken.

- a) Continued empirical studies on measuring the contribution of education to development.
- b) Studies to clarify the interaction between human resources and comparative advantage in specific areas.
- c) Utilization of educated workers by the labor market must be studied more in detail. In particular, how industries, different occupations, and class of workers use educated workers. What determines the shifts in utilization?

- d) The impact of education on nonlabor market related areas, e.g., health and nutrition, fertility, political participation

Finally, there is a need to understand why otherwise sound reform proposals do not get the support of policymakers. Tan (2001) leads the way in analyzing the political economy of education reforms. Following her example, each of the studies needs to identify the winners and losers in a reform proposal and the steps needed to win over the losers specified.

To ensure wide dissemination, the highlights of these studies must form part of brochures distributed to incoming higher education students and as resource materials for career guidance personnel.

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Annex A

Education Cost and Benefits to Individuals and Society

	INDIVIDUALS	SOCIETY
C O S T S	C1. Direct costs (including school fees)	C3. Public subsidy (net of cost recovery and adjusted for possible deadweight losses of tax-financed public spending)
	C2. Foregone production (lost earnings or other production)	
B E N E F I T S	B1. Increased market productivity (as reflected in earnings or other work outputs)	B3. Spillover effects in worker productivity (as when a person's education enhances the work productivity of his or her co-workers)
		B4. Expanded technological possibilities (such as those arising from the discovery, adaptation, and use of new knowledge in science, medicine, industry, and elsewhere)
	B2. Private nonmarket effects (better personal health, expanded capacity to enjoy leisure, increased efficiency in job search and other personal choices)	B5. Community nonmarket effects (greater social equity, more cohesive communities, stronger sense of nationhood, slower population growth and related alleviation of environmental stress, reduced risks from infectious diseases, crime reduction, and so on)

Source: Mingat, A. and J. Tan (1996).

Notes: B3 & B4 and B2 & B5 are not completely separable. Society refers to people other than the individual being educated.

Table 1
Gross Enrolment Ratios by Level

	First Level				Second Level				Third Level			
	1965	1975	1985	1996	1965	1975	1985	1996	1965	1975	1985	1996
NIEs												
Hongkong	103	123	105	97	29	50	71	75	5.4	10.4	13.3	28.0
Republic of Korea	101	109	97	94	35	59	92	102	6.2	9.8	34.0	60.3
Singapore	105	110	108	94	45	53	59	73	9.9	9.2	13.6	38.5
Taipe, China												
PRC			123	120		46	40	71		0.6	2.9	5.7
Southeast Asia												
Indonesia	72	81	117	115	12	19	41	52	1.5	2.4 ...		11.3
Malaysia	90	94	101	91	28	45	53	62	1.9 ...		5.9	11.4
Philippines	113	105	107	118	41	56	64	79	18.8	20.1	24.9	35.2
Thailand	78	84	96	88	14	25	30	57	1.5	3.5	19.0	20.9
Vietnam*	82	136	103	115	22	48	43		2.0	3.0	1.9	4.7
South Asia												
Bangladesh	49	73	63	84	13	25	18	19	0.8 ...		4.8	6.2
India	74	78	96	101	27	26	38	49	5.0	6.6	6.0	6.9
Pakistan	40	50	44	81	12	17	17	30	1.8	2.0	2.5	3.5
Sri Lanka	93	77	103	109	35	48	63	75	1.5	1.3	3.7	5.2

1965 and 1975 Gross Enrolment Ratio taken from the 1978-90 UNESCO Statistical Yearbook

*Vietnam 1965 entry from the 1974 Statistical Yearbook

1975* entries taken from 1991 UNESCO Statistical Yearbook

1985 and 1995 entries taken from the 1997 UNESCO Statistical Yearbook

....: data not available

blanks means no entry

Table 2
Working Age Population

	Mean Years of schooling	1975	1980	1990	1995
Total (million)		23,130	27,734	35,436	40,601
Growth (%)			3.6	2.5	2.7
No Grade	0	10.2	8.75	5.24	4.00
Elem UG	2.5	31.3	26.6	15.7	12.7
Elem Grad	6	22.6	22.2	27.0	25.0
HS UG	8	13.4	14.4	15.4	16.9
HS Grad	10	10.0	11.5	16.9	19.8
College UG	12	6.4	8.0	10.5	10.0
Colleg Grad	14	6.1	8.2	8.8	10.8
Ave. years of Scholing		5.8	6.4	7.4	7.9

Source: Various Censuses

Table 3
In the Labor Force

Age Group	1976	1980	1985	1990	1995	2000
Both						
All	15018	18,010	21643	24,525	28,040	30,908
<i>Growth (%)</i>		4.5	3.7	2.5	2.7	1.9
15-19	2080	2,517	2797	2,760	3,019	2,870
20-24	2304	2,339	2927	3,394	3,710	4,109
25-34	3832	4,173	5246	5,928	6,546	7,073
35-44	2967	3,741	4503	5,239	6,231	7,110
45-54	2127	2,829	3321	3,812	4,533	5,312
55-64	1159	1,625	1924	2,290	2,682	2,961
65 +	530	784	925	1,099	1,318	1,471
Age not reported	17	2	-	1	-	2
Male						
All	9964	11,449	13402	15,446	17,547	19,236
<i>Growth (%)</i>		3.5	3.2	2.8	2.6	1.8
15-19	1236	1,540	1736	1,750	1,947	1,870
20-24	1411	1,441	1841	2,110	2,336	2,573
25-34	2538	2,657	3236	3,815	4,224	4,543
35-44	2053	2,389	2748	3,232	3,833	4,372
45-54	1464	1,818	2018	2,371	2,728	3,245
55-64	845	1,044	1220	1,432	1,652	1,744
65 +	407	558	602	736	828	890
Age not reported	12	2	-	1	-	1
Female						
All	5054	6,561	8241	9,078	10,493	11,672
<i>Growth (%)</i>		6.5	4.6	1.9	2.9	2.1
15-19	844	978	1061	1,010	1,071	1,001
20-24	893	899	1086	1,286	1,374	1,536
25-34	1295	1512	2009	2,114	2,317	2,530
35-44	916	1,351	1756	2,006	2,399	2,738
45-54	664	1,010	1301	1,441	1,805	2,067
55-64	314	581	703	858	1,031	1,218
65 +	124	226	323	364	490	581
Age not reported	4	-	-	1	-	1

Source: LFS various years

Table 4
Labor Force Participation Rate by Age-group By Sex

Age Group	1976	1980	1985	1990	1995	2000
Both						
All	60.47	61.77	63.87	64.54	65.56	64.29
15-19	40.38	40.35	40.68	38.98	37.72	33.71
20-24	61.11	59.67	62.33	64.96	68.29	65.78
25-34	70.17	71.39	72.92	73.24	74.62	75.49
35-44	70.48	74.12	78.44	76.63	78.29	77.52
45-54	70.59	73.67	76.95	77.80	78.97	77.58
55-64	63.16	67.09	67.75	69.82	70.65	68.65
65 +	42.06	43.17	41.74	42.65	43.03	40.82
Age not reported	12.41	9.09	0.00	25.00	0.00	28.57
Male						
All	81.40	78.95	80.26	81.75	82.10	80.34
15-19	48.55	47.41	49.64	47.48	46.52	41.66
20-24	79.00	72.85	76.30	78.18	81.11	78.16
25-34	96.28	95.06	94.34	96.53	97.33	96.80
35-44	98.23	97.47	97.69	98.63	98.59	97.92
45-54	97.21	95.79	95.73	97.37	96.91	96.43
55-64	88.02	87.73	86.71	89.33	89.39	85.45
65 +	62.62	60.06	58.50	59.31	58.52	55.73
Age not reported	17.91	15.38	0.00	100.00	0.00	50.00
Female						
All	40.13	44.78	47.95	47.52	49.04	48.37
15-19	32.40	32.71	31.39	29.75	28.05	24.86
20-24	45.01	46.29	47.57	50.93	53.82	51.98
25-34	45.84	49.51	53.37	51.04	52.27	54.09
35-44	43.23	52.04	59.97	56.33	58.93	58.17
45-54	44.06	52.01	58.92	58.43	61.69	59.35
55-64	35.89	47.16	49.06	51.16	52.93	53.61
65 +	20.33	25.45	27.21	27.23	29.73	28.93
Age not reported	-	-	0.00	33.33	0.00	20.00
Ratio F/M (%)	49.3%	56.7%	59.3%	58.1%	59.7%	60.2%

Source: LFS, various years

Figure 2. Labor Force Participation Rate, Both Sexes

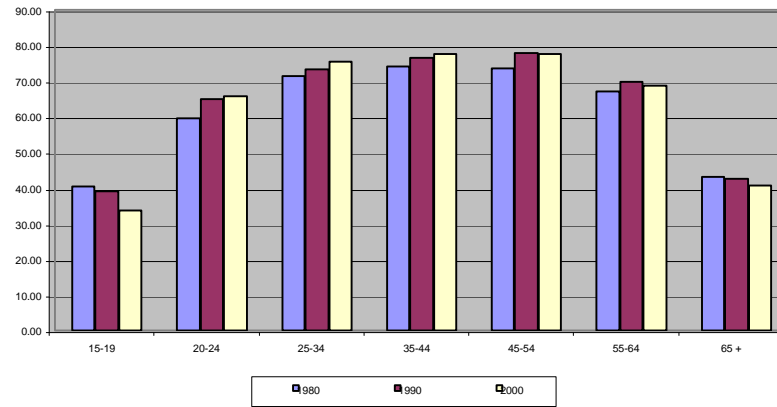


Figure 3. LFPR Male, 1980-2000

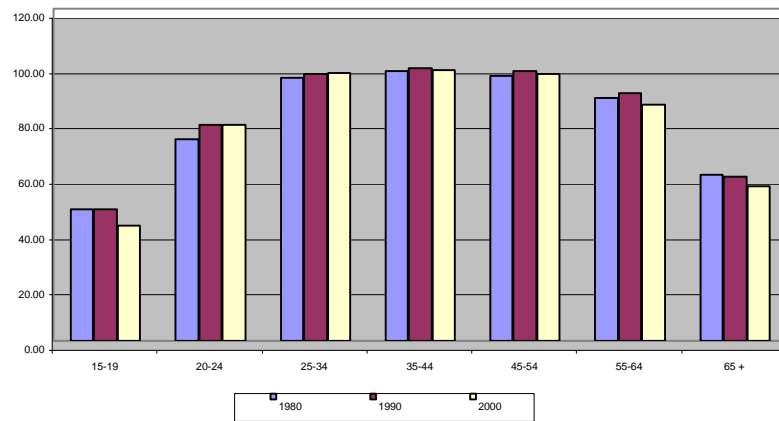


Figure 4. LFPR Female, 1980-2000

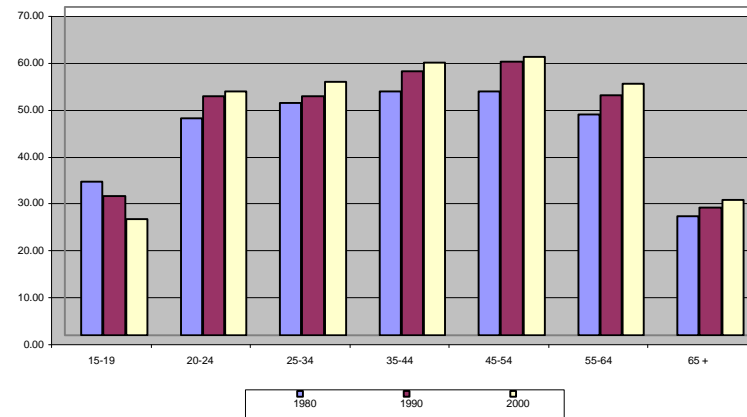


Table 5
Household Education Expenditure by Income Decile, 1988-2000

Income Decile	1988		1994		2000	
	% to Total	Mean (P)	% to Total	Mean (P)	% to Total	Mean (P)
Lowest	1.4	181	1.4	347	1.8	713
2	1.3	216	1.8	533	2.0	947
3	1.5	281	2.0	721	2.3	1,316
4	1.9	398	2.1	847	2.6	1,707
5	2.0	466	2.7	1,257	2.9	2,284
6	2.4	642	3.2	1,780	3.1	2,897
7	2.7	856	3.4	2,251	3.8	4,358
8	3.3	1,266	3.7	3,053	4.4	6,054
9	3.5	1,733	4.6	4,900	5.2	9,692
Highest	3.9	3,412	5.0	9,326	5.6	19,855
Total	2.9	945	3.7	2,502	4.2	4,982

