A COMPARISON OF PUBLIC AND PRIVATE SECTOR EARNINGS IN JORDAN

A STUDY FOR THE MINISTRY OF LABOUR, GOVERNMENT OF JORDAN, AND THE INTERNATIONAL LABOUR OFFICE

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EXECUTIVE SUMMARY

The objective of this study is to analyze the differences in wages between the private and the public sector in Jordan and their impact on employment in the private sector. The terms of reference for the study specify that it should include the following elements:

• An overview of the general economic context and labour market structure in Jordan;

• A review of statistical methodologies to estimate the size of private–public sector wage gaps;

• Descriptive statistics comparing average wages and size of employment in the public and the private sectors, with disaggregation by sex and education;

• Econometric analysis of the public–private sector wage gaps;

• A review of the recruitment and wage practices in force in the public sector,

• An evaluation of the size and direction of public–private wage gap and its possible effects on employment and on labour supply to the private and public sectors; and

• Policy recommendations.

The overall view of the economic context comprises an abstract outline of how the analysis of pay determination in a labour-surplus economy can be expected to differ from the conventional model, and a practical description that draws mostly on a recent World Bank study (World Bank, 2007).

The review of statistical methodologies for estimating private-public sector wage gaps summarizes accepted practice.

The main data resources are the Employment and Unemployment Survey and the Employment Survey, the first a quarterly household survey and the second an annual establishment survey undertaken by the Department of Statistics. The data are used to analyze the relationship between earnings, sector, sex, education, and age first graphically, and second econometrically, with essentially similar conclusions. The data re also used to disaggregate two working-age population be sex, age, education, and status of economic activity (employed/unemployed/inactive, with inactive further disaggregated into those who do not want employment and those who would consider employment but have not searched for it (the 'discouraged').

The main empirical findings may be summarized as follows:

• For individuals of both sexes with secondary education or less, the public sector pays more, on average, than the private sector, despite being more attractive in terms of job security, shorter hours, and, perhaps, easier working conditions

• For male university graduates, the private sector pays more than the public sector, on average, while for female graduates the sectors pay approximately the same. However, the distributions of earnings for both sexes are much wider in the private sector

• The labour force participation rate of females with secondary education or less is very low.

• Among those who are economically active, the unemployment rate is generally higher for females than for males, for most levels of education.

• In terms of the numbers involved, unemployment is most serious among females with bachelor's degrees or intermediate diplomas and males with basic education. It is also a widespread problem for males with bachelor's degrees.

The main policy concerns arising from the analysis are:

• Since the whole structure of wages in a labour-surplus economy is to some extent artificial, there is a need to ensure that the general level of public sector wages is appropriate. Given the constraints on government revenues, the many other demands on government resources, and the undesirability of discouraging the growth of the private sector by imposing any unnecessary burden on it, it is important to ensure that the aggregate public sector wage bill is not excessive.

- Earnings incentives to complete secondary education and enter higher education appear to be undermined by the flatness of the education-earnings profile in the public sector. The willingness of the public sector to hire significant numbers of those who have not completed secondary education and to pay them generously appears to be a particular issue, given Jordan's objective of becoming a knowledge economy.

- The generous pay offered to the less-educated may reduce inequality among public sector employees, but it exacerbates inequality between them and their counterparts who are not successful in obtaining public sector employment.

- The establishment of a minimum wage may have moderated inequality between less-educated employees in the public and private sectors, but it will have done nothing for those who do not have employment at all.

- For both sexes, the distribution of the earnings of holders of bachelor's degrees in the public sector lies largely within the corresponding distribution for the private sector, with fewer high earnings and fewer low ones. These observations are consistent with the hypothesis that the public sector requires a narrower range of skills than the private sector and is paying competitively. But they are also consistent with the hypothesis that the public sector might be paying too little for certain types of skill in short supply and too much for others that are abundant. It is not possible to discriminate between these hypotheses using survey data. The existence of a queue of unemployed university graduates is consistent with the hypotheses that the public sector is either overpaying or not being sufficiently selective, but it is not possible to draw definite conclusions from survey data alone. Only those in charge of recruitment for the Civil Service are in a position to know.

- In particular, there must be a concern whether the public sector recruitment of teachers is as selective as it might be. There is no competitive element in their recruitment, the points system of recruitment in principle delays, but does not prevent, the recruitment of individuals of mediocre academic ability, and it is not clear that the hiring process makes it possible to recruit high-calibre teachers in technical subjects. Only those directly involved in teacher recruitment will be able to assess these matters.

1. OBJECTIVES OF THE STUDY

The objective of this study is to analyze the differences in wages between the private and the public sector in Jordan and their impact on employment in the private sector. The terms of reference specified 'particularly for less skilled workers', but they also make it clear that the entire spectrum should be assessed. The analysis is intended to test the hypothesis that public sector wages are higher in the public sector than in the private sector and to evaluate the possible impact of the private–public wage gap on labour supply to the private sector and on employment in it. The terms of reference for the study specify that it should include the following elements:

- an overview of the general economic context and labour market structure in Jordan;
- a review of statistical methodologies to estimate the size of private–public sector wage gaps;
- descriptive statistics comparing average wages and size of employment in the public and the private sectors, as well as for some sub-sectors (such as distinguishing civil service from education and health in the public sector; and distinguishing the formal/informal economy in the private sector) and sub-categories of workers (by level of education, sex, nationality, and other characteristics that may be deemed as relevant in the Jordanian context);
- econometric analysis of the public–private sector wage gaps at different levels of education and for different categories of workers (by sex, nationality, age, etc.) using both the 'jobs approach' and the 'workers approach' and controlling for other relevant determinants of pay and possible selection bias (see above);
- a review of the recruitment and wage practices in force in the public sector and underpinning criteria and parameters;
- an evaluation of the size and direction of public–private wage gap and its possible effects on employment and on labour supply to the private and public sectors; and
- policy recommendations.

The study addresses these elements in the order that they have been listed above.

Section 2 discusses the analytical framework appropriate for understanding the structure of the labour market and factors affecting wage determination in a labour-surplus economy such as that obtaining at the present time in Jordan.

Section 3 provides a contextual overview, drawing mainly on those parts of an important recent World Bank study that are relevant to the present analysis.

Section 4 reviews statistical methodologies for evaluating wage gaps: descriptive statistics, econometric methods, the Blinder–Oaxaca decomposition, and informal methods.

Section 5 describes the data provided by the Department of Statistics that are used in most of the study: household data from the Employment and Unemployment Survey and enterprise data from the Employment Survey.

Section 6 analyzes the structure of earnings in the public and private sectors in terms of sex, education, and age, using both descriptive statistics and econometric analysis.

Section 7 provides a systematic examination of the population, labour force, employment, and unemployment in terms of sex, education, and age.

Section 8 examines in further detail those parts of the labour market that warrant especial concern, including, in so far as is possible with information in the public domain, a review of the recruitment and wage practices in force in the public sector and their impact on employment and on labour supply to the private and public sectors. The labour supply issues are treated from both short-run and long-run time perspectives. The short-run analysis assesses the impact of public sector recruitment and wage practices on unemployment by influencing some groups of individuals to remain unemployed in

the expectation of securing public sector employment, rather than accepting private sector employment on inferior terms. The long-run analysis assesses the impact of public sector recruitment and wage practices on the incentives for educational attainment, and hence the educational structure of future additions to the labour force in the years to come.

Section 9 discusses the relevance of the analysis for policy purposes.

2. A FRAMEWORK FOR THE ANALYSIS OF WAGE DETERMINATION IN A LABOUR-SURPLUS ECONOMY

In the empirical sections of this study that follow, comparisons will be made between the levels of pay in the public and private sectors, controlling as far as possible for the observable characteristics of employees. For policy purposes, such comparisons are only the stating point for the analysis. Having found that one sector pays more than the other for a certain category of employee, the following issues need to be addressed. Is the first sector paying 'too much'? Or is the second sector paying 'too little'? Or could *both* sectors in some sense be paying 'too much'? Or 'too little'?

To address such questions in an intellectually coherent fashion, one needs to refer to the theory of wage determination. Although it may be tempered by social, cultural, and political factors, wage determination theory is primarily economic. However, in its conventional form, it cannot be applied to a labour-surplus economy such as Jordan. The following notes are intended to give a brief outline of the issues and their consequences. Initially the discussion will be confined to wage determination in the private sector.

The conventional theory of wage determination

To put it very briefly, the conventional theory states that a profit-maximizing enterprise recruits workers up to the point where their marginal productivity is equal to the prevailing wage. Every enterprise takes the prevailing wage as given. The actual wage is determined by the interaction of the collective decisions of the enterprises with the factors that influence the supply of labour, the latter being determined by the collective decisions of those individuals who are (potentially) willing to work. At the heart of this theory is the assumption that the labour market clears, and the prevailing wage is that which brings supply and demand into alignment, apart from frictional unemployment associated with job mobility and transitory unemployment associated with cyclical macroeconomic fluctuations.

A problem with this theoretical apparatus is that it assumes that there is some non-zero wage that equates collective demand with collective supply. In a labour-surplus economy, where the labour market does not clear and the shadow price of labour is zero, it predicts that, as a first approximation, the prevailing wage will be zero. If there is a minimum wage, then instead it predicts that those who are employed will have to accept it. Otherwise, a lower bound may be set by considerations of a reservation wage or an efficiency wage, but nevertheless it may be very low indeed.