Source of Basic Data: FIES 1988, 1994, 2000

Table 6
Household Expenditures by Type and By Level, 1995

	Elementary				Secondary				Tertiary ^a			
	Public		Private		Public		Private		Public		Private	
	Level	% to Total	Level	% to Total	Level	% to Total	Level	% to Total	Level	% to Total	Level	% to Total
Tuition and other fees	189	2.7	4,501	20.1	287	4.7	3,361	23.8	1,908	13.6	7,190	29.8
PTA	29	0.4	80	0.4	65	1.1	93	0.7	80	0.6	231	1.0
Other fees	181	2.6	686	3.1	232	3.8	693	4.9	655	4.7	1,253	5.2
Books	102	1.5	1,259	5.6	282	4.6	862	6.1	922	6.6	1,717	7.1
School supplies	361	5.2	1,015	4.5	411	6.7	723	5.1	779	5.5	1,091	4.5
Other materials	532	7.7	952	4.3	384	6.3	594	4.2	812	5.8	1,481	6.1
Uniforms	772	11.1	1,650	7.4	964	15.8	1,403	9.9	1,748	12.4	2,062	8.5
Transport	1,209	17.4	2,906	13.0	1630	26.7	2,223	15.8	3,308	23.6	3,706	15.3
Board and lodgings	3,578	51.5	9,318	41.7	1840	30.2	4,158	29.5	3,833	27.3	5,422	22.4
Total	6,953	100.0	22,367	100.0	6095	100.0	14,110	100.0	14,045	100.0	24,153	100.0

^a includes TVET

Source: Table 2.27 Maglen and Manasan 1999, p. 36, citing FAPE Survey, 1995

Table 7
Household Financing of Education, 1997

Level of Expenditures	School Fees	Voluntary Contributions	Other Priv. Costs	Total
Million Pesos				
Public Education				
Elementary	2,510.69	296.28	13,911.35	16,718.32
Secondary	1,431.11	127.19	7,089.68	8,647.98
Tertiary	1,109.72	10.72	2,922.91	4,043.35
Sub-Total	5,051.52	434.19	23,923.94	29,409.65
Private Education				
Elementary	4,408.70	51.55	4,561.10	9,021.35
Secondary	5,186.21	65.65	5,503.85	10,755.71
Tertiary	13,902.98	41.99	11,419.76	25,364.73
Sub-Total	23,497.89	159.19	21,484.71	45,141.79
	0.21	2.73	1.11	0.65
Total	28,549.41	593.38	45,408.65	74,551.44
% Distribution by Type				
Public Education				
Elementary	15.02	1.77	83.21	100.00
Secondary	16.55	1.47	81.98	100.00
Tertiary	27.45	0.27	72.29	100.00
Sub-Total	17.18	1.48	81.35	100.00
Private Education				
Elementary	48.87	0.57	50.56	100.00
Secondary	48.22	0.61	51.17	100.00
Tertiary	54.81	0.17	45.02	100.00
Sub-Total	52.05	0.35	47.59	100.00
Total	38.29	0.80	60.91	100.00
% Distribution by Level				
Public Education				
Elementary	49.70	68.24	58.15	56.85
Secondary	28.33	29.29	29.63	29.41
Tertiary	21.97	2.47	12.22	13.75
Sub-Total	100.00	100.00	100.00	100.00
Private Education				
Elementary	18.76	32.38	21.23	19.98
Secondary	22.07	41.24	25.62	23.83
Tertiary	59.17	26.38	53.15	56.19
Sub-Total	100.00	100.00	100.00	100.00

Source: Maglen and Manasan (1999) Table 2.28

Table 8
ELEMENTARY AND SECONDARY ENROLMENT IN GOVERNMENT AND PRIVATE SCHOOLS
SY 1969-70 TO SY 1998-99

School Year	Elementary			Secondary			Tertiary		
	Total ('000)	Govt. (%)	Private (%)	Total ('000)	Govt. (%)	Private (%)	Total ('000)	Govt. (%)	Private (%)
1970-71	6,969	95.1	4.9	1,719	44.4	55.6	651	10.3	89.7
1975-76	7,597	94.7	5.3	2,292	46.3	53.7	772	13.7	86.3
1980-81	8,290	95.7	4.3	3,019	53.5	46.5	1,254	14.8	85.2
1985-86	8,897	94.3	5.7	3,269	59.6	40.4	1,402	14.9	85.1
1990-91	10,427	93.3	6.7	4,034	63.6	36.4	1,709	14.8	85.2
1991-92	10,596	93.3	6.7	4,174	64.6	35.4	1,807	16.8	83.2
1992-93	10,674	92.8	7.2	4,455	65.7	34.3	1,876	17.8	82.2
1993-94	10,740	92.6	7.4	4,599	66.9	33.1	1,963	21.1	78.9
1994-95	10,911	92.5	7.5	4,773	68.4	31.6	1,872	21.4	78.6
1995-96	11,505	92.5	7.5	4,884	69.1	30.9	2,257	22.6	77.4
1996-97	11,848	92.5	7.5	4,988	71.1	28.9	2,061	26.7	73.3
1997-98	12,225	92.4	7.6	5,023	72.0	28.0	2,068	26.3	73.7
1999-00	12,681	92.8	7.2	5,168	75.9	24.1	2,536	26.2	73.8
2000-01	12,760	92.7	7.3	5,379	77.3	22.7	2,637	26.9	73.1

Sources: Department of Education, Culture and Sports, CHED

Notes: Tertiary enrolment from AY 1990-1991 to AY 1997-1998 are actual values
Enrolment data from AY 1998-1999 onwards are projected/preliminary

Table 9
Distribution of Higher Education Institutions by Region, Sector and Type of Institution
As of July 18, 2002

REGION	PUBLIC						PRIVATE			TOTAL
	SUCs	CSI	LUCs	Other Gov't Schools	Special HEIs	Total (Public)	Non-Sectarian	Sectarian	Total (Private)	
I	5		2			7	56	12	68	75
II	5	1	1	1		8	36	8	44	52
III	12		2	1		15	104	22	126	141
IV	12		4	1	1	18	142	55	197	215
V	8		12			20	70	21	91	111
VI	11		6			17	49	27	76	93
VII	5		2			7	63	24	87	94
VIII	12		1	1		14	32	15	47	61
IX	6					6	24	14	38	44
X	6		1			7	35	14	49	56
XI	4			1		5	53	23	76	81
XII	6					6	50	15	65	71
NCR	7		10	1	2	20	193	54	247	267
CAR	6				1	7	16	7	23	30
ARMM	2		1	6		9	12	1	13	22
CARAGA	4					4	28	7	35	39
Grand Total	111	1	42	12	4	170	963	319	1282	1452
% to Total	7.6	0.1	2.9	0.8	0.3	11.7	66.3	22.0	88.3	100.0
1994-1995										
Total	97	110	28			235	684	266	950	1185
% to Total	8.2	9.3	2.4			19.8	57.7	22.4	80.2	100.0

Source: CHED

Table 10

Graduates By Discipline

	1974 - 1975	1984 - 1985	1990-91	1995-96	2000-01
Total	87,430	101,775	277,399	328,120	385,349
Agriculture	0.27	4.46	2.81	4.76	4.25
Business	55.49	35.85	26.32	29.46	27.00
Medical & related	5.82	8.87	18.81	14.47	10.28
Teacher education	9.56	16.07	16.33	13.88	13.34
Engineering & Related	7.05	15.44	16.94	12.57	13.40
Maritime	0.67	0.00	0.29	0.23	0.58
Natural science	0.33	1.73	0.93	1.16	1.77
Social science	18.88	8.51	8.18	8.01	10.15
Law	1.93	2.54	0.85	0.67	0.89
Mathematics & computer science	0.00	1.12	1.97	5.94	7.33
Religion	0.00	0.18	0.41	0.39	0.73
Other disciplines	0.00	0.00	6.15	8.44	9.19
Trade, craft industrial	0.00	1.38	0.00	0.02	1.09
Not classified	0.00	3.86	0.00	0.00	0.00

Source: CHED; Philippine Statistical Yearbook, various years

Table 11
Number of Examinees and Qualifiers in Licensure Examinations by Calendar Year

Licensure Examination	1985			1989			1996				1998			2000		
	No.of Examinees	Qualifiers		No.of Examinees	Qualifiers		No.of Examinees	Qualifiers			No.of Examinees	Qualifiers		No.of Examinees	Qualifiers	
		Number	%		Number	%		Number	Passing	%		Number	%		Number	%
Accountancy	21357	4485	21	13014	2638	20	8,304	1,427	17.18	17.2	11,964	2202	18.4	14,073	2648	18.8
Aeronautical Engineering	130	35	27	90	18	20	106	22	20.75	20.8	88	22	25.0	116	32	27.6
Agricultural Engineering	591	136	23	241	77	32	331	191	57.7	57.7	442	221	50.0	535	280	52.3
Architecture	1416	623	44	1367	369	27	1,645	601	36.53	36.5	2,239	804	35.9	2,329	725	31.1
Interior Design	38	32	84	58	36	62	76	30	49.47	39.5	110	52	47.3	125	81	64.8
Landscape Arch.	5	5	100	9	7	78	9	6	66.67	66.7	14	8	57.1	12	7	58.3
Chemical Engineering	1980	911	46	1075	432	40	1,156	363	31.4	31.4	1,222	404	33.1	1,218	536	44
Chemistry	554	205	37	338	86	25	341	134	39.3	39.3	474	184	38.8	530	234	44.2
Civil Engineering	12253	5575	46	9394	2604	28	9,340	3,171	33.95	34.0	9,612	2388	24.8	9,298	2800	30.1
Criminology							1,689	814	48.19	48.2	2,504	1026	41.0	5,604	2532	45.2
Custom Broker							1,152	123	10.68	10.7	1,145	100	8.7	1,651	150	9.1
Dentistry	2873	1566	55	3422	1225	36	4,897	1,516	30.96	31.0	4,131	933	22.6	3,489	1329	38.1
Electrical Engineering	3834	2818	74	10741	2261	21	4,507	1,329	29.49	29.5				4,201	1667	39.7
Electronics & Communication Eng'g	1259	403	32	2372	1010	43	3,667	1,693	46.17	46.2	4,227	2097	49.6	5,304	2337	44.1
Forestry							989	320	32.45	32.4	894	436	48.8	544	645	118.6
Geodetic Engineering	853	354	42	-	-	-	451	179	39.69	39.7	565	203	35.9	600	263	43.8
Geology	110	74	67	-	-	-	25	17	68	68.0	40	22	55.0	47	33	70.2
Library Science							419	186	44.39	44.4	431	217	50.3	622	331	53.2
Marine Deck (3rd Mate)							4,240	978	23.07	23.1	4,646	2087	44.9	7,376	2993	40.6
Marine Engine (4th Engineer)							4,992	1,715	34.35	34.4	3,785	1679	44.4	4,277	2508	58.6
Mechanical Engineering	4884	2100	43	1557	981	63	4,791	1,602	33.44	33.4	4,437	1691	38.1	4,069	1923	47.3
Medical Technology							2,976	1,032	34.68	34.7	3,344	1670	49.9	3,608	1890	52.4
Medicine	3790	1895	50	3571	2537	71	2,969	2,225	74.94	74.9	2,794	1814	64.9	3,366	2189	65
Mettallurgical Engineering	35	17	48	22	12	54	40	21	52.5	52.5	44	25	56.8	31	20	64.5
Midwifery	5323	2475	47	11835	6352	54	8,725	4,515	51.75	51.7	4,777	2279	47.7	2,697	1398	51.8
Mining Engineering	174	73	42	85	57	67	39	12	30.77	30.8	46	31	67.4	39	30	76.9
Naval Architecture and Marine Eng'g	58	23	40	22	8	37	14	5	35.71	35.7	17	7	41.2	28	18	64.3
Nursing	4688	3094	66	16082	9138	57	25,206	13,658	54.19	54.2	17,101	9541	55.8	9,271	4602	49.6
Nutrition and Dietetics	943	330	35	662	306	46	878	490	55.81	55.8	803	369	46.0	634	349	55
Optometry	500	265	53	600	315	52	536	293	54.66	54.7	442	118	26.7	456	70	15.4
Pharmacy	780	476	61	1398	813	58	2,081	1,170	56.22	56.2	2,386	1710	71.7	2,670	1681	63
Physical Therapy							2,657	775	29.17	29.2	6,099	1434	23.5	9,450	2354	24.9
Occupation Therapy							145	38	26.21	26.2	459	168	36.6	714	251	35.2
Radiologic Technology							1,172	530	45.22	45.2	1,090	438	40.2	971	357	36.8
Sanitary Engineering	0	0	51	0	0	73	78	40	51.28	51.3	88	47	53.4	105	53	50.5
Social Work	625	425	68	535	254	47	1,000	568	56.8	56.8	1,249	600	48.0	1,323	770	58.2
Veterinary Medicine	504	287	57	452	317	70	385	173	44.94	44.9	401	203	50.6	442	207	46.8
Law (Bar Exam)**	2719	707	26	3011	632	21	3900	1,217		31.2						
Teacher Exam (PBET)***							97,560	26,830	27.5	27.5				123,499	44100	35.7
Total	72276	29389	40.7	81953	32485	39.6	203,488	70,009	34.4		94,110	37,230	39.6	225,324	84,393	37.5

Notes:

Teacher Exam for the year 2000 refers to elementary and secondary
Figures for 1985 and 1989 are from EDCOMM

Sources:

Professional Regulation Commission, Manila
Philippine Statistical Yearbook , NSCB

** Supreme Court, Manila

*** Civil Service Commission, Quezon City

EDCOMM

Table 12
Private/Public Unit Cost Ratios

Level	Operating Cost			Direct Social Cost			Total Unit Cost		
	1986	1994	1997	1986	1994	1997	1986	1994	1997
Public									
Elementary	1,265	2,958	5,322	296	944	1,258	1,561	3,903	6,579
Secondary	1,056	2,909	4,827	626	1,500	1,997	1,681	4,409	6,825
Tertiary ^a	14,590	20,931	24,777	1,583	3,773	5,025	16,173	24,704	29,802
Private									
Elementary	1,401	3,671	4,700	1,334	3,692	4,918	2,735	7,364	9,618
Secondary	957	3,243	4,295	1,173	2,974	3,961	2,130	6,217	8,256
Tertiary	2,443	5,931	8,067	1,987	4,843	6,450	4,430	10,774	14,517
Private/Public Ratio									
Elementary	1.11	1.24	0.88	4.51	3.91	3.91	1.75	1.89	1.46
Secondary	0.91	1.11	0.89	1.87	1.98	1.98	1.27	1.41	1.21
Tertiary	0.17	0.28	0.33	1.26	1.28	1.28	0.27	0.44	0.49

^a includes TVET

Direct social cost include the privately financed inputs other than school fees, e.g. books, school supplies, transportation

Source: Maglen and Manasan (1999)

Table 13

Labor Market Indicators by Industry

	1978	1980	1985	1990	1995	2000	1980-1990	1990-2000	1978-2000
Whole Economy									
Output (1985 million pesos)	548,950	609,768	571,883	720,690	802,224	953,582			
Annual % change		5.5	(1.2)	5.2	2.3	3.8	1.8	3.2	3.4
Share to total (%)									
Employment ('000)	16,118	16,434	19,801	22,532	25,698	27,775			
Annual % change		1.0	4.1	2.8	2.8	1.6	3.7	2.3	3.3
Share to total (%)	100.0	100.0	100.0	100.0	100.0	100.0			
Employment elasticity		0.2	-3.3	0.5	1.2	0.4	2.0	0.7	1.0
Incremental Labor-Output Ratio (000)		5.2	-88.9	18.4	38.8	13.7	5.5	2.3	2.9
Index of Compensation (1978=100)	100.0	98.2	97.6	126.5	123.3	131.2			
As a ratio to ave. wage (whole economy)	1.0	1.0	1.0	1.0	1.0	1.0			
Real Productivity Index (1978=100)	100.0	108.9	84.8	93.9	91.7	100.8			
Annual growth rate		4.5	-4.4	2.1	-0.5	2.0	1.6	0.7	0.0
As a ratio to productivity (whole economy)	1.0	1.0	1.0	1.0	1.0	1.0			
Unit labor cost	100.0	90.2	115.1	134.7	134.5	130.2			
Agriculture, fishery and forestry									
Output (1985 million pesos)	133,504	143,295	140,554	160,734	172,848	189,678			
Annual % change		3.7	(0.4)	2.9	1.5	1.9	1.2	1.8	1.9
Share to total	24.3	23.5	24.6	22.3	21.5	19.9	-1.2	-2.4	-4.4
Employment ('000)	8,422	8,453	9,698	10,185	11,323	10,401			
Annual % change		0.2	2.9	1.0	2.2	(1.6)	2.0	0.2	1.1
Share to total	52.3	51.4	49.0	45.2	44.1	37.4			
Employment elasticity		0.1	-7.7	0.3	1.5	-0.8	1.7	0.1	0.6
Incremental Labor-Output Ratio (000)		3.2	-454.2	24.1	93.9	-54.8	9.9	0.7	3.5
Wage Index (1978=100) ^{1a}	100.0	94.1	101.2	123.5	136.5	169.2			
As a ratio to ave. wage (whole economy)	1.0	1.0	1.0	1.0	1.1	1.3			
Real Productivity Index (1978=100)	100.0	106.9	91.4	99.6	96.3	115.0			
Annual growth rate		3.5	-2.9	1.8	-0.7	3.9	0.7	1.6	0.68
As a ratio to productivity (whole economy)	1.0	1.0	1.1	1.1	1.1	1.1			
Unit labor cost	100.0	88.0	110.7	124.1	141.7	147.1			
Industry									
<i>Mining and quarrying</i>									
Output (1985 million pesos)	7,318	9,128	11,893	11,091	10,035	10,580			
Annual % change		12.4	6.1	(1.3)	(1.9)	1.1	2.2	-0.5	2.0
Share to total	1.3	1.5	2.1	1.5	1.3	1.1	0.0	-0.4	-0.2
Employment ('000)	61	94	128	133	95	106			
Annual % change		27.0	7.2	0.8	(5.7)	2.3	4.1	-2.0	3.4
Share to total	0.4	0.6	0.6	0.6	0.4	0.4			
Employment elasticity		2.2	1.2	-0.6	3.0	2.1	1.9	4.4	1.7
Incremental Labor-Output Ratio (000)		18.2	12.3	-6.2	36.0	20.2	2.0	5.3	1.4
Index of Compensation (1978=100)	100.0	130.4	82.7	97.0	119.4	171.0			
As a ratio to ave. wage (whole economy)	1.0	1.3	0.8	0.8	1.0	1.3			
Real Productivity Index (1978=100)	100.0	80.9	77.4	69.5	88.1	83.2			
Annual growth rate		-9.5	-0.9	-2.0	5.3	-1.1	-1.4	2.0	-0.8
As a ratio to productivity (whole economy)	1.0	0.7	0.9	0.7	1.0	0.8			
Unit labor cost	100.0	161.1	106.8	139.5	135.6	205.5			
<i>Manufacturing</i>									
Output (1985 million pesos)	154,322	168,292	143,851	183,925	203,271	237,223			
Annual % change		4.5	(2.9)	5.6	2.1	3.3	0.9	2.9	2.4
Share to total	28.1	27.6	25.2	25.5	25.3	24.9	-2.1	-0.6	-3.2
Employment ('000)	1,743	1,814	1,922	2,188	2,571	2,792			
Annual % change		2.0	1.2	2.8	3.5	1.7	2.1	2.8	2.7
Share to total	10.8	11.0	9.7	9.7	10.0	10.1			
Employment elasticity		0.4	-0.4	0.5	1.7	0.5	2.2	1.0	1.1
Incremental Labor-Output Ratio (000)		5.1	-4.4	6.6	19.8	6.5	2.4	1.1	1.3
Index of Compensation (1978=100)	100.0	98.1	90.9	124.2	81.3	66.4			
As a ratio to ave. wage (whole economy)	1.0	1.0	0.9	1.0	0.7	0.5			
Real Productivity Index (1978=100)	100.0	104.8	84.5	94.9	89.3	96.0			
Annual growth rate		2.4	-3.9	2.5	-1.2	1.5	-0.9	0.1	-0.2
As a ratio to productivity (whole economy)	1.0	1.0	1.0	1.0	1.0	1.0			
Unit labor cost	100.0	93.6	107.5	130.8	91.0	69.2			
<i>Construction</i>									
Output (1985 million pesos)	47,667	57,250	29,037	41,858	44,492	47,947			
Annual % change		10.1	(9.9)	8.8	1.3	1.6	-2.7	1.5	0.0
Share to total	8.7	9.4	5.1	5.8	5.5	5.0	-3.6	-0.8	-3.7
Employment ('000)	519	588	684	974	1,239	1,430			
Annual % change		6.6	3.3	8.5	5.4	3.1	6.6	4.7	8.0
Share to total	3.2	3.6	3.5	4.3	4.8	5.1			
Employment elasticity		0.7	-0.3	1.0	4.3	2.0	-2.4	3.2	298.8
Incremental Labor-Output Ratio (000)		7.2	-3.4	22.6	100.6	55.3	-2.5	7.5	325.4
Index of Compensation (1978=100) ^b	100.0	110.6	109.7	128.9	NA	NA			
As a ratio to ave. wage (whole economy)	1.0	1.1	1.1	1.0	#VALUE!	#VALUE!			
Real Productivity Index (1978=100)	100.0	106.0	46.2	46.8	39.1	36.5			
Annual growth rate		3.0	-11.3	0.2	-3.3	-1.3	-5.6	-2.2	-2.9
As a ratio to productivity (whole economy)	1.0	1.0	0.5	0.5	0.4	0.4			
Unit labor cost	100.0	104.3	237.3	275.5	#VALUE!	#VALUE!			