Labour heterogeneity

Although this model does seem to apply to at least part of the labour market in some countries, it is clearly not a realistic description of that in Jordan. One reason is that, as outlined in the foregoing remarks, the model has treated labour as if it were homogeneous. In practice, workers are differentiated by their skills. For the moment, suppose that 'skill' can be treated as a one-dimensional attribute that varies among individuals, the value of a worker to an enterprise being an increasing function of it. The prediction now is that there will be a critical level of skill. Workers possessing it will have productivity equal to the minimum wage and will be paid the minimum wage. Workers with less skill will be unemployed. Workers with greater skill will be more highly valued by employers and paid accordingly.

Heterogeneity in the level of skill can thus account for both heterogeneity in the level of pay of those who are employed and for the existence of unemployment. Further diversification in wage determination results from the observation that a variety of skills are relevant to different jobs. With

these considerations in mind, one can begin to construct a model that affords a recognisable conceptual representation of the labour market in Jordan.

The public sector

The foregoing remarks apply only to the private sector. Not being subject to the principle of profit maximization, there is no disciplinary process that will lead to a state of employment where wages reflect productivity. As a consequence, wages can be determined in any way that the authorities see fit. Such constraints as do exist will be of three kinds. First, the wages offered and the scale of employment must be such that the public sector has the ability to finance its wage bill, given its revenues. Second, individuals with superior credentials will be paid more than those with inferior ones. Third, for those categories of employee where the public sector competes with the private sector, there may be a need to set wages with reference to those obtaining in the latter.

In the case of the association of pay with credentials, universally the most influential credential is educational attainment, at least for new recruits. Educational pay differentials vary from country to country, usually being determined by social considerations founded on some notion of what is 'fair' or 'just'. The effect of these differentials on educational attainment itself is often overlooked. If the public sector is an important employer, as it is in many countries, including Jordan, the size of the differential associated with each level of education, and hence the size of the incentive to acquire that level of education, can be a strong influence on attainment itself. If progression is too flat, individuals may be tempted to terminate their formal education early. If it is too steep, the outcome may be an excess supply of overeducated workers. In any analysis of whether public sector wages are 'too high' or 'too low', this internal dimension may be just as important as relativities with the private sector. For this reason issues relating to it are addressed in this study.

With regard to the need to compete with the private sector for high-productivity workers in constrained supply, an important point needs to be made. In general, the private sector will pay according to the level of skill, while the public sector pays according to credential. The criteria are not the same. In particular, for example, university graduates differ greatly in their productivity. This is recognized by the private sector, with the consequence that there is typically wide variation in the pay of university graduates in that sector. By contrast, the pay of university graduates in the public sector is typically relatively homogeneous, the homogeneity sometimes being enforced by statute. Thus, in an evaluation of whether the public sector is paying 'too much' or 'too little' for the services of graduates, it is necessary to establish whether, in public sector recruitment and pay, there exist adequate provisions for taking account of the discipline of the graduate, the quality of his or her transcript, and the quality of the institution attended.

3. OVERVIEW OF THE GENERAL ECONOMIC CONTEXT

The options for a labour-surplus economy, especially one with limited natural resources, are few and well known.

One is to encourage economic growth. In Jordan, as in most countries, this means growth of manufacturing and services, since the scarcity of water implies that it will never have comparative advantage in agriculture. At best, even if accelerated by direct foreign investment, the creation of employment through economic growth is a slow process, and easily negated by an even faster growth of the population of working age.

Second, the problem of unemployment may be mitigated by migration to other countries, either temporarily or permanently. This, of course, has happened in Jordan, as it has in other labour surplus economies.

The issues have been analyzed at length important recent studies by the World Bank and Al Manar.

Resolving Jordan's Labor Market Paradox of Concurrent Economic Growth and High Unemployment, World Bank, 2007.

The World Bank study is addressed to the general economic issues affecting the Jordanian labour market, its objective being to provide a comprehensive analysis of the reasons for the coexistence of a high rate of unemployment for certain groups and a high rate of job creation. The study finds that many of the jobs created have not been attractive to Jordanian nationals at prevailing wage rates, and by default have been taken by foreigners. It draws on various data sources to investigate the reasons for the failure of Jordanian nationals to make use of the employment opportunities on offer. Among those considered are a lack of geographical mobility, a lack of technical skills, unrealistic expectations about finding public sector employment, unrealistic expectations concerning compensation and conditions of work in the private sector, and a bias on the part of employers towards the recruitment of foreigners. The study also looks at the prospects for macroeconomic remedies for unemployment. These include facilitating the creation of new enterprises and the diversification of exports. The study concludes by recommending a three-part strategy involving the replacement of policies that encourage the creation of low-wage jobs, such as those typically found in the Qualified Industrial Zones, with others that promote high-wage jobs, policies to improve the employability of the labour force, and incentives to encourage the voluntarily unemployed to accept existing jobs at present taken by foreigners.

To supplement the findings of the World Bank study, one might make two additional observations. One is that the severity of the unemployment problem is probably to some extent disguised by the low labour force participation rate of women with less than higher education. In Jordan, as elsewhere, the participation rate for prime-age males, and for females with higher education, is generally high. However, that for females with less than higher education is very low indeed. This may reflect cultural, institutional, and even legislative factors, as documented in the Al Manar study of Peebles, Darwazeh, Ghosheh, and Sabbagh (c.2007), but to some extent the low participation rate is likely to be endogenous, the outcome of the very low wages on offer in the private sector resulting from the excess supply of labour. This implies that, even if the rate of job creation accelerates, the present problem of a high rate of unemployment is likely to persist. If labour demand increases, any improvement in working conditions, most especially rates of pay, is likely to generate an increase in labour supply, as those previously economically inactive find the rewards of employment more attractive. As a

consequence, unemployment rates will decline slowly, if at all, until the latent reserve of labour is exhausted.

A second comment relates to the construction sector, which has been the driving force behind much of recent economic growth. The construction sector is typically the most volatile major sector of any economy. In Jordan, propelled by investments from remittances, the wealth of Iraqi immigrants, and other factors, the construction sector is currently a force for growth at what must be an unsustainable rate. The time will inevitably come when activity in the sector is greatly diminished, and this will entail a large-scale loss of jobs. Thus, in the long run, the reluctance of Jordanian nationals to enter construction occupations may not in fact have a significant adverse effect on the rate of unemployment.

Labor Market Conditions in Jordan, 1995–2006: An Analysis of Microdata Sources, Ragui Assaad and Mona Amer, National Center for Human Resources Development, Al Manar Project, 2008

As its title suggests, the Assaad and Amer study is focused on the identification and analysis of trends in the labour market over its stated period. The study has two objectives. One, addressed in the first three chapters, is to analyze changes in labour supply and labour utilization from 1995 to 2006, using data from successive rounds of the Employment and Unemployment Survey and the Employment Survey (for descriptions, see Section 5). The other objective, addressed in the fourth and final chapter, is to construct detailed wage index numbers for two periods, 1994–1998 and 2000–2003, by sector and nationality and, for Jordanians only, sector and sex, industry, and occupation. The discontinuity is attributable to a substantial change in the sampling frame in 1999 as a consequence of an Establishment Census undertaken in that year. Assaad and Amer report that there was a further change in the conceptual framework of the ES in 2004 and for that reason terminated their second subperiod in 2003.

With regard to labour supply, the study shows that, with a relatively young population, the population of working age will continue to grow rapidly in the coming years. This will be mitigated, but in the short term by no means offset, by a reduction in the size of new cohorts. According to their data, the maximum cohort size must have occurred around 1995. The 5–9 age group as the largest in the 2000 data and 10–14 in the 2006 data. This is confirmed by the data for the first and second quarters of 2009, where the peak is among those aged 12–14. They confirm that the labour force participation rate of males is low, and that of females very low, the figures for 2006 being 66.7 percent and 12.4 percent, respectively. They find that these rates have actually fallen for both sexes between 2000 and 2006, but this might be an artefact attributable to the fact that, of individuals aged 15 or more, the proportion still in school, not excluded from their estimates, has been growing.

4. REVIEW OF STATISTICAL METHODOLOGIES FOR ESTIMATING THE SIZE OF PRIVATE–PUBLIC SECTOR WAGE GAPS

There are two main approaches to comparisons of pay in the public and private sectors. One is through the use of sample data and formal statistical analysis. The other is by drawing on the day-to-day experience of those making recruitment decisions in the public and private sectors. This exposition will start with the former. It should be stated from the outset that it is unlikely that one can reduce a comparison of wages to a meaningful single value. Employees differ by sex, education, age, just to mention three important characteristics, and public–private sector differentials, if they exist, are unlikely to be uniform over these dimensions.

Formal statistical methodologies

Formal statistical methods can be divided into the use of descriptive statistics and the use of more technical methods, for example, econometrics.

Descriptive statistics

The standard tool of descriptive analysis is the cross-tabulation, with mean earnings, and sometimes other diagnostic statistics, in the public and private sectors being cross-classified by employees' characteristics. Comparing earnings for each characteristic separately is likely to lead to meaningless results because it fails to control for the effects of the excluded characteristics. The cross-classification approach has the merit of being relatively robust and transparent in the interpretation of the findings. The main drawback is that it may be difficult to summarize the information that it yields. For example, if the workers are classified by sex, education with, say, eight categories, and age group with, say, another eight categories, there would be 128 cells in all, each of them providing some estimate of a wage gap.