Table 13

Labor Market Indicators by Industry

	1978	1980	1985	1990	1995	2000	1980-1990	1990-2000	1978-2000
Electricity, gas and water									
Output (1985 million pesos)	10,104	12,389	15,767	18,674	26,060	32,401			
Annual % change		11.3	5.5	3.7	7.9	4.9	5.1	7.4	10.0
Share to total	1.8	2.0	2.8	2.6	3.2	3.4	0.6	0.8	1.6
Employment ('000)	49	58	73	91	103	116			
Annual % change		9.2	5.2	4.9	2.6	2.5	5.7	2.7	6.2
Share to total	0.30	0.35	0.37	0.40	0.40	0.42			
Employment elasticity		0.81	0.95	1.34	0.33	0.52	1.1	0.4	0.6
Incremental Labor-Output Ratio (000)		3.94	4.44	6.19	1.62	2.05	0.5	0.2	0.3
Index of Compensation (1978=100)	100.0	141.1	158.4	165.3	156.6	202.8			
As a ratio to ave. wage (whole economy)	1.0	1.4	1.6	1.3	1.3	1.5			
Real Productivity Index (1978=100)	100.0	103.6	104.7	99.5	122.7	135.5			
Annual growth rate		1.8	0.2	-1.0	4.7	2.1	-0.4	3.6	1.6
As a ratio to productivity (whole economy)	1.0	1.0	1.2	1.1	1.3	1.3			
Unit labor cost	100.0	136.2	151.2	166.1	127.6	149.7			
Services									
Transportation, storage & comm.									
Output (1985 million pesos)	27,206	29,175	31,666	41,108	47,366	67,861			
Annual % change		3.6	1.7	6.0	3.0	8.7	4.1	6.5	6.8
Share to total	5.0	4.8	5.5	5.7	5.9	7.1	0.9	1.4	2.2
Employment ('000)	699	732	931	1,137	1,489	2,024			
Annual % change		2.4	5.4	4.4	6.2	7.2	5.5	7.8	8.6
Share to total	4.3	4.5	4.7	5.0	5.8	7.3			
Employment elasticity		0.7	3.2	0.7	2.0	0.8	1.4	1.2	1.3
Incremental Labor-Output Ratio (000)		16.8	79.9	21.8	56.2	26.1	3.4	3.3	3.3
Index of Compensation (1978=100)	100.0	100.1	105.3	187.1	216.4	217.3			
As a ratio to ave. wage (whole economy)	1.0	1.0	1.1	1.5	1.8	1.7			
Real Productivity Index (1978=100)	100.0	102.4	87.4	92.9	81.7	86.1			
Annual growth rate		1.2	-2.9	1.3	-2.4	1.1	-0.9	-0.7	-0.6
As a ratio to productivity (whole economy)	1.0	0.9	1.0	1.0	0.9	0.9			
Unit labor cost	100.0	97.8	120.5	201.4	264.8	252.3			
Wholesale and retail trade									
Output (1985 million pesos)	69,425	79,335	82,835	107,428	123,430	153,558			
Annual % change		7.1	0.9	5.9	3.0	4.9	3.5	4.3	5.5
Share to total	12.6	13.0	14.5	14.9	15.4	16.1	1.9	1.2	3.5
Employment ('000)	1,626	1,660	2,611	3,145	3,745	4,587			
Annual % change		1.0	11.5	4.1	3.8	4.5	8.9	4.6	8.3
Share to total	10.1	10.1	13.2	14.0	14.6	16.5			
Employment elasticity		0.1	13.0	0.7	1.3	0.9	2.5	1.1	1.5
Incremental Labor-Output Ratio (000)		3.4	271.7	21.7	37.5	27.9	5.3	3.1	3.5
Index of Compensation (1978=100)	100.0	101.7	76.1	96.3	104.2	116.9			
As a ratio to ave. wage (whole economy)	1.0	1.0	0.8	0.8	0.8	0.9			
Real Productivity Index (1978=100)	100.0	111.9	74.3	80.0	77.2	78.4			
Annual growth rate		6.0	-6.7	1.5	-0.7	0.3	-2.9	-0.2	-1.0
As a ratio to productivity (whole economy)	1.0	1.0	0.9	0.9	0.8	0.8			
Unit labor cost	100.0	90.9	102.4	120.4	135.0	149.1			
Finance, ins., real estate & bus. services									
Output (1985 million pesos)	49,475	55,658	49,255	70,114	77,617	95,250			
Annual % change		6.2	(2.3)	8.5	2.1	4.5	2.6	3.6	4.2
Share to total	9.0	9.1	8.6	9.7	9.7	10.0	0.6	0.3	1.0
Employment ('000)	361	336	342	444	551	678			
Annual % change		(3.5)	0.4	6.0	4.8	4.6	3.2	5.3	4.0
Share to total	2.2	2.0	1.7	2.0	2.1	2.4			
Employment elasticity		-0.6	-0.2	0.7	2.3	1.0	1.2	1.5	0.9
Incremental Labor-Output Ratio (000)		-4.0	-0.9	4.9	14.3	7.2	0.7	0.9	0.7
Index of Compensation (1978=100)	100.0	NA	85.2	104.6	105.5	93.5			
As a ratio to ave. wage (whole economy)	1.0	#VALUE!	0.9	0.8	0.9	0.7			
Real Productivity Index (1978=100)	100.0	120.9	105.1	115.2	102.8	102.5			
Annual growth rate		10.4	-2.6	1.9	-2.2	-0.1	-0.5	-1.1	0.1
As a ratio to productivity (whole economy)	1.0	1.1	1.2	1.2	1.1	1.0			
Unit labor cost	100.0	#VALUE!	81.0	90.8	102.6	91.2			
Community, social and personal services									
Output (1985 million pesos)	49,929	55,246	67,025	85,758	97,105	119,084			
Annual % change		5.3	4.3	5.6	2.6	4.5	5.5	3.9	6.3
Share to total	9.1	9.1	11.7	11.9	12.1	12.5	2.8	0.6	3.4
Employment ('000)	2,625	2,693	3,408	4,220	4,559	5,636			
Annual % change		1.3	5.3	4.8	1.6	4.7	5.7	3.4	5.2
Share to total	16.3	16.4	17.2	18.7	17.7	20.3			
Employment elasticity		0.2	1.2	0.9	0.6	1.0	1.0	0.9	0.8
Incremental Labor-Output Ratio (000)		12.8	60.7	43.3	29.9	49.0	5.0	4.2	4.4
Index of Compensation (1978=100) ^c	100.0	105.8	98.8	135.2	221.4	269.0			
As a ratio to ave. wage (whole economy)	1.0	1.1	1.0	1.1	1.8	2.0			
Real Productivity Index (1978=100)	100.0	107.9	103.4	106.8	112.0	111.1			
Annual growth rate		3.9	-0.8	0.7	1.0	-0.2	-0.1	0.4	0.5
As a ratio to productivity (whole economy)	1.0	1.0	1.2	1.1	1.2	1.1			
Unit labor cost	100.0	98.1	95.6	126.5	197.7	242.2			

^a Based on daily wage rate for agriculture deflated by agriculture sector implicit price index^b No longer computed since 1995^c For private services only

Memo:

Index of compensation non-agriculture 100.0 102.6 94.1 129.0 112.9 108.5

Table 14

Employment, Earnings by Occupational Groups, 1978-2000

	1978	1980	1985	1990	1995	2000	1980-1990	1990-2000	1978-2000
	Change								
<i>Whole Economy</i>									
Employment ('000)	16,668	17,154	20,327	22,532	25,698	27,775			
Share to total	100.0	100.0	100.0	100.0	100.0	100.0			
Wage	1,219	1,193	2,437	4,634	8,662	NA			
Ratio to average	1.0	1.0	1.0	1.0	1.0	#VALUE!			
<i>Professional, Technical and Related Workers</i>									
Employment ('000)	952	1,027	1,141	1,401	1,428	1,623			
Share to total	5.7	6.0	5.6	6.2	5.6	5.8	0.2	-0.4	0.1
Wage	2,641	2,885	5,403	9,634	16,050	NA			
Ratio to average	2.2	2.4	2.2	2.1	1.9	#VALUE!			
<i>Administrative, Executive and Managerial Workers</i>									
Employment ('000)	172	175	196	264	421	645			
Share to total	1.0	1.0	1.0	1.2	1.6	2.3	0.2	1.2	1.3
Wage	7525	6874	13108	15941	22707	NA			
Ratio to average	6.2	5.8	5.4	3.4	2.6	#VALUE!			
<i>Clerical Workers</i>									
Employment ('000)	665	748	868	987	1,115	1,291			
Share to total	4.0	4.4	4.3	4.4	4.3	4.6	0.0	0.3	0.7
Wage	1819	2116	4464	7282	11791	NA			
Ratio to average	1.5	1.8	1.8	1.6	1.4	#VALUE!			
<i>Sales Workers</i>									
Employment ('000)	1,759	1,803	2,603	3,025	3,592	4,315			
Share to total	10.6	10.5	12.8	13.4	14.0	15.5	2.9	2.1	5.0
Wage	1,484	1,527	2,964	5,373	9,492	NA			
Ratio to average	1.2	1.3	1.2	1.2	1.1	#VALUE!			
<i>Service Workers</i>									
Employment ('000)	1,271	1,343	1,724	2,084	2,309	2,990			
Share to total	7.6	7.8	8.5	9.2	9.0	10.8	1.4	1.5	3.1
Wage	1,023	1,130	2,280	3,961	7,733	NA			
Ratio to average	0.8	0.9	0.9	0.9	0.9	#VALUE!			
<i>Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters</i>									
Employment ('000)	8,665	8,800	9,984	10,037	11,224	10,287			
Share to total	52.0	51.3	49.1	44.5	43.7	37.0	-6.8	-7.5	-14.9
Wage	843	629	1,468	2,897	5,971	NA			
Ratio to average	0.7	0.5	0.6	0.6	0.7	#VALUE!			
<i>Production and Related Workers, Transport Equipment Operators and Laborers</i>									
Employment ('000)	3,147	3,245	3,808	4,634	5,571	6,589			
Share to total	18.9	18.9	18.7	20.6	21.7	23.7	1.6	3.2	4.8
Wage	1,264	1,465	2,697	5,341	8,862	NA			
Ratio to average	1.0	1.2	1.1	1.2	1.0	#VALUE!			
<i>Occupation Not Adequately Defined</i>									
Employment ('000)	37	13	2	99	38	32			
Share to total	0.2	0.1	0.0	0.4	0.1	0.1	0.4	-0.3	-0.1

Notes:

1978 - 1990 data for wages refer to average quarterly earnings (cash & in-kind). (LFS)

1995 data for wages refer to average quarterly earnings from primary and secondary job. (NSO Special Release)

Table 15

Employment, Earnings by Class of Worker, 1976-2000

CLASS OF WORKER	Third Q 1976	Fourth Q 1980	October 1985	October 1990	October 1995	October 2000	Change		
							1980-1990	1990-2000	1976-2000
All Classes of Workers									
Employment ('000)	14,238	17,154	20,327	22,532	25,698	27,775			
Average Earnings*		1,429	2,773	5,148	8,543	NA			
Wage and Salary Workers									
Employment ('000)	6,409	7,271	9,113	10,298	11,720	13,827			
Share to total (%)	45.0	42.4	44.8	45.7	45.6	49.8	3.3	4.1	4.8
Average Earnings	78	1,636	3,026	5,584	8,945				
Ratio to total		1.1	1.1	1.1	1.0	#VALUE!			
<i>Private</i>									
Employment ('000)	5,104		7,439	8,380	9,636	11,534			
Share to total (%)	35.8		36.6	37.2	37.5	41.5		4.3	5.7
<i>Gov't/Gov't Corporation</i>									
Employment ('000)	1,305		1,674	1,918	2,084	2,293			
Share to total (%)	9.2		8.2	8.5	8.1	8.3		-0.3	-0.9
Own-Account Workers									
Employment ('000)	5,412	6,325	7,863	8,625	10,064	10,483			
Share total (%)	38.0	36.9	38.7	38.3	39.2	37.7	1.4	-0.5	-0.3
Average earnings	-	1,191	2,480	4,627	8,028				
Ratio to average all workers		0.8	0.9	0.9	0.9				
<i>Self-Employed</i>									
Employment ('000)	4,490		7,318	7,901	9,094	9,202			
Share to total (%)	31.5		36.0	35.1	35.4	33.1		-1.9	1.6
<i>Employer</i>									
Employment ('000)	922		545	724	970	1,281			
Share to total (%)	6.5		2.7	3.2	3.8	4.6		1.4	-1.9
Unpaid Family Workers									
Employment ('000)	2,309	3,558	3,351	3,608	3,913	3,465			
Share to total (%)	16.2	20.7	16.5	16.0	15.2	12.5	-4.7	-3.5	-3.7
Not reported	108	0	0	0	0	0			

* Computed as weighted average

Source: NSO, LFS various years

Figure 5. Proportion of Labor Force Who Are At least High School and College Graduates, 1976-2000