Econometric analysis

There is a very large literature on the econometric estimation and analysis of wage gaps. Much of it has been stimulated by a desire to understand the factor behind two very specific issues: the strong tendency for males to earn more than females everywhere, and for whites to earn more than blacks in the United States. However, the methodology is general and can be applied to any two groups. Public and private sector employment is a good example.

The simplest method of comparing public and private sector earnings using regression analysis is to fit a wage equation that includes a dummy variable for one of the sectors. For example, one could define a variable *PUB* that is equal to 1 for public sector workers and 0 for private sector workers. To keep the analysis simple, suppose that there is only one other variable, years of schooling, *S*. We could fit the equation

$$\ln Y = \beta_1 + \beta_2 S + \delta PUB + u \tag{4.1}$$

where *Y* is earnings per unit of time, *S* is years of schooling, *PUB* is the dummy variable, and *u* is a disturbance term assumed to comply with the usual regression model assumptions. For various econometric reasons, this is by far the best mathematical specification (Heckman and Polachek, 1974; Dougherty and Jimenez, 1991). The unit of time is unimportant for the principles of the methodology. Hourly earnings is very common, but weekly, monthly, or even yearly earnings might in some contexts be more appropriate. For sake of exposition, monthly earnings will be assumed here.
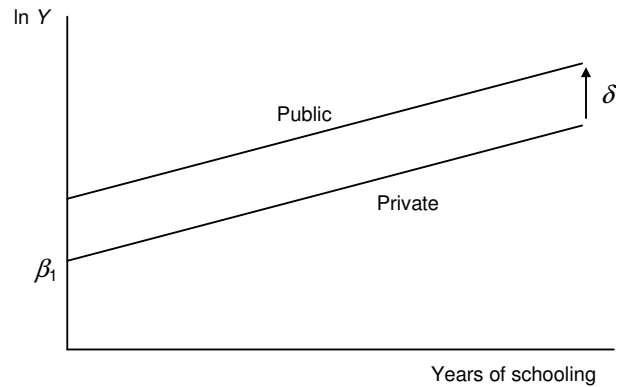
Figure 4.1. Earnings and schooling, same schooling effect

Ignoring the disturbance term, the model may be represented graphically as shown in the Figure 4.1. The basic relationship $Y = \beta_1 + \beta_2 S$ relates to the private sector, and the δ represents the shift in the function for observations relating to the public sector. In the diagram, δ has been represented as being positive, but this is not an in-built assumption. It could in principle be negative. The data will clarify the matter.

Given a sample of data, the model may be fitted as

$$\ln \hat{Y} = \hat{\beta}_1 + \hat{\beta}_2 S + \hat{\delta} PUB \tag{4.2}$$

the caret mark (circumflex) being used to distinguish an estimate of a parameter from its unknown true value.

This specification of the model embodies the restriction that the effect of schooling on earnings is the same in the public and private sectors. In practice, the effect may be different, in which case, Figure 4.2 might be a better graphical representation.
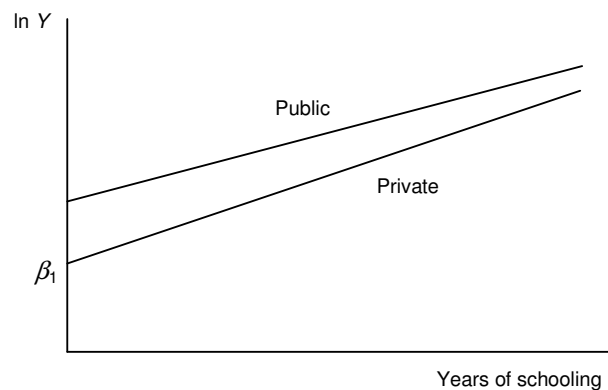

Figure 4.2. Earnings and schooling, different schooling effects

The relationships could be fitted using separate regressions for the public and private sectors or, equivalently at least as far as the point estimates are concerned, by extending the specification to include a slope (interactive) dummy variable *S*PUB* defined as the product of *S* and *PUB*.

$$\ln Y = \beta_1 + \beta_2 S + \delta PUB + \lambda S * PUB + u \qquad (4.3)$$

The estimate of δ measures the increase in the intercept for the public sector, relative to that of the private sector, and the estimate of λ measures the increase in its slope coefficient, relative to that of the private sector. Those in the public sector still unambiguously earn more than those in the private sector, but the difference now depends on the level of schooling.
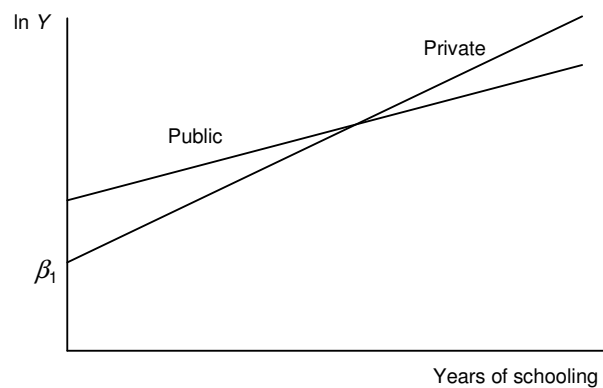

Figure 4.3. Earnings and schooling, different schooling effects

It could well happen that the differential in the schooling coefficient could cause the lines for the two sectors to cross, as in Figure 4.3. How can one now summarize the difference in public and private sector earnings? A sensible solution, generally the best option in practice, is not to try to summarize it at all. One says that the private sector pays better for high levels of schooling and the public sector for low levels of schooling and leaves it at that. Any attempt to reduce the relationship to a single statistic will be information-suppressive and may be misleading.

The foregoing discussion has assumed, for simplicity, that there is only the level of schooling affects the level of earnings. Of course, in practice, there are a very large number of characteristics that potentially could affect pay. In particular, years of work experience, *WE*, is generally very important. To include it in the model, one could re-write the specification as

$$\ln Y = \beta_1 + \beta_2 S + \beta_3 WE + \delta PUB + \lambda S * PUB + \mu WE * PUB + u \qquad (4.4)$$

The estimate of β_3 measures the impact on earnings of an additional year of work experience for an individual working in the private sector, and the estimate of μ provides a measure of the extra impact of a year of work experience for an individual working in the public sector.

The specification may be extended in this way to include all measurable characteristics thought likely to influence earnings. For each variable, one adds two terms. One is the variable itself, and its coefficient provides an estimate of a unit change in it on the earnings of an individual working in the private sector. The other term is a slope dummy, like *S*PUB* and *WE*PUB*, whose coefficient provides an estimate of the extra impact of a unit change for an individual working in the public sector. Provided that the specification is correct and that certain assumptions are valid, the multiple

regression technique provides unbiased estimates of the parameters of the model, even if the variables are correlated.

This exposition has, for convenience, described the parameters as if they were positive. There is no such prior assumption, in fact. A regression yielding sample data is likely to yield positive values for the estimates of the coefficients of S and WE, but the other coefficients could very well be negative. For example, earnings might in practice rise less rapidly with work experience in the public sector than in the private sector. In this case, the regression results should yield a negative estimate of the coefficient of *WE*PUB*.

The Blinder–Oaxaca decomposition

Typically a wage equation will have many explanatory variables, not just one, and this complicates intersectoral pay discussions. Further, there is always a large amount of variation in earnings that cannot be accounted for by measurable variables. Thus in practice, it is usually impossible to give a simple statement that earnings are systematically higher or lower in one sector than the other. Instead, one might ask a somewhat different, but related question. Why are mean earnings higher in one sector than the other? The Blinder–Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973) is a means, not always satisfactory, for obtaining an answer. Suppose that one writes the general relationship

$$\ln Y = \beta_1 + \sum_j \beta_j X_j + u \tag{4.5}$$

where the X_j are the explanatory variables (years of schooling, years of work experience, etc). Using superscript 1 for the public sector and 2 for the private sector, one fits the relationship separately for samples of observations using ordinary least squares (OLS) regression analysis:

Public sector
$$\ln \hat{Y}^1 = \hat{\beta}_1^1 + \sum_j \hat{\beta}_j^1 X_j^1 \tag{4.6}$$

Private sector
$$\ln \hat{Y}^2 = \hat{\beta}_1^2 + \sum_j \hat{\beta}_j^2 X_j^2 \tag{4.7}$$

Now, one of the properties of OLS is that the regression line passes through the sample means of the variables in the regression, so

Public sector
$$\overline{\ln Y^1} = \hat{\beta}_1^1 + \sum_j \hat{\beta}_j^1 \overline{X}_j^1 \tag{4.8}$$

Private sector
$$\overline{\ln Y^2} = \hat{\beta}_1^2 + \sum_j \hat{\beta}_j^2 \overline{X}_j^2 \tag{4.9}$$

One reason that $\overline{\ln Y^1}$ will be different from $\overline{\ln Y^2}$ is that the means of the characteristics—schooling, work experience, and so on—will be different in the two sectors. This is usually referred to as differences in *endowments* (sometimes described as *attributes*). But another reason is that the coefficients may be different. The valuation of an extra year of schooling may, and in fact usually will, be different in the two sectors. This is referred to as difference in prices. The following question then arises: how much of the difference in the means is due to differences in endowments, and how much to differences in prices?

The Blinder–Oaxaca decomposition attempts to answer this. We will assume, for expositorial convenience, that the mean of earnings is higher for the public sector, but this makes no difference in principle. Subtract (4.9) from (4.8), add and subtract the term $\sum_j \hat{\beta}_j^1 \overline{X}_j^2$, and re-arrange:

$$\overline{\ln Y^1} - \overline{\ln Y^2} = \hat{\beta}_1^1 + \sum_j \hat{\beta}_j^1 \overline{X}_j^1 - \hat{\beta}_1^2 - \sum_j \hat{\beta}_j^2 \overline{X}_j^2 + \sum_j \hat{\beta}_j^1 \overline{X}_j^2 - \sum_j \hat{\beta}_j^1 \overline{X}_j^2$$

$$= \sum_j \hat{\beta}_j^1 \left(\overline{X}_j^1 - \overline{X}_j^2 \right) + \left(\hat{\beta}_1^1 - \hat{\beta}_1^2 + \sum_j \left(\hat{\beta}_j^1 - \hat{\beta}_j^2 \right) \overline{X}_j^2 \right) \quad (4.10)$$

The first term in the decomposition, $\sum_j \hat{\beta}_j^1 \left(\overline{X}_j^1 - \overline{X}_j^2 \right)$, gives the portion of $\overline{\ln Y^1} - \overline{\ln Y^2}$ that is attributable to differences in the means of the endowments, using the public sector prices (coefficients) as weights, and the second term gives the portion that is attributable to the differences in the coefficients, using the private sector endowments as weights. Order is achieved from chaos.

Note that public sector prices are used to value the differences in the endowments and private sector endowments are used to weight the differences in the prices,. It could just as well be the other way around. Subtract (4.9) from (4.8), add and subtract the term $\sum_j \hat{\beta}_j^2 \overline{X}_j^1$, and re-arrange:

$$\overline{\ln Y^1} - \overline{\ln Y^2} = \hat{\beta}_1^1 + \sum_j \hat{\beta}_j^1 \overline{X}_j^1 - \hat{\beta}_1^2 - \sum_j \hat{\beta}_j^2 \overline{X}_j^2 + \sum_j \hat{\beta}_j^2 \overline{X}_j^1 - \sum_j \hat{\beta}_j^2 \overline{X}_j^1$$

$$= \sum_j \hat{\beta}_j^2 \left(\overline{X}_j^1 - \overline{X}_j^2 \right) + \left(\hat{\beta}_1^1 - \hat{\beta}_1^2 + \sum_j \left(\hat{\beta}_j^1 - \hat{\beta}_j^2 \right) \overline{X}_j^1 \right) \quad (4.11)$$

The existence of two decompositions, equally valid mathematically, is something of an embarrassment for proponents of the methodology. Some ingenuity has been devoted to resolving the ambiguity, but with no compelling solution. Fortunately, it sometimes happens that the two decompositions given similar results.

Table 4.1 shows the calculations of the decompositions for the public and private sectors of Jordan, using data from the Employment and Unemployment Survey for the first two quarters of 2009, employing the sample weights provided in the survey data. Columns (1) and (2) show the means of the logarithm of monthly earnings, years of schooling, and potential work experiences for the two sectors. The logarithm of monthly earnings is the dependent variable and years of schooling and potential work experience, *PWE*, defined as (age – years of schooling – 5), are the explanatory variables. The mean logarithm is 5.6675 for the public sector and 5.6063 for the private sector. This implies that mean public sector earnings are about 6.12 percent higher than mean private sector earnings. The rationale for this interpretation is that

$$\overline{\ln Y^1} - \overline{\ln Y^2} = \ln GM^1 - \ln GM^2 = \ln\left(\frac{GM^1}{GM^2} \right) = \ln\left(1 + \frac{\left(GM^1 - GM^2 \right)}{GM^2} \right) \cong \frac{\left(GM^1 - GM^2 \right)}{GM^2} \quad (4.12)$$

where GM refers to the geometric mean, the approximation being good if the differences between the means is sufficiently small. Hence the difference in the mean logarithms provides an estimate of the proportional difference in the geometric means, and multiplying by 100 gives the percentage difference.

Table 4.1. Blinder–Oaxaca decompositions of public/private sector earnings differences									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	means	means	coefs	coefs	(1)–(2)	(3)–(4)	(3)*(5)	(2)*(6)	(4)*(5)	(1)*(6)
	public	private	public	private						
ln Y	5.6675	5.6063								
S	12.6621	11.8975	0.0545	0.0764	0.7645	–0.0219	0.0417	–0.2599	0.0584	–0.2766
PWE	15.2519	18.2887	0.0093	0.0150	–3.0369	–0.0058	–0.0282	–0.1051	–0.0457	–0.0877
constant	1	1	4.8357	4.4229	0	0.4128	0	0.4128	0	0.4128
Total							0.0134	0.0478	0.0127	0.0485

Columns (3) and (4) show the coefficients for regressions of ln Y on S and PWE, for the two sectors. Columns (5) and (6) compute the differences in the variable means and the differences in the variable coefficients. Columns (7) and (8) give the decomposition using public sector prices to evaluate the differences in the endowments and private sector endowments to weight the differences in the prices. The decomposition indicates that, of the 6.12 percent difference in mean earnings, 1.34 percent is attributable to higher endowments in the public sector and 4.78 percent to differences in the prices. The former figure comes from slightly greater mean years of schooling in the public sector, partly offset by lower mean years of potential work experience. The latter figure is attributable to a larger constant for the public sector, balanced to some extent by lower valuations on years of schooling and years of work experience. Columns (9) and (10) perform the alternative decomposition, with very similar results.

What conclusions can be drawn from these numbers? Not very much that is enlightening. It will be seen in Section 6 that the public sector tends to pay more generously for low levels of education and less generously for high levels of education. The decompositions do not shed substantial further light.

The 'jobs' approach to comparisons of pay in the public and private sectors

The terms of reference for the present study indicate that the analysis should cover both what Bales and Rama (2001) describe as the 'jobs approach' and the 'workers approach' to pay comparisons. Neither of these terms will be found in common parlance.

The 'workers approach' as defined by Bales and Rama, is in fact the human capital approach. The usual citations for this are Becker (1964) and, for the semilogarithmic wage equation specification, Mincer (1974), but the literature goes back far further than either of these publications.

By contrast with the literature on the human capital approach, which is now one of the largest in the whole of microeconomics, there is no recent literature at all on the 'jobs approach', at least in economics. Indeed, the term itself is unfamiliar.

In so far as there ever was a literature, it was associated with efforts in the 1950s and 1960s to develop a methodology for manpower planning at the national level. The idea, which appeared eminently reasonable at the time, was to provide a framework for long-term educational planning by making forecasts of manpower requirements by occupation and then translating these into forecasts of the needed output of the different components of the educational system.

It was quickly found that, empirically, there was no one-to-one relationship between occupations and education, even at the three-digit occupational level, apart from a restricted set of occupations, mostly professions such as medicine, for which training and certification were rigidly prescribed. Other occupations contained a distribution of individuals with different levels of education. Although individual employers, particularly those in the public sector, might choose to adopt specific norms, for the labour market as a whole the relationship between occupation and education is very flexible.

The response was to attempt to define occupations more narrowly. In the United States this gave birth to the Dictionary of Occupational Titles (DOT) developed by the National Occupational Information Coordinating Committee (NOICC), a body established in 1976 with funding from`` the Departments of Education and Labor. The premise was that the apparent flexibility in the relationship between occupation and education was attributable to insufficient refinement in the classification of the former. The objective of the DOT was to provide a remedy by defining occupations with job descriptions of unprecedented detail. NOICC hoped that as a consequence it would be possible unambiguously to identify what it called 'crosswalks' between occupation and education.

This proved to be an illusion and the project was abandoned after the publication of the fourth edition of the DOT in 1991. By then the impetus for the project had, in any case, vanished. The futility of the various methodologies used in the first stage of the manpower planning methodology, the forecasting of occupational requirements, had been demonstrated in the 1970s and 1980s. Ex-post evaluations of forecasts showed that they had insufficient predictive accuracy to be of any practical use. The whole manpower planning approach then fell into disrepute and, although snake-oil salesmen can still be found lurking in dark corners, it has largely been replaced by rate-of-return analysis as a guide to the rational allocation of resources to education.

The idea that earnings could be determined by job analysis is even more far-fetched, to the point of denying everyday observation. Short stop at any other level has the same responsibilities, but not the same earnings, as short stop in major league baseball, and the same is true for all other occupations, although the variations in pay may not be so dramatic. This has not prevented human resources consultants from promoting the idea to credulous clients (the 'Hays points' system mentioned by Bales and Rama is an example), but it has never seriously been entertained in the economic literature.

Illustration

Table 4.2 shows the distribution of full-time male workers by education, and their mean earnings by education, for occupation 411 'secretaries and key-board operating clerks', for the public and private sectors, using data from the Employment Survey for 2006 with the sampling weights provided. The occupation has been chosen because it is common and generic across sectors. Similar results would be found for most other occupations.

The table illustrates the variation in educational background and mean wages by level of education. The distributions of individual wages would exhibit much greater diversity. Some of the variation will be attributable to variations in the ages of the workers, not recorded in the ES, but probably this is not a decisive factor. Overall, one can say that the private sector pays better than the public sector for this occupation, but that is mainly because it tends to employ better educated workers.