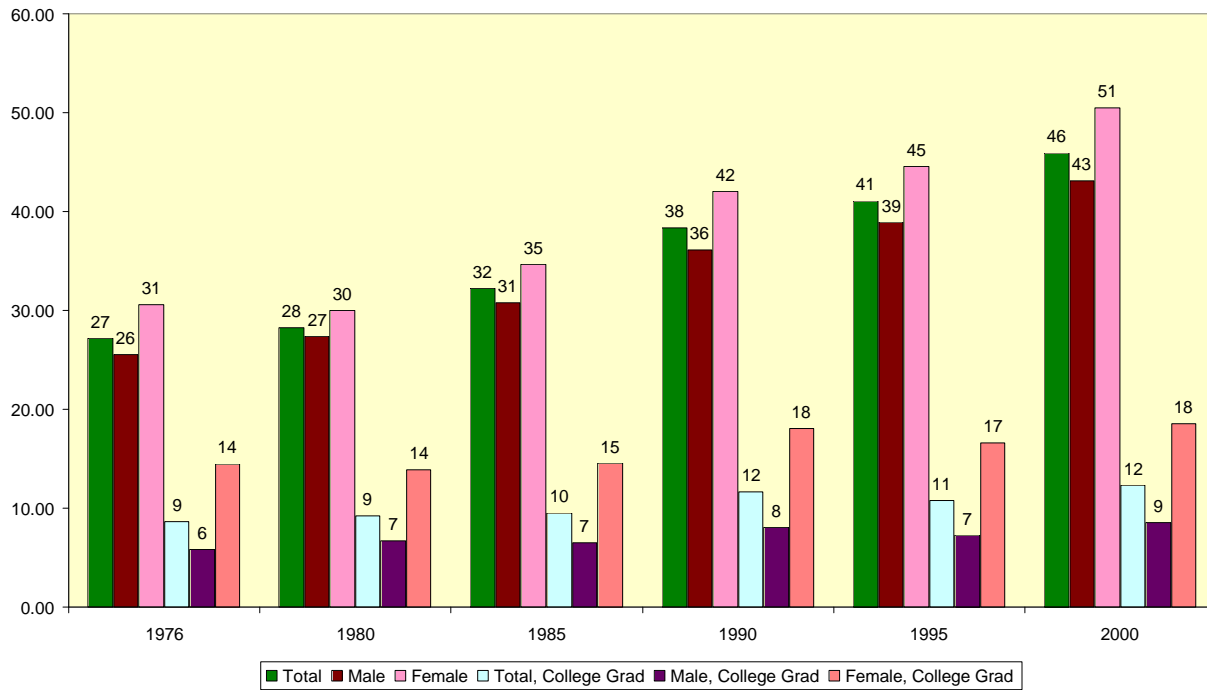


Table 16
Distribution of Labor Force, Employed and Unemployed by Highest Grade Completed, 1976-2000

Highest Grade Completed	Means years of Schooling	Employed						Unemployed						Labor Force					
		1976	1980	1985	1990	1995	2000	1976	1980	1985	1990	1995	2000	1976	1980	1985	1990	1995	2000
Both Sexes																			
No Grade Completed	0	6.62	6.61	4.90	3.66	3.21	2.72	2.31	3.42	1.34	2.81	2.18	2.01	6.39	6.46	4.68	3.59	3.13	2.65
Elementary	2.5	54.26	52.56	49.96	45.13	42.29	38.40	36.92	27.86	22.56	27.20	26.08	23.70	53.36	51.39	48.29	43.67	40.93	36.91
1st to 5th Grade		29.31	28.53	25.39	21.76	19.80	18.06	15.13	13.51	8.03	12.39	11.91	10.21	28.57	27.82	24.34	20.99	19.14	17.26
Graduate	6	24.95	24.03	24.56	23.38	22.49	20.34	21.79	14.35	14.52	14.80	14.17	13.49	24.78	23.57	23.95	22.68	21.79	19.65
High School	8	21.19	24.25	27.18	30.69	33.06	34.98	33.85	38.07	36.43	39.04	40.08	41.53	21.85	24.90	27.74	31.37	33.64	35.64
1st to 3rd Year		11.15	12.34	12.88	12.84	13.28	12.60	17.05	17.85	13.41	14.25	13.79	13.52	11.46	12.60	12.92	12.95	13.32	12.69
Graduate	10	10.04	11.90	14.30	17.85	19.78	22.38	16.79	20.23	23.02	24.79	26.29	28.01	10.39	12.30	14.83	18.41	20.32	22.95
College	12	17.16	16.39	17.92	20.45	21.27	23.50	25.90	30.08	39.54	30.51	31.07	31.55	17.61	17.04	19.23	21.27	22.09	24.32
Undergraduate		8.55	7.14	8.38	8.80	10.51	11.19	14.23	18.55	20.66	14.65	17.67	16.01	16.55	8.84	7.68	9.13	9.27	11.11
Graduate	14	8.61	9.25	9.53	11.65	10.75	12.31	11.67	11.53	18.89	15.86	13.40	15.53	8.77	9.36	10.10	12.00	10.97	12.64
Not Reported		0.77	0.19	0.04	0.07	0.17	0.40	1.03	0.57	0.13	0.45	0.60	1.21	0.79	0.21	0.05	0.10	0.21	0.48
Total ('000)		14,238	17,154	20,327	22,532	25,697	27,775	780	856	1,316	1,993	2,343	3,135	15,018	18,010	21,643	24,525	28,040	30,910
Est. ave. years of schooling ^a		6.4	6.5	6.9	7.4	7.7	8.0	8.1	8.5	9.6	8.8	8.9	9.0	6.4	6.6	7.1	7.6	7.8	8.1
Difference with employed								1.7	2.0	2.7	1.3	1.2	1.1						
Male																			
No Grade Completed	0	6.38	5.95	4.58	3.58	3.22	2.73	2.40	2.20	0.85	2.64	1.92	1.82	6.2	5.8	4.4	3.5	3.1	2.6
Elementary	2.5	55.67	53.54	50.85	46.57	43.74	40.33	35.03	21.19	18.38	27.00	26.51	25.09	55.0	52.5	49.3	45.2	42.4	38.8
1st to 5th Grade		30.84	30.05	26.70	22.99	21.24	19.90	13.17	10.42	6.47	13.27	12.85	10.82	30.2	29.4	25.7	22.3	20.6	19.0
Graduate	6	24.83	23.50	24.14	23.58	22.50	20.43	21.86	10.77	11.91	13.73	13.66	14.26	24.7	23.1	23.6	22.9	21.8	19.8
High School	8	22.55	26.27	29.39	32.79	34.64	36.65	41.02	48.66	40.89	43.73	43.43	43.10	23.2	27.0	29.9	33.6	35.3	37.3
1st to 3rd Year		11.61	12.99	13.79	13.65	13.91	13.52	20.06	21.91	14.35	16.45	15.73	14.92	11.9	13.3	13.8	13.8	14.0	13.7
Graduate	10	10.94	13.27	15.61	19.14	20.74	23.14	20.96	26.75	26.54	27.27	27.70	28.17	11.3	13.7	16.1	19.7	21.3	23.7
College	12	14.63	14.10	15.14	17.01	18.21	19.94	20.96	27.48	39.72	26.27	27.25	28.58	14.8	14.5	16.3	17.7	18.9	20.8
Undergraduate		8.83	7.41	8.61	9.00	10.89	11.39	12.28	20.33	23.81	14.36	17.06	15.93	8.9	7.8	9.3	9.4	11.4	11.9
Graduate	14	5.80	6.69	6.53	8.02	7.32	8.55	8.68	7.15	15.91	11.91	10.19	12.65	5.9	6.7	7.0	8.3	7.5	9.0
Not Reported		0.77	0.14	0.05	0.06	0.18	0.35	1.20	0.46	0.15	0.36	0.89	1.42	0.8	0.2	0.1	0.1	0.2	0.5
Total		9,630	11,083	12,758	14,347	16,193	17,259	334	365	644	1,100	1,354	1,977	9,964	11,448	13,402	15,447	17,547	19,236
Est. ave. years of schooling ^a		6.2	6.4	6.7	7.2	7.4	7.7	8.0	8.8	9.8	8.6	8.6	8.8	6.2	6.4	6.9	7.3	7.5	7.8
Female																			
No Grade Completed	0	7.14	7.83	5.44	3.80	3.20	2.71	2.24	4.32	1.80	3.02	2.43	2.34	6.71	7.56	5.15	3.72	3.13	2.67
Elementary	2.5	51.28	50.77	48.43	42.61	39.82	35.24	38.57	32.81	26.56	27.44	25.40	21.37	50.16	49.43	46.65	41.12	38.46	33.86
1st to 5th Grade		26.09	25.78	23.17	19.59	17.34	15.04	16.59	15.80	9.53	11.31	10.63	9.17	25.25	25.04	22.06	18.78	16.71	14.46
Graduate	6	25.20	24.99	25.26	23.01	22.48	20.20	21.97	17.01	17.03	16.13	14.78	12.20	24.91	24.39	24.59	22.34	21.76	19.40
High School	8	18.34	20.54	23.46	27.03	30.35	32.23	28.48	30.21	32.16	33.26	35.43	38.84	19.23	21.27	24.17	27.65	30.83	32.89
1st to 3rd Year		10.20	11.14	11.38	11.43	12.21	11.09	14.80	14.83	12.51	11.53	11.13	11.07	10.61	11.41	11.47	11.44	12.11	11.09
Graduate	10	8.14	9.41	12.09	15.60	18.14	21.15	13.68	15.38	19.64	21.72	24.29	27.77	8.63	9.85	12.70	16.20	18.72	21.80
College	12	22.44	20.58	22.61	26.47	26.47	29.35	29.60	32.01	39.37	35.72	36.44	36.68	23.07	21.43	23.97	27.38	27.41	30.08
Undergraduate		7.96	6.66	8.02	8.44	9.88	10.86	15.70	17.23	17.63	15.01	18.62	16.18	8.65	7.45	8.80	9.09	10.70	11.39
Graduate	14	14.47	13.92	14.59	18.03	16.59	18.49	13.90	14.78	21.75	20.72	17.81	20.50	14.42	13.99	15.17	18.29	16.71	18.69
Not Reported		0.80	0.28	0.05	0.09	0.16	0.47	0.90	0.65	0.11	0.56	0.30	0.78	0.81	0.31	0.06	0.13	0.17	0.50
Total		4,608	6,070	7,569	8,186	9,505	10,517	446	491	672	893	988	1,156	5,054	6,561	8,241	9,079	10,493	11,673
Est. ave. years of schooling ^a		6.8	6.7	7.2	7.9	8.1	8.5	8.1	8.3	9.4	9.0	9.2	9.4	6.9	6.8	7.4	8.0	8.2	8.6

Source: LFS, NSO, various years
^a - computed as weighted average using means years of schooling column

Figure 6. Proportion of Employed Who Are At Least High School and College Graduates, 1976-2000

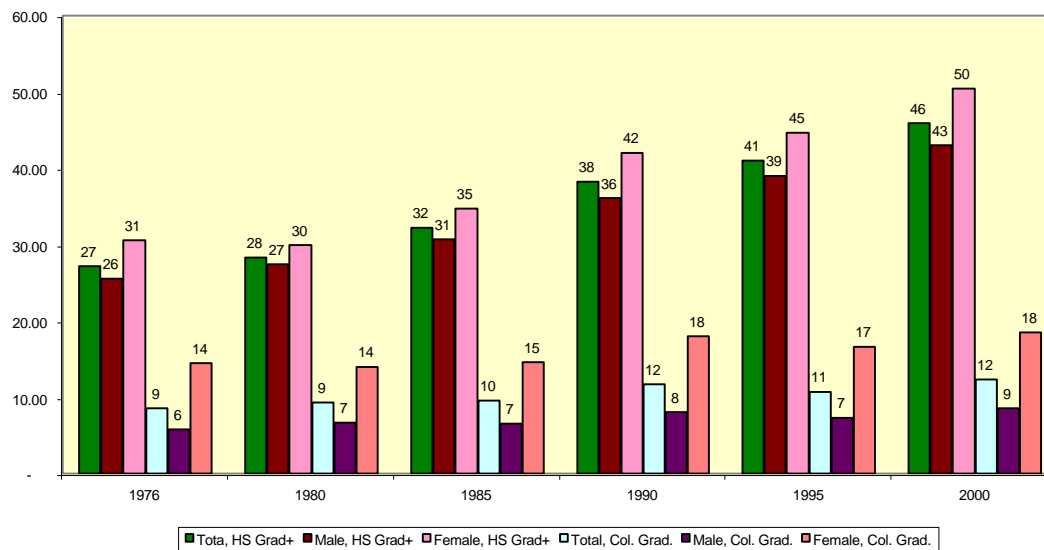


Figure 7. Proportion of Unemployed Who Are At Least High School and College Graduates, 1976-2000