Table 4.2 Distributions of male secretaries and their earnings by sector, ES 2006				
	Education (percent)		Mean earnings	
	Public	Private	Public	Private
Less than secondary	33	18	235	283
Secondary	40	43	247	292
Intermediate diploma	16	23	285	330
University	11	16	284	276
Total	100	100	254	298

Informal methods for comparing public and private sector pay

Formal statistical methods provide a basis for objective comparisons of pay in the public and private sectors. However, the validity of the results depends crucially on the assumption that the measured characteristics are defined in the same way for both sectors.

For present purposes, the three most important characteristics are sex, education, and age. Of these, education can be problematic. Suppose the mean earnings of male university graduates aged 25–29 are greater in the private sector than in the public sector. Does this mean that there is a pay gap? Not necessarily. Suppose that there are two types of graduate degree, engineering and humanities, and suppose that they are equally well paid in both sectors, but engineering graduates are paid more than humanities graduates. If the private sector recruits relatively a greater number of engineering graduates and a smaller number of humanities graduates, its average pay for graduates will be higher than that for the public sector, even though both sectors recruit on equal terms. Second, suppose that different universities vary in quality, and that this is recognised by both private and public sector employers, with wages varying accordingly. If the private sector intake contains a greater proportion of graduates from high quality universities, its pay will be higher on that account, even though its pays the same as the public sector for a given university. In the same vein, it is reasonable to suppose that graduates who have good academic records will tend to command higher pay than those with poor ones. Again, if the private sector intake contains a greater proportion of graduates with good records, its average pay will be higher on that account, even if the pay policy is the same in the two sectors.

Thus higher graduate pay in the private sector might be attributable to a different mix in recruitment rather than any difference in pay policy. Equally, it is possible for mean pay to be the same in the both sectors, despite having different pay policies. The public sector could overpay humanities graduates, and underpay engineering graduates, and still have the same average pay.

The survey data that are available do have information on curriculum, but none on quality of university or quality of academic record. The only way to check the findings of analysis based on survey data is to obtain information from those involved in recruiting new hires, both in the public and the private sectors. Information obtained from such sources is likely to be subjective and anecdotal, but nevertheless valuable for validation.

5. SOURCES OF DATA

The primary resources for this study are the Employment and Unemployment Survey, a quarterly household survey, and the Employment Survey, an annual establishment survey, undertaken by the Department of Statistics.

Employment and Unemployment Survey (EUS)

By virtue of being a household survey, the EUS provides coverage of the whole population and therefore permits a disaggregation of the population into those who are employed, unemployed, and economically inactive. With a quarterly sample of households that comprises more than 60,000 individuals, it is large, and it contains data on all the main labour market characteristics of relevance to the present study: sex, nationality, age, educational attainment, educational specialization, if applicable, occupation, industry, governorate, and earnings.

   The treatment of earnings involves some loss of precision for the present analysis. The survey instrument is designed in such a way that any individual in the household aged 15 or more can serve as the respondent for all members of the household. This eliminates the need to locate the head of the household and therefore reduces the need for repeat visits by fieldworkers. However, this means that the earnings question in the survey instrument has to be framed in such a way as to obtain a considered response from someone who is not the head of the household. Thus, without attempting to pin down precisely what might be meant by earnings, the respondent is asked to select one of five broad monthly earnings bands: less than JD100, JD100–199, JD 200–299, JD 300–499, and JD500 or more. Figure 5.1 illustrates these bands for male secondary graduates using EUS data for Quarters 1 and 2 of 2009. The conversion of information provided in bands into representative point estimates is discussed in Box 5.1.
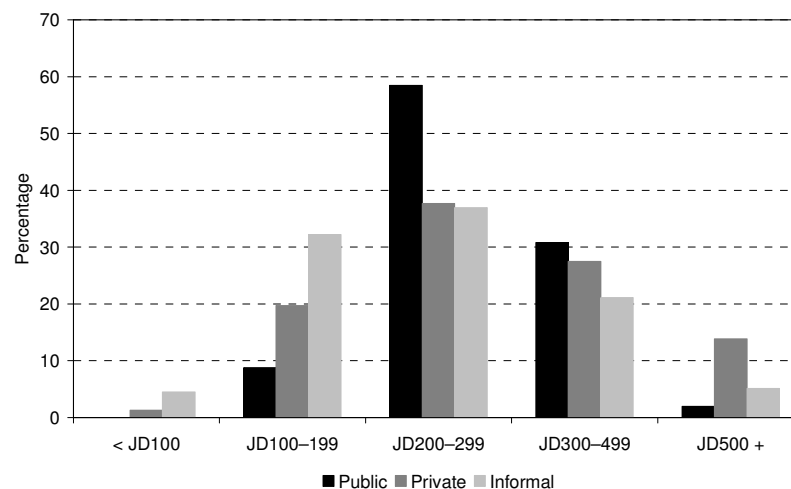

Figure 5.1. Earnings of male secondary graduates, 35+ hours per week, EUS data 2009 Q1–Q2.

Box 5.1   Treatment of earnings data in the EUS and ES

Employment and Unemployment Survey

For the purpose of representing the earnings of a group of individuals, using EUS data, the median was estimated from the five-bank distribution illustrated in Figure 2.1. The median was preferred to the mean on the ground that it would be likely to be a relatively robust measure. Typically, it could be demonstrated that the median must fall in one of the three categories JD100–199, 200–299, or 300–499, and therefore be bounded above and below and, unlike the mean, it would not be affected by problematic assumptions concerning the shape and length of the tail in the unbounded category JD500+.

   To estimate the location of the median within one of these categories, it was assumed that the distribution within the category was uniform. Thus, for example, in the case of the male secondary graduates in the public sector in Figure 2.1, 8.8 percent have earnings in the category JD100–199, 58.5 percent in the category JD200–299, and 32.7 percent in the categories JD300–499 and JD500+. The median therefore must lie in the interval JD200–299, with the 58.5 percent in that category divided into 41.2 percent below the median and 17.3 percent above it. Assuming a uniform distribution within that category, the median would lie at JD270. Similar calculations were made for male secondary graduates employed in the formal and informal private sector. In those cases, also, the median must lies in the interval JD200–299, but the actual estimates different because they have different proportions in the categories above and below.

   In no case did the median lie in the category of less than JD100. However in some cases, for example, those with MSc degrees, the median had to lie in the unbounded category JD500+. Since the underlying distribution of earnings can reasonably be assumed to be approximately lognormal (an assumption supported by earnings data from the ES), the JD500+ category was assumed to have a triangular distribution stretching from JD500 to JD1,000. The upper figure is, of course, quite arbitrary. With this assumption, the median could again be estimated.

   For the wage equations fitted with the individual micro data, there was no way of using wage distributions to obtain point estimates. Here the midpoint of the category relating to the individual was used. For those lying in the less than JD100 category, the figure of JD95 was taken. Minimum wage legislation implies that, in fact, no individual working full-time should be earning less than JD150. Accordingly, the distribution of earnings of those in the less-than-JD100 category must be heavily concentrated close to its upper bound. For those in the JD500+ category, the figure of JD650 was used, being the median of the hypothesized triangular distribution.

Employment Survey

The ES gathers data on regular monthly pay, regular monthly allowances and bonuses, and irregular bonuses and allowances. The sum of the first two was taken as the measure of earnings. Regular allowances and bonuses accounted for about four percent of total earnings, and irregular allowances and bonuses less than two percent.

The other constraints on the EUS are of little importance for present purposes. It excludes those who are living in collective housing. This eliminates the military and most non-Jordanians, neither of whom are of direct interest. Those few non-Jordanians captured by the EUS have been dropped from the analysis. The EUS also excludes the very small number of individuals living in remote areas.

The EUS is fully up to date, the most recent round available being that for Quarter 2 of 2009. The latter captures the effects of the January 2009 increase in the minimum wage to JD150 per month.

The analysis in this study uses the sampling weights provided.

Employment Survey (ES)

The ES covers all established enterprises, regardless of size, and thus captures data on microenterprises that are often excluded in similar establishment surveys in other countries. It is a census of public sector establishments, except the military and security, and of private sector firms with 50 or more employees. Smaller private sector firms are sampled, the sampling frame covering all registered establishments, even sole proprietorships. The total sample size is about 6,000 establishments. The reference month is October.

For all workers in the establishments in the sample, the survey captures data on sex, nationality, educational attainment (with a little less detail than the classification in the EUS), educational specialization, if applicable, occupation, industry, size of establishment, earnings, and hours. The survey does not record age.

At the establishment level, the survey records the sector of ownership and legal status of the enterprise, its total wage bill, the total number of employees by sex, and the number of new employees.

The only omissions, besides military and security establishments, are the agricultural sector and workers who do not belong to registered establishments. A question in the EUS indicates that the number of Jordanian workers not attached to registered establishments is in fact relatively small. Most such workers are non-Jordanians, typically working in the construction industry, and not of direct relevance to the present analysis.

The main strength of the ES for the purposes of this study is the very high quality of the data. In that they are taken from administrative sources, they are likely to be relatively accurate. This is especially important for the data on earnings.

Despite the higher quality of the data in the ES, the present analysis is mostly based on data from the EUS. There are several reasons for this. First, the EUS captures the whole population, not just those in employment. Second, the lack of data on age constrains its application. Age is a critical factor in most of the present analysis, in that it is above all concerned with the status and decisions of young people, both those in full-time education and those who have recently terminated their studies and are considering employment. Third, the EUS is up to date. At the time of writing this draft, the 2006 round of the ES was the most recent available. The 2007 data will soon be ready and will replace the 2006 data in the final draft. However, even since 2007 there have been major changes, in the form of a substantial increase in the minimum wage in the private sector and a second across-the-board increase of JD50 in public sector salaries.

The analysis in this study uses the sampling weights provided.

6. ANALYSIS OF EARNINGS BY EDUCATION AND SECTOR USING EUS AND ES DATA

The first objective of this section is to provide a comparison of the structure of earnings in the public and private sectors controlling for sex, education, and age. The second is to evaluate the implications of the differences in the structures. However, an earnings differential is essentially a static concept and its implications can be assessed without ambiguity only if three equilibrium conditions are fulfilled:

• the labour market is closed,
• the labour market clears, and
• the structure of the labour market, both in terms of supply and demand, is stable.

In a disequilibrium context, the significance of an earnings differential is unclear. The differential might be a transient, functional component of a mechanism for establishing a rational allocation of resources. Equally, it might be a dysfunctional impediment. It might represent overpayment by one sector, or underpayment by the other. Conceivably, it might be the outcome of different degrees of underpayment by both sectors if, as happens in some countries, both employ cheap immigrant labour. One cannot discriminate between these hypotheses without setting wage determination in the wider context of the workings of the labour market.

In the case of Jordan, none of the three equilibrium conditions is satisfied. The labour market is only semi-insulated from others in the region, many Jordanians working abroad and many non-Jordanians working in Jordan. The labour market does not clear, and as a consequence there is a chronic problem of open unemployment and probably also less perceptible ones of discouraged workers and underemployment. And labour supply is changing very rapidly indeed, both in scale and in structure, large numbers of young people entering the labour market every year, many of them much better educated than the average existing worker.

Failure of any of the equilibrium conditions necessitates an analytical shift to a dynamic and longer-term context. The fact that earnings differentials provide incentives for the acquisition of education and training leads to the question of whether the differentials observed at present are appropriate. The issue is whether they encourage young people to make use of the educational opportunities offered to them to the extent that is of greatest benefit to them as individuals and to the community as a whole. In the longer term, issues relating to educational incentives become not only relevant, but arguably ultimately more important, than those relating to the short-run effects of earnings differentials on employment and unemployment. Hence the scope of the present analysis in this and the remaining sections has been extended to consider them.

To some extent the dynamic issues are universal, being encountered to a greater or lesser extent in most countries in the world, but they are particularly important in Jordan, given the distinctive features its economy.

Figure 6.1 presents estimated median monthly earnings of Jordanian workers by sector, sex, and education based on EUS data for Quarters 1 and 2 of 2009, using the methodology described in Box 5.1. Figure 6.2 provides mean monthly earnings from the 2006 ES, for comparison. The differences in earnings are statistically highly significant in all cases except those where the points appear to be almost coincident.

For expositional clarity, some small educational categories are not shown in the figures. The illiterate and 'read and write' categories are excluded because they are fast becoming irrelevant; vocational apprenticeship, because it is tiny; and higher diploma and PhD because these categories are relatively small. The ES combines elementary, preparatory, and basic into one category, less than secondary. For further information on the educational classifications, see Box 6.1.
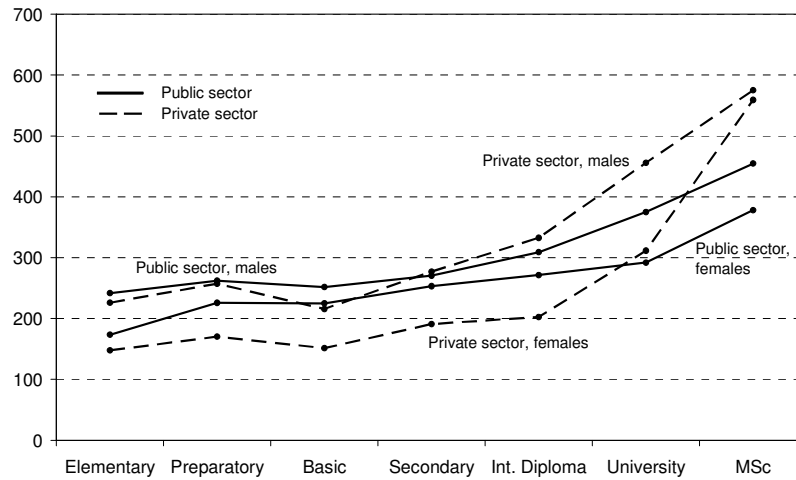

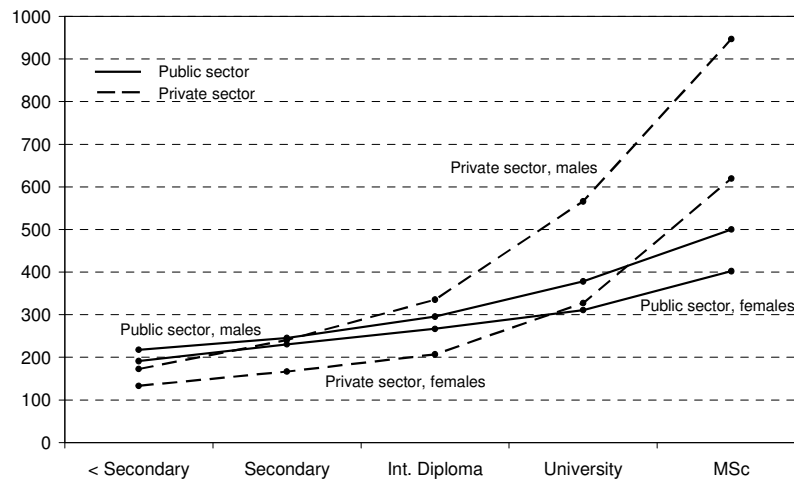Figure 6.1. Monthly earnings in JD by sector, sex, and education, EUS data 2009 Q1–Q2

Figure 6.2. Monthly earnings in JD by sector, sex, and education, ES data 2006

Box 6.1 Educational classifications in the EUS and the ES

The educational classifications used in the current versions of both the EUS and ES have PhD, MSc, Higher Diploma, Bachelor's, Intermediate Diploma, Secondary, and Vocational Apprenticeship as their highest categories. Secondary and Vocational Apprenticeship usually require twelve years of schooling. The Intermediate Diploma requires two years of postsecondary schooling, the Bachelor's four years for most disciplines, and the Higher Diploma and MSc both typically require a further two years of schooling after the Bachelor's.

The only other current formal educational qualification is Basic education (ten years), introduced as a replacement for Preparatory (nine years) and Elementary (six years) in a 1989 reform. Despite the discontinuation of these qualifications, the EUS continues to classify those with nine and six years as Preparatory and Elementary. Its two final categories are Read and Write, and Illiterate. The ES has the same classification down to Secondary and Vocational Apprenticeship. Its final two categories are Less than Secondary, and a combined Read and Write/Illiterate category.

Figures 6.1 and 6.2 relate narrowly to monthly earnings. Pension contributions and entitlements represent an important component of compensation. Job security and weekly hours are also relevant in comparisons.

As far as pension regimes are concerned, the private and public sectors are covered by the same, centrally-administered scheme, with the same regulations (see Box 6.2). It follows that taking account of this aspect of compensation would not alter the relative relationships. Job security obviously makes the public sector more attractive, controlling for other factors. It is possible that this may, as a tendency, be reinforced by better working conditions.

Monthly earnings have been used as the default measure of earnings because this appears to be the headline definition in legislation, contracts, and surveys such as the EUS and ES. Taking account of hours, and computing hourly earnings instead of monthly earnings, would affect the relationships because the working week in the private sector is typically four or five hours longer than that in the public sector. If hourly earnings had been represented in Figures 6.1 and 6.2 instead of monthly earnings, the lines for the private sectro would have been about ten percent lower, increasing the public/private sector gap for lower levels of education and reducing any premium for the private sector at higher levels.

It is not safe to make direct comparisons of Figures 6.1 and 6.2, given that they relate to data three years apart and that, as has been noted in Section 5, the EUS and the ES have different methodologies and definitions. Nevertheless, the figures appear broadly in agreement concerning relative pay in the public and private sectors, despite the fact that the ES data do not take account of the across-the-board increases in public sector monthly pay of JD50 in both March 2007 and March 2008 or the increase in the monthly minimum wage to JD150 in the private sector in January 2009. For details of these, see Box 6.3.

Below secondary, public sector pay is higher. Taking account of the better job security, shorter hours, and better working conditions at this level, working in the public sector must generally be relatively attractive.

For male secondary graduates, the private sector has caught up in terms of earnings, but probably not the overall attractiveness of employment. For females, the public sector remains relatively attractive, even in terms of earnings.

For those with intermediate diplomas, the situation is much the same, except that males have slightly higher earnings in the private sector.

At the university level (bachelor's), females in the private sector earn as much as those in the public sector, but the latter probably remains more attractive overall. For males, on the other hand, there is a sizeable premium for working in the private sector.