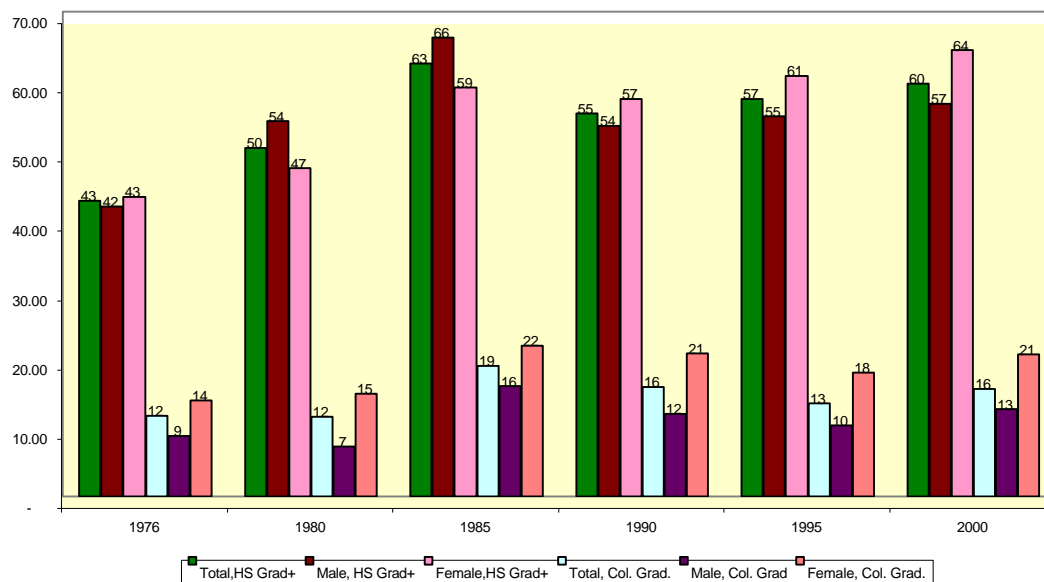


Table 17

Distribution of the Underemployed by Highest Grade Completed, 1976-2000

Highest Grade Completed	Mean Years of Schooling	1976	1980	1985	1990	1995	2000
Both Sexes							
No Grade Completed	0	5.5	6.3	4.1	3.1	3.1	2.4
Elementary		59.5	53.8	57.2	51.8	47.5	44.8
1st to 5th Grade	2.5	32.8	28.9	29.5	23.9	21.6	21.4
Graduate	6	26.6	24.9	27.8	27.9	25.9	23.4
High School		21.3	25.6	26.9	30.7	33.0	36.0
1st to 3rd Year	8	11.8	13.7	13.7	14.4	14.1	15.1
Graduate	10	9.5	11.9	13.1	16.3	18.8	20.9
College		13.1	14.1	11.8	14.2	16.3	16.5
Undergraduate	12	7.4	7.3	6.7	7.4	9.7	9.5
Graduate	14	5.7	6.8	5.1	6.8	6.5	7.0
Not Reported		0.7	0.1	0.0	0.1	0.2	0.3
Total		3,634	3,851	3,798	4,986	5,083	5,528
Est. ave. years of schooling		6.0	6.3	6.3	6.9	7.2	7.4

Source: LFS various years

Figure 8. Proportion of Underemployed Who Are At Least High School and College graduate, 1976-2000

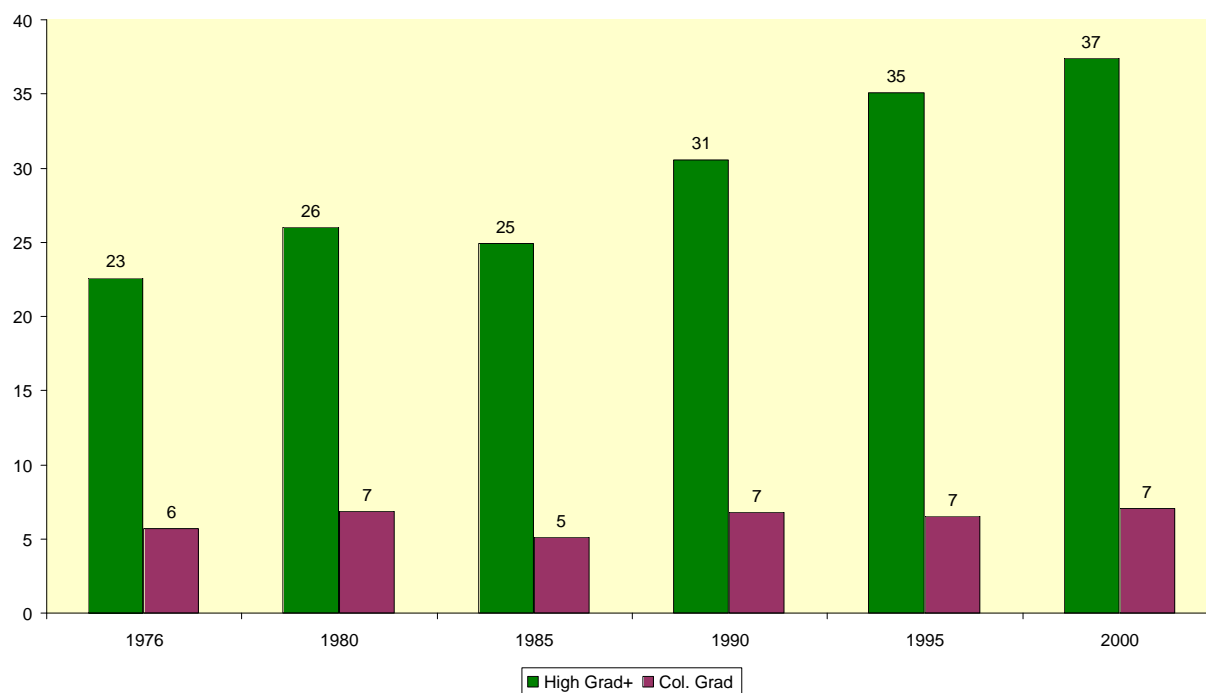


Table 18
Distribution of Employed College Graduates by Major Occupations, 1976-2000

	Percent						Change					
	1976	1980	1985	1990	1995	2000	1976-80	1980-85	1985-90	1990-95	1995-2000	1976-2000
College Graduate												
Professional	60.8	53.6	48.0	43.5	41.2	37.7	-7.1	-5.6	-4.5	-2.3	-3.5	-23.0
Administrative	4.7	6.4	5.7	6.1	6.9	8.6	1.7	-0.7	0.4	0.8	1.7	3.9
Clerical	19.4	19.2	20.6	19.3	19.0	18.7	-0.2	1.4	-1.3	-0.3	-0.3	-0.7
Sales	5.5	9.4	11.0	13.7	14.1	15.7	3.9	1.6	2.7	0.4	1.7	10.3
Service	2.6	3.0	4.2	4.4	4.5	5.7	0.4	1.2	0.2	0.1	1.2	3.1
Agriculture	3.4	3.3	4.9	5.5	6.3	5.4	-0.1	1.6	0.6	0.8	-0.9	2.0
Production	3.4	4.9	5.5	6.7	7.5	7.7	1.4	0.6	1.2	0.8	0.3	4.3
Not adequately classified	0.2	0.1	0.0	0.8	0.5	0.4	-0.2	-0.1	0.8	-0.2	-0.1	0.2

Source: NSO, LFS Various Years

Table 19

Distribution of Employed College Graduates by Industry, (%) 1988, 1995, 2000

Percent

Industry	1988	1995	2000	Change		
				1988-1995	1995-2000	1988-2000
Both Sexes						
Agriculture, Fishery and Forestry	6.5	6.2	5.7	-0.2	-0.5	-0.8
Industry	12.8	12.7	12.8	-0.1	0.1	0.0
Mining and Quarrying	0.3	0.2	0.2	-0.2	0.0	-0.1
Manufacturing	8.6	9.0	9.1	0.4	0.1	0.5
Electricity, Gas and Water	1.6	1.3	1.0	-0.3	-0.2	-0.5
Construction	2.3	2.3	2.5	-0.1	0.3	0.2
Services	80.7	81.1	81.4	0.3	0.4	0.7
Wholesale and Retail Trade	14.3	14.3	17.4	-0.1	3.1	3.0
Transportation, Storage and Communication	3.5	4.3	5.4	0.9	1.1	2.0
Financing, Insurance, Real Estate and Business Services	7.9	9.7	9.7	1.8	0.0	1.8
Community, Social and Personal Services	55.0	52.8	49.0	-2.2	-3.8	-6.1
Activities not elsewhere Classified	0.0	0.0	0.0	0.0	0.0	0.0
Male						
Agriculture, Fishery and Forestry	11.3	10.9	9.7	-0.5	-1.1	-1.6
Industry	17.9	18.7	17.3	0.9	-1.4	-0.5
Mining and Quarrying	0.6	0.4	0.4	-0.2	0.0	-0.2
Manufacturing	10.3	11.9	10.9	1.6	-1.0	0.6
Electricity, Gas and Water	2.5	2.2	1.5	-0.3	-0.7	-1.0
Construction	4.4	4.2	4.6	-0.2	0.4	0.2
Services	70.8	70.4	73.0	-0.4	2.6	2.2
Wholesale and Retail Trade	12.5	12.4	14.7	-0.1	2.3	2.2
Transportation, Storage and Communication	5.2	6.9	8.7	1.7	1.8	3.5
Financing, Insurance, Real Estate and Business Services	9.0	10.6	9.0	1.6	-1.6	0.0
Community, Social and Personal Services	44.1	40.5	40.5	-3.6	0.1	-3.5
Activities not elsewhere Classified	0.0	0.0	0.0	0.0	0.0	0.0
Female						
Agriculture, Fishery and Forestry	2.6	2.7	2.6	0.1	-0.1	0.1
Industry	8.8	8.1	9.4	-0.7	1.3	0.6
Mining and Quarrying	0.1	0.0	0.1	-0.1	0.1	0.0
Manufacturing	7.2	6.8	7.7	-0.4	0.9	0.4
Electricity, Gas and Water	0.8	0.5	0.7	-0.3	0.1	-0.1
Construction	0.6	0.8	0.9	0.1	0.2	0.3
Services	88.6	89.2	87.9	0.6	-1.3	-0.7
Wholesale and Retail Trade	15.8	15.7	19.4	-0.1	3.7	3.6
Transportation, Storage and Communication	2.1	2.4	2.9	0.3	0.5	0.8
Financing, Insurance, Real Estate and Business Services	7.0	9.0	10.2	2.0	1.2	3.2
Community, Social and Personal Services	63.8	62.2	55.4	-1.6	-6.7	-8.3
Activities not elsewhere Classified	0.0	0.0	0.1	0.0	0.1	0.1

Source of Basic Data: NSO, LFS

Table 20

Distribution of Employed College Graduates by Class of Worker, (%), 1988, 1995, 2000