Box 6.2 Pensions and social insurance in Jordan

The Social Security Corporation, a government agency, administers pension arrangements for all Jordanian nationals employed in establishments with five or more workers. Prior to 1995, government employees had a different system, but since that date new recruits have been subject to the same arrangements as for private sector workers. It is a defined benefit scheme, with employees contributing 5.5 percent of total salary to the pension fund and employers contributing 9 percent. Employers contribute a further 2.0 percent to the fund to cover workplace insurance.

At age 60, provided that they have at least 15 years of service, employees receive, for each year of service, 2.5 percent of their average salary in the last two years before retirement. Subject to a minimum service requirement of 18 years for males, and 15 years for females, and a minimum age of 45, employees may take early retirement, but at the cost of a reduction in pension. The pension is reduced by 1 percent for each year under the age of 60 for those retiring at age 50 or older, and a further 2 percent for each year under the age of 50. Establishments with fewer than five workers may contract into the scheme voluntarily, as may individuals not otherwise covered. Individuals so doing must pay both the employee and employer contributions. There is no automatic indexing mechanism for allowing for inflation, but ad hoc adjustments for this purpose are made from time to time.

Those who do not participate in the scheme are expected to look to their families for support in their old age. As a last recourse, there is the National Aid Fund, but it pays little and recourse to it is widely seen as involving a loss of dignity.

Box 6.3 Private sector minimum wages and public sector pay adjustments

Minimum monthly wages in the private sector in Jordan are regularly updated, the recent history being as follows:

Minimum monthly wage	Effective date
JD80	01.10.1999
JD85	01.01.2003
JD95	01.08.2005
JD110	01.06.2006
JD150	01.01.2009

The June 2006 increase should be reflected in the earnings in the 2006 Employment Survey data used in the present analysis since the reference month is October.

Civil Service salary scales have also been subject to two important adjustments: an across-the-board increase in monthly earnings in March 2007 of JD50 for those earning less than JD300, and JD45 for those earning JD300 or more, and a further increase of up to JD50, depending on category and grade, in March 2008. The latter was paid separately until January 2009, when it was formally incorporated into the Civil Service pay scales.

For MSc graduates, the private sector is dominant for both sexes. The EUS data suggest that males and females earn approximately the same at this level, while the ES data indicates a substantial difference. The discrepancy, which may be due to the use of medians in EUS data and means in ES data, is unimportant. It is clear that the private sector pays substantially more for those in this category. The same appears to be the case for the relatively small number of individuals with PhDs, but possibly not for those with higher diplomas. The few observations available suggest that the private sector may not value this qualification significantly more highly than a bachelor's degree.

The relationships shown in Figures 6.1 and 6.2 give the impressions of an orderly positive association between level of education and earnings. In this respect, they are misleading. For the private sector, especially, the association, though positive, is weak. In the case of the public sector, the Civil Service pay scales impose some uniformity, but even in this sector there is variance attributable to other factors.
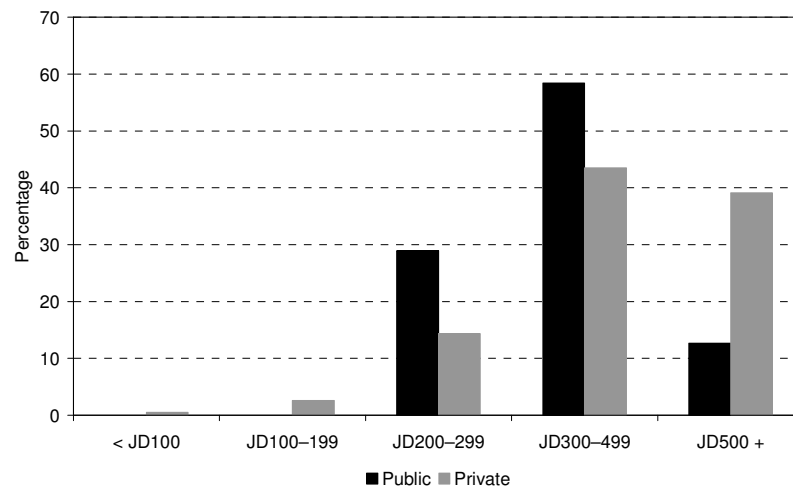
Figure 6.3. Monthly earnings in JD of male university graduates aged 30–34, EUS data 2009 Q1–Q2
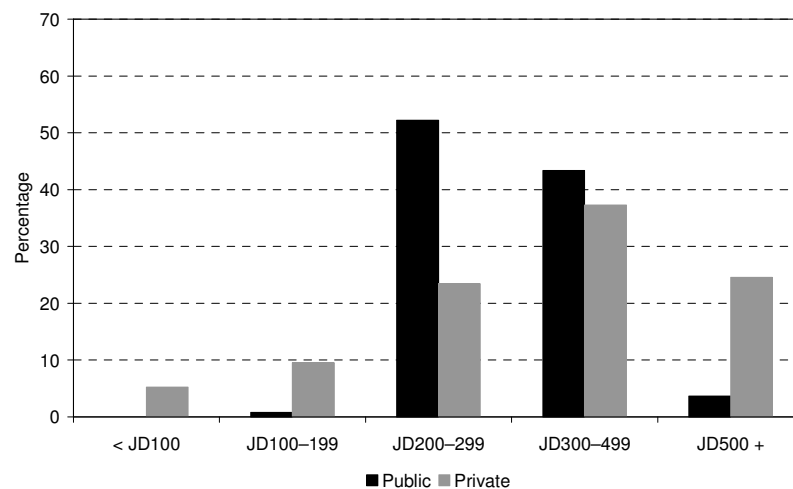
Figure 6.4. Monthly earnings in JD of female university graduates aged 30–34, EUS data 2009 Q1–Q2

One such factor, of course, is length of work experience or service. This is normal, since it reflects the further development of skills. In the case of the Civil Service, allowance for it is built into the salary scales. In the case of the private sector, it is rewarded in line with the growth of productivity as perceived by the employer. However, even controlling for work experience, there are many additional factors that give rise to variance in earnings.

It would be best to demonstrate this with individual data, as in the ES. However, data on age are not available in that survey, and so data from the EUS are shown instead. Figures 6.3 and 6.4 show the distribution of earnings for a specific educational and age group, university graduates aged 30–34, for males and females, respectively. The five-fold earnings classification obscures much of diversity in earnings, but nevertheless it serves to show that, in the case of males, while median earnings are higher in the private sector, confirming the relationship exhibited in Figure 6.1, there are many individuals in the private sector with lower earnings than those in the public sector. A parallel point can be made for females. Here median earnings are similar in the two sectors, but the distribution for the private sector shows greater variation above and below.

Table 6.1 presents the results of fitting wage equations for males and females, separately, using EUS data for 2009 Q1–Q2. For compelling econometric reasons, the best mathematical specification is semilogarithmic, the dependent variable being the logarithm of earnings and the explanatory variables being entered linearly in natural units. There is inevitably some ambiguity concerning the most appropriate concept of earnings. Should one use hourly, weekly, monthly, or even yearly earnings? Most of the wage-equation literature uses hourly earnings. However, it could be argued that, for Jordan, monthly earnings is a more suitable choice, given that it is the measure that is employed in contracts and legislation. A pragmatic compromise, adopted here, is to use (the logarithm of) monthly earnings and to perform the analysis twice, first with no control for hours, and second including hours as one of the controls. Table 6.1 presents the results for both specifications. The discussion focuses initially on the specification that does not include hours. The effects of adding hours are described subsequently.

The educational classification is modelled using dummy variables, the omitted, or reference, category being secondary education graduates in the private sector. The coefficients of the other categories give the proportional increase, or decrease, in earnings, relative to the secondary graduates. Potential work experience (PWE), defined as (age – years of schooling – 5), is used as a control. The educational categories and PWE are interacted with a dummy variable for the public sector to obtain estimates of the variations in the corresponding coefficients relative to those in the private sector.

Table 6.1. Semilogarithmic wage equations, monthly earnings, EUS 2009						
	Regression coefficients				Number in sample	
	Without hours		With hours			
	Males	Females	Males	Females	Males	Females
PWE	0.013	0.010	0.013	0.010		
PWE*public	–0.004	*0.000*	–0.004	*–0.001*		
PhD	0.64	0.97	0.64	1.02	43	7
MSc	0.61	0.85	0.62	0.88	115	23
Higher diploma	*0.33*	*0.35*	*0.33*	*0.41*	10	6
Bachelor's	0.44	0.48	0.44	0.51	1,236	473
Intermediate diploma	0.14	*0.02*	0.14	*0.06*	815	337
Secondary	—	—	—	—	1,242	175
Voc apprenticeship	–0.14	*–0.29*	–0.14	–0.42	142	2
Basic	–0.16	–0.20	–0.16	–0.20	1,785	208
Preparatory	–0.17	–0.22	–0.17	–0.22	1,893	110
Elementary	–0.31	–0.38	–0.31	–0.39	1,119	72
Read and write	–0.40	–0.32	–0.40	–0.31	292	36
Illiterate	–0.48	*–0.53*	–0.47	*–0.50*	124	28
PhD*public	0.11	*–0.02*	0.13	*–0.05*	75	11
MSc*public	*–0.08*	–0.20	*–0.07*	*–0.18*	170	47
HD*public	*0.02*	*0.18*	*0.03*	*0.24*	46	44
Bachelor's*public	–0.06	*–0.01*	–0.04	*0.02*	1,371	839
ID*public	0.08	0.30	0.09	0.32	649	471
Secondary*public	0.11	0.22	0.12	0.26	1,234	150
Voc App*public	0.19	*0.17*	0.20	*0.34*	40	4
Basic*public	0.20	0.33	0.22	0.37	2,638	72
Prep*public	0.15	0.19	0.16	0.25	1,192	68
Elementary*public	0.16	*0.18*	0.17	*0.25*	610	24
R&W*public	0.18	*–0.05*	0.20	*–0.05*	131	10
Illiterate*public	*0.30*	*0.21*	*0.30*	*0.25*	76	11
Hours	—	—	0.002	0.007		
constant	5.40	5.16	5.30	4.83		
R-squared	0.34	0.36	0.34	0.37		