Class of Worker	1988	1995	2000	Change		
				1988-1995	1995-2000	1988-2000
Both Sexes						
Wage & Salary Worker	81.2	79.6	77.9	-1.6	-1.6	-3.3
Private household			0.6			
Worked for private employer	35.1	38.3	40.9	3.2	2.6	5.8
Worked for government/government corporation	45.4	40.5	35.5	-4.9	-5.0	-9.9
Worked with pay in own family-operated farm or business	4.0	3.3	4.2	-0.6	0.8	0.2
Self-employed	14.8	17.1	17.9	2.3	0.8	3.1
Self-employed without any employee	10.5	13.1	13.4	2.5	0.3	2.9
Employer in own family-operated farm or business	4.3	4.0	4.5	-0.3	0.5	0.2
Unpaid family worker	0.7	0.8	0.9	0.1	0.1	0.3
Not reported	0.0	0.0	0.0	0.0	0.0	0.0
Male						
Wage & Salary Worker	76.8	74.8	73.4	-2.1	-1.3	-3.4
Private household			0.5			
Worked for private employer	38.5	42.1	42.6	3.6	0.4	4.1
Worked for government/government corporation	37.5	31.7	29.2	-5.8	-2.6	-8.3
Worked with pay in own family-operated farm or business	0.8	0.9	1.1	0.1	0.3	0.3
Self-employed	19.4	22.4	23.0	3.0	0.7	3.6
Self-employed without any employee	12.8	16.3	15.8	3.5	-0.5	3.0
Employer in own family-operated farm or business	6.6	6.1	7.2	-0.5	1.2	0.6
Unpaid family worker	3.8	2.9	3.5	-0.9	0.7	-0.2
Not reported	0.0	0.0	0.0	0.0	0.0	0.0
Female						
Wage & Salary Worker	84.7	83.2	81.4	-1.5	-1.8	-3.3
Private household			0.6			
Worked for private employer	32.4	35.4	39.7	2.9	4.3	7.3
Worked for government/government corporation	51.7	47.1	40.3	-4.6	-6.8	-11.4
Worked with pay in own family-operated farm or business	0.6	0.7	0.8	0.2	0.0	0.2
Self-employed	11.1	13.0	13.9	1.9	0.9	2.8
Self-employed without any employee	8.7	10.6	11.6	1.9	0.9	2.8
Employer in own family-operated farm or business	2.4	2.4	2.4	0.0	0.0	0.0
Unpaid family worker	4.2	3.7	4.6	-0.5	0.9	0.5
Not reported	0.0	0.0	0.0	0.0	0.0	0.0

Source of Basic Data: NSO, LFS

Table 21
Rates of Return, Elaborate Method, Latest Year

Country/Continent	Social			Private			Extent of Subsidization		
	Primary	Secondary	Higher	Primary	Secondary	Higher	Primary	Secondary	Higher
Philippines (1988)	13.3	8.9	10.5	18.3	10.5	11.6	37.6	18.0	10.5
Asia	19.9	13.3	11.7	39	18.9	19.9	96.0	42.1	70.1
Sub-Saharan Africa	24.3	18.2	11.2	41.3	26.6	27.8	70.0	46.2	148.2
Europe/M. East/N. Africa	15.5	11.2	10.6	17.4	15.9	21.7	12.3	42.0	104.7
OECD	14.4	10.2	8.7	21.7	12.4	12.3	50.7	21.6	41.4
Upper Middle Income	14.3	10.6	9.5	21.3	12.7	14.8	49.0	19.8	55.8
High Income	-	10.3	8.2	-	12.8	7.7	24.3	-	-6.1

Source: Psacharopoulos (1993) "Returns to Investment in Education: A Global Update, WPS 1067 World Bank.

Table 22
Past Estimates of the Rates of Return

	Williamson, De Vortex ^a	ILO	Dumalo & Arcelo	Laya	Tan & Paqueo	Hossain & Psacharo- poulos
Year	1966	1971	1977	1985	1985	1988
<i>Social Returns</i>						
Primary	8.0	6.5			11.9	13.3
Secondary	21.0	6.0	16-20		12.9	8.9
Higher	11.0	7.0	8.5		13.3	10.5
<i>Private Returns</i>						
Primary	9.0	8.0			18.2	18.3
Secondary	29.0	6.0		22	13.8	10.5
Higher	12.0	8.0	16		14.0	11.6
<i>Extent of Subsidization^b</i>						
Primary	12.5	23.1			52.9	37.6
Secondary	38.1	0.0	37.5-10.0		7.0	18.0
Higher	9.1	14.3	88.2		5.3	10.5

^a public education; Williamson, J. and D. Voretz " Education as an asset in the Philippine economy, in M. B.

^b defined as the percentage difference between private and social returns

**Table 23. Rate of Return Estimates, Full Method, Complete Cycle, and Mincerian
Salary and Wage Workers, Direct Cost from Maglen and Manasan**

Year	Both Sexes					Male					Female				
	Elementary Grad vs. No Grade	Secondary Grad vs. Elementary Grad	College Grad vs. Secondary Grad		Mincerian Coefficient	Elementary Grad vs. No Grade	Secondary Grad vs. Elementary Grad	College Grad vs. Secondary Grad		Mincerian Coefficient	Elementary Grad vs. No Grade	Secondary Grad vs. Elementary Grad	College Grad vs. Secondary Grad		Mincerian Coefficient ^a
Private Returns															
1988	21.6	(17.5)	15.3	14.6	13.8	21.6	(17.3)	13.0	15.3	12.4	25.3	(21.3)	16.7	17.7	17.39 (17.39)
1990	27.0	(21.3)	14.3	15.5	14.2	32.2	(25.6)	11.6	18.1	12.7	19.6	(15.2)	15.5	17.7	18.06 (16.36)
1995	24.0	(19.9)	14.3	15.8	14.0	26.2	(21.9)	12.7	17.6	13.0	18.4	(14.9)	14.6	17.0	17.41 (15.94)
Social Returns															
1988	13.3	(12.5)	14.9	14.2		13.8	(12.7)	12.7	14.9		13.8	(13.1)	16.2	17.2	
1990	15.1	(14.1)	13.5	14.6		18.1	(16.9)	11.0	17.1		10.1	(9.3)	14.5	16.5	
1995	15.5	(14.1)	13.5	15.6		17.0	(15.5)	11.9	17.4		11.4	(10.1)	13.7	16.8	
Degree of Subsidization															
1988	62.4	(40.0)	2.7	2.8		56.5	(36.2)	2.4	2.7		83.3	(62.6)	3.1	2.9	
1990	78.8	(51.1)	5.9	6.2		77.9	(51.5)	5.5	5.8		94.1	(63.4)	6.9	7.3	
1995	54.8	(41.1)	5.9	1.3		54.1	(41.3)	6.7	1.1		61.4	(47.5)	6.6	1.2	

Note: Values in () assumes 10% of the earnings of age 19 are forgone by ages 7 to 10 for sensitivity analysis
^a Those in parenthesis are coefficients from with Heckman self-selection correction, others are OLS estimates
Source: Gerochi (2002)

Figure 9. Relative Contribution of Physical Capital, Labor Quantity and Quality, 1961-1991 (Alonzo, 1995)

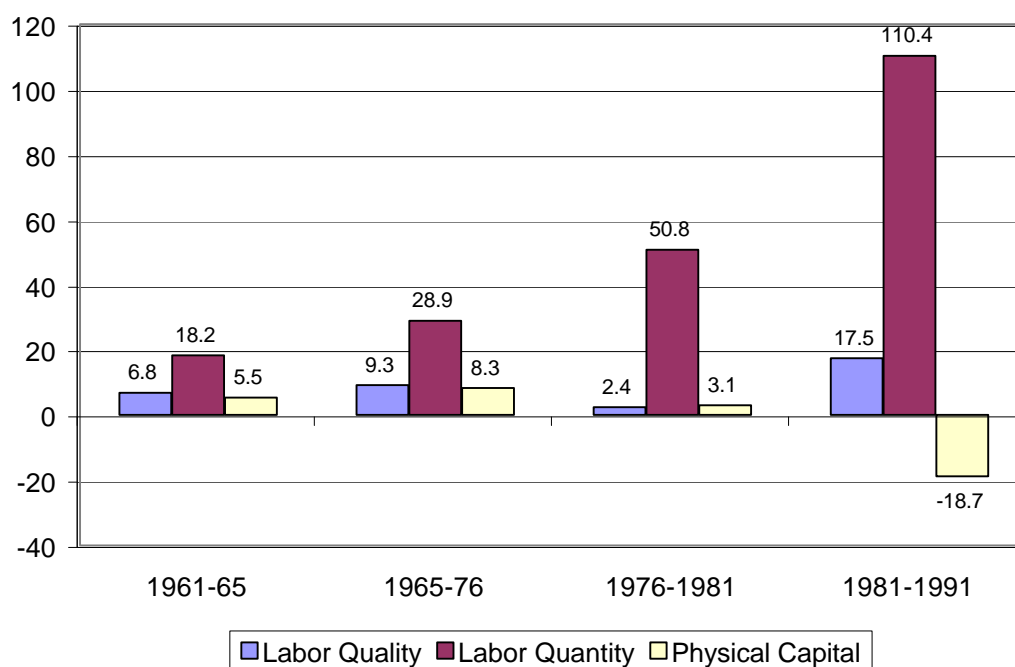


Figure 10. Contribution of Labor Quality to TFP Growth (Cororaton, 2002)

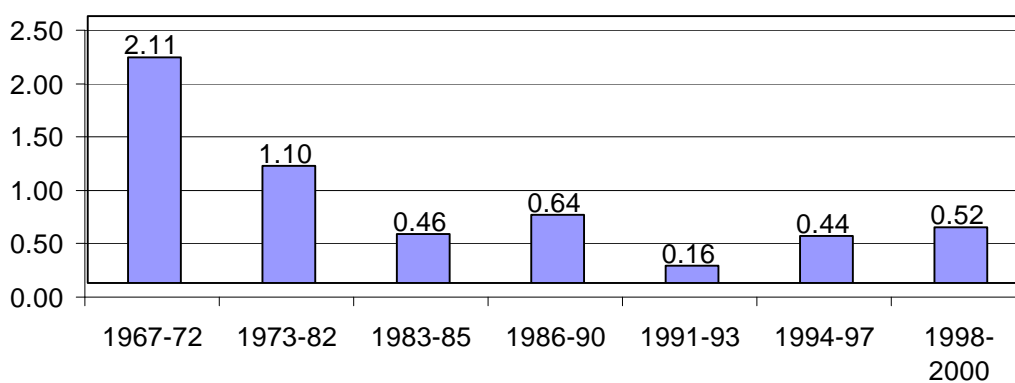


Table 24

School Attendance of School-age Population* By Income Decile By Level, 1988, 2000

Income Decile		2000				1988			
		Total	Elementary	Secondary	Tertiary	Total	Elementary	Secondary	Tertiary
Total									
	lowest	64.5	90.1	70.8	24.4	60.6	90.7	65.9	23.4
	2	65.0	92.9	76.4	26.4	60.0	93.1	67.0	23.5
	3	63.1	94.8	80.1	26.5	58.5	95.9	72.3	21.2
	4	66.2	96.5	83.8	32.6	57.7	94.1	74.8	23.6
	5	64.2	97.5	84.5	32.8	60.9	95.9	79.7	27.4
	6	66.3	95.4	91.2	34.9	58.2	95.7	83.0	28.1
	7	66.3	97.2	89.5	39.7	58.1	98.5	85.4	30.2
	8	64.3	97.5	93.4	38.2	59.4	97.9	83.7	34.9
	9	68.5	97.9	93.0	47.6	63.6	97.2	85.1	41.4
	highest	63.1	98.5	86.8	45.8	60.4	97.9	84.7	40.8
	Total	65.0	94.9	83.6	35.5	59.6	94.9	76.7	29.8
	Max-Min Diff.	5.4	8.3	22.6	23.2	5.9	7.8	19.4	20.3
	Female-Male Diff.	3.3	1.6	5.3	2.2	3.2	2.6	5.6	0.4
	Urban-Rural Diff.	1.5	2.5	8.3	6.1	4.6	3.8	11.5	10.7
Male									
	lowest	59.3	88.4	64.8	22.7	55.9	86.1	60.5	23.4
	2	60.6	91.8	70.8	23.9	54.2	90.9	60.1	20.3
	3	59.4	93.0	77.0	24.7	55.2	95.7	71.2	16.3
	4	62.3	96.2	78.5	28.3	55.4	94.9	71.2	21.1
	5	61.5	96.4	80.8	30.8	57.4	93.9	73.9	27.8
	6	64.7	94.7	90.7	32.1	56.3	94.2	81.3	26.1
	7	65.9	98.0	87.9	38.0	57.1	98.7	83.2	31.4
	8	64.9	98.1	93.6	39.4	59.4	98.4	83.5	36.0
	9	72.5	98.4	96.5	52.4	66.6	95.8	88.1	44.7
	highest	72.5	99.0	92.7	55.4	71.6	99.3	92.7	53.4
	Total	63.6	94.2	81.0	34.4	58.1	93.7	73.9	29.6
	Max-Min Diff.	13.2	10.6	31.7	32.7	17.4	13.2	32.7	37.1
Female									
	lowest	70.6	92.0	77.2	26.9	65.8	95.2	71.9	23.4
	2	70.3	94.1	82.8	30.1	66.5	95.1	74.7	27.6
	3	67.7	96.8	83.6	28.9	62.1	96.2	73.4	27.1
	4	70.6	96.9	89.4	37.6	60.3	93.3	79.0	26.5
	5	67.4	98.9	88.5	35.2	64.8	97.9	85.7	27.0
	6	68.1	96.2	91.7	38.1	60.5	97.5	84.9	30.4
	7	66.7	96.4	91.2	41.4	59.2	98.4	87.7	28.9
	8	63.7	96.9	93.2	37.1	59.4	97.3	83.9	33.7
	9	64.7	97.5	89.8	43.0	60.9	98.8	82.5	38.6
	highest	55.6	98.0	80.7	39.2	52.0	96.5	78.6	32.4
	Total	66.9	95.8	86.3	36.6	61.3	96.3	79.5	30.0
	Max-Min Diff.	15.0	6.9	16.0	16.1	14.4	5.5	15.8	15.2
Urban									
	lowest	67.9	89.0	76.5	29.5	65.4	90.8	70.5	37.0
	2	69.9	93.7	79.2	36.2	66.4	93.8	75.6	34.9
	3	64.0	95.3	80.5	25.8	62.9	97.7	81.0	25.5
	4	67.7	96.2	88.3	31.4	63.2	98.3	83.7	28.0
	5	66.6	97.8	86.4	32.2	66.2	96.6	87.5	33.1
	6	66.2	95.3	91.8	34.2	63.0	98.2	90.2	30.4
	7	66.0	97.9	91.1	38.3	61.8	99.4	87.3	37.4
	8	64.8	98.1	92.9	39.5	61.2	99.5	84.3	36.5
	9	66.9	98.3	92.9	45.6	63.4	97.2	86.2	41.5
	highest	62.8	98.2	86.6	45.6	59.6	98.4	83.3	41.4
	Total	65.9	96.4	88.2	38.4	62.6	97.5	84.4	36.2
	Max-Min Diff.	7.1	9.4	16.4	19.8	6.8	8.7	19.7	16.0
Rural									
	lowest	64.0	90.3	70.0	23.5	60.1	90.7	65.5	22.0
	2	63.6	92.6	75.7	23.8	58.9	93.0	65.6	21.4
	3	62.8	94.6	80.0	26.8	57.1	95.3	69.8	19.8
	4	65.3	96.7	81.1	33.3	55.7	92.6	71.7	22.0
	5	62.0	97.2	82.5	33.2	58.3	95.5	76.3	24.6
	6	66.5	95.5	90.2	36.0	55.3	94.0	78.6	26.8
	7	66.9	96.0	87.0	42.2	55.0	97.8	83.9	24.0
	8	63.0	95.8	94.5	34.8	57.3	95.8	82.9	33.1
	9	73.5	96.7	93.5	54.2	64.0	97.3	83.5	41.4
	highest	64.5	100.0	87.5	46.7	62.5	96.8	88.0	39.2
	Total	64.5	93.8	79.9	32.3	58.0	93.8	72.9	25.6
	Max-Min Diff.	11.5	9.7	24.5	30.7	9.0	7.1	22.5	21.6

Source of Basic Data: Merged 1988, 2000 FIES & October LFS

*Elementary: 10-12 years; Secondary: 13-16 years; Tertiary: 17-24 years

Figure 11. School Attendance By Income Decile By Level, 1988, 2000

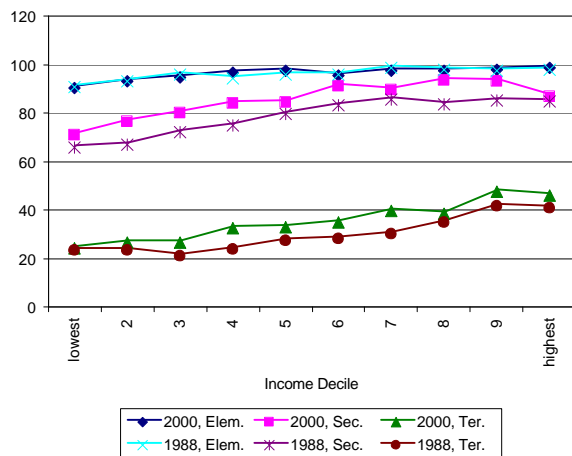


Figure 12. Secondary and Tertiary School Attendance By Income Decile, Males, 1988, 2000

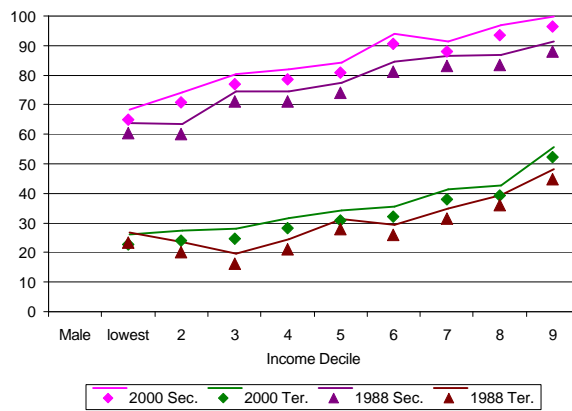


Figure 13. Secondary and Tertiary School Attendance By Income Decile, Female, 1988, 2000

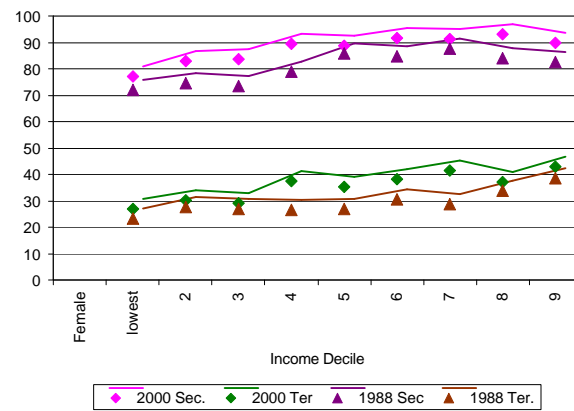


Figure 14. Secondary and Tertiary School Attendance By Income Decile, Urban, 1988, 2000

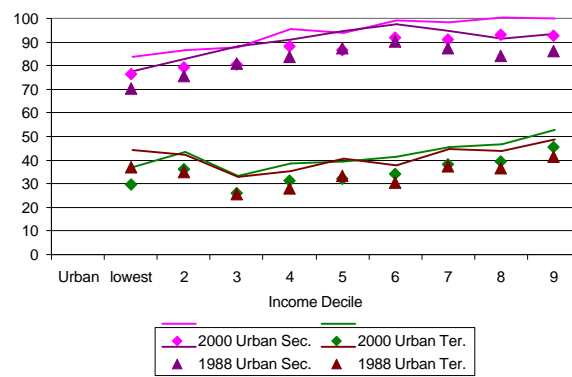


Figure 15. Secondary and Tertiary School Attendance By Income Decile, Rural, 1988, 2000

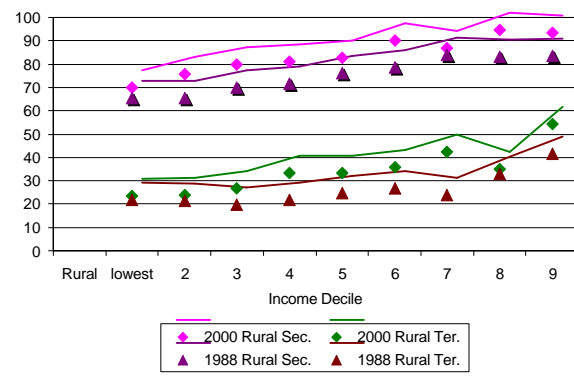


Table 25
School Attendance of School-age Population*
by Education of Household Head; 1988, 2000

	Total	Elementary	Secondary	Tertiary
<i>Change 1988-2000</i>				
No Grade	3.3	-1.0	5.8	2.6
Elementary	7.3	0.5	10.1	7.9
High school	11.2	0.9	6.3	17.3
College	1.9	-0.5	3.7	2.8
<i>2000</i>				
No Grade	50.6	84.0	66.8	22.7
Elementary	63.3	94.7	82.0	31.3
High school	75.6	98.0	92.7	51.0
College	72.0	97.0	90.4	51.1
<i>Differentials vs No Grade</i>				
Elementary	12.6	10.7	15.2	8.6
High school	24.9	14.1	25.9	28.3
College	21.4	13.0	23.6	28.4
<i>1988</i>				
No Grade	47.4	85.0	61.0	20.1
Elementary	56.0	94.2	71.9	23.4
High school	64.3	97.2	86.4	33.7
College	70.1	97.5	86.6	48.3
<i>Differential vs No Grade</i>				
Elementary	8.6	9.2	11.0	3.3
High school	17.0	12.2	25.4	13.7
College	22.8	12.5	25.6	28.2

Source of Basic Data: LFS 1988, 2000 October Round

*Elementary: 10-12 years; Secondary: 13-16 years; Tertiary: 17-24 years

Table 26
Employment by Occupation of Fathers and College Graduates, %; 1978, 1981, 1995

Occupation	HELMS I (1978)		HELMS II (1981)		CHED Tracer Study (1995)	
	Father	Graduate	Father	Graduate	Father	Graduate
Professional & Technical	17.1	42.7	27.6	68.7	13.2	44.4
Administrative Managerial & Executive	10.7	6.0	16.4	4.9	10.9	11.5
Clerks	6.6	37.0	7.6	13.4	2.7	26.3
Sales	9.9	1.8	12.1	5.0	25.9	9.4
Service		2.1	4.2	0.6	6.9	3.1
Agriculture	32.5	0.7	14.1	3.6	20.4	0.4
Production, Transport & Laborers	12.2	9.3	11.6	2.7	19.9	4.8
Others	11.0	0.5	6.6	1.1	0.0	0.3

Source: 1978, 1981 Arcelo (1989); 1995 CHED Tracer Study
* for graduates in 1978, 1981 includes agriculture, sales, service

Table 27
Distribution of Manufactured Exports by Technological Categories

Technological Category	Philippines		World Ave.	
	1980	1990	1995	1995
Resource based	34.0	21.8	11.1	15.1
Labor-intensive	47.9	40.8	32.3	17.9
Scale-intensive	9.0	9.9	8.3	23.7
Differentiated	4.3	9.2	13.9	23.4
Science-based, of which:	4.8	18.3	34.4	19.9
Technologically complex	18.1	37.4	56.7	67.0
High-tech	9.1	27.5	48.3	43.3

Source: Maglen and Mansan (1999) Table 2.11 citing World Bank (1997), Managing Global Integration, Extracted from Tables 2.4 and 2.6 as basic source of data.

"Technologically complex" includes scale-intensive, differentiated and science-based products. "High technology" are differentiated and science-based products