Notes: PWE = potential work experience, computed as age less years of schooling less five. The educational coefficients are for the private sector, with secondary education being the reference category. The coefficients should be interpreted as the proportional additional earnings for each level, relative to secondary graduates. Thus, for example, the coefficient of 0.14 for males with intermediate diplomas indicates that males with this qualification earn a proportion 0.14 than male secondary graduates working in the private sector. In percentage terms, the differential is 14 percent. The coefficients of the educational levels interacted with public give the *extra* differentials for the same qualification, if working in the public sector. Hence an individual with an intermediate diploma will earn a proportion 0.14 + 0.08 = 0.22 more than a secondary graduate working in the private sector, in other words, 22 percent. For coefficients greater than 0.1, this interpretation is only an approximation. The exact proportional increase is given by ($e^x – 1$), where x is the coefficient. All coefficients are significant at the 1 percent level unless italicized.
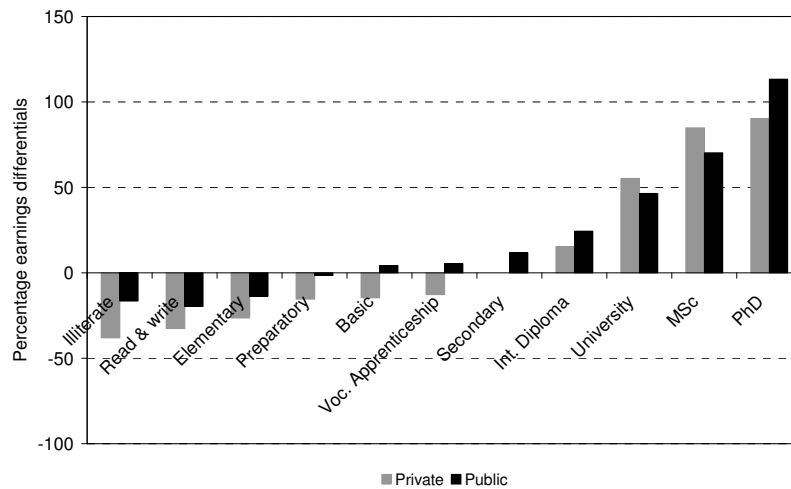
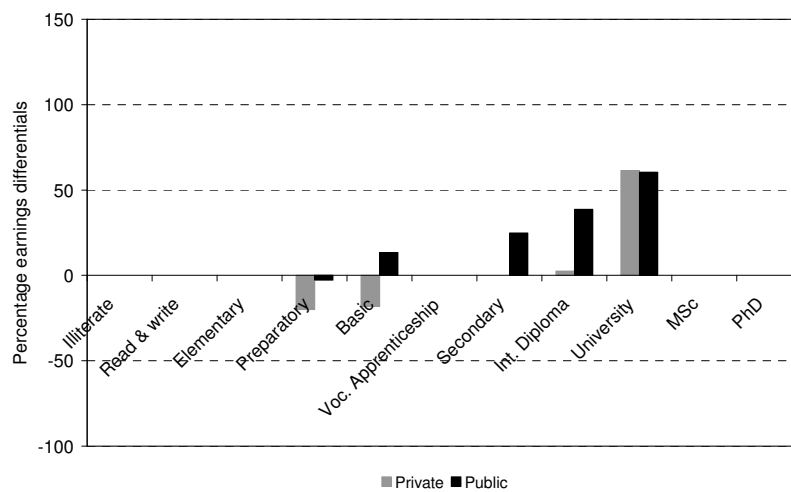Figure 6.5. Percentage earnings differentials, males, EUS data 2009

Figure 6.6. Percentage earnings differentials, females, EUS data 2009

Figures 6.5 and 6.6 provide a graphical summary of earnings differentials by education and sector, for males and females respectively, controlling for age, dropping categories whose coefficients are not statistically significant at the 1 percent level. For technical details, see the notes to Table 6.1. The benchmark in both figures is an individual with secondary education employed in the private sector and the columns show the estimated differential, in percentage terms, for the category in question, relative to this benchmark.

The figures are intended to shed light on two related issues. First, whether the differentials are sufficient to provide incentives for young people to make use of their educational opportunities. Second, whether the valuations of particular qualifications are greater or less than might be expected, given their level.

Starting with the private sector, it can be seen that the earnings differentials provide strong incentives for secondary graduates of both sexes to seek a university degree, and further incentives for

males to obtain MSc and PhD degrees. (The estimates in Table 6.1 suggest that females also have strong incentives to obtain MSc and PhD degrees, but there were too few of them to estimate the differentials with precision.) The intermediate diploma is moderately valuable for males, but not for females. The penalty for quitting education at the basic level, instead of secondary, is of the order of 20 percent for both sexes.

The public sector provides substantial rewards to both sexes for higher education, but the differentials, relative to secondary, are smaller than those in the private sector. The penalty for having basic, rather than secondary, education is small.

The analysis of differentials is complicated by the possibility of moving from one sector to the other. Thus the value of additional education may be partly attributable to the fact that it may facilitate a switch to the other sector, when it pays more. A further layer of complexity is added by the existence of educational differentials in the rates of unemployment. For example, the value of an MSc degree might in large measure be attributable to the fact that it increases the probability of being employed. This could be just as valuable as the increase in earnings if employed. Equally, the value of an educational qualification may be diminished if it increases the probability of being unemployed. These considerations are particularly important for young people considering their educational options, because unemployment rates are highest among new entrants to the labour force. Section 7 discusses these factors more generally.

The effects of controlling for hours

When weekly hours is included among the controls, its coefficients, 0.002 for males and 0.007 for females, are both statistically significant at the 1 percent level but rather small in practical terms. The male coefficient implies that an extra five weekly hours—the typical difference between hours in the public and private sectors, and roughly a ten percent change— increases earnings by just one percent. For females, the effect is larger but still rather small: an extra five weekly hours increases earnings by 3.5 percent. The coefficients of work experience and the educational attainment variables relating to the private sector are virtually unchanged, except where the estimated coefficient is unstable because the number of underlying observations is small. The public sector educational coefficients increase by about one percent for males and 3.5 percent for females, as one would expect, given that the working week is on average about ten percent shorter in the public sector than in the private sector.

The effects of educational specialization

The foregoing discussion has treated the educational categories as being internally homogenous. However, for those with higher education, the EUS provides data on educational specialization. This makes it possible to evaluate, to a limited extent, whether the higher pay of graduates in the private sector is attributable to choice of degree course. The analysis is limited to those with bachelor's degrees because those with postgraduate degrees are relatively few in number.

The subject specialization coding is very detailed. For the present purposes, it appears sufficient to adopt a one-digit approach with eight categories: educational science, humanities, social sciences, natural sciences and mathematics, engineering, agriculture, health, and services. The analysis is confined to the 25–29 age group since unemployment is concentrated among recent graduates. The data set is the EUS for 2008. The sampling weights provided have been used in all calculations

Tables 6.2 and 6.3 show the distribution, by economic activity, of males and females, respectively, by degree discipline. 'Discouraged' refers to discouraged workers—those that report being available for work, but have not looked for work in the past four weeks. 'OLF' refers to those who are out of the labour force—economically inactive.

Table 6.2: Distribution of males aged 25–29 by economic activity and degree discipline

	Educ	Hum	SocSci	SciMath	Engin	Agric	Health	Service	Total
Public	59.9	67.8	23.6	34.1	19.8	17.4	48.9	47.0	34.5
Private	15.2	15.1	58.8	48.9	63.4	50.6	33.9	39.5	47.8
Informal	0.0	0.4	0.7	0.2	0.3	1.9	0.8	0.0	0.5
Unemployed	20.7	14.8	14.3	14.9	14.8	26.0	13.3	13.5	14.9
Discouraged	4.2	1.5	1.6	1.3	0.9	0.0	0.5	0.0	1.4
OLF	0.0	0.4	1.1	0.7	0.9	4.1	2.7	0.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,882	5,909	18,478	8,907	6,647	881	4,329	1,118	48,150

Table 6.3: Distribution of females aged 25–29 by economic activity and degree discipline

	Educ	Hum	SocSci	SciMath	Engin	Agric	Health	Service	Total
Public	35.3	24.1	15.6	36.6	16.8	14.6	29.0	43.4	26.5
Private	6.0	14.2	34.3	19.3	44.9	33.5	36.6	16.9	21.3
Informal	0.1	0.1	0.0	0.4	0.0	3.3	0.7	0.0	0.2
Unemployed	28.1	27.6	18.0	20.3	18.8	19.4	14.6	24.5	22.9
Discouraged	14.5	11.9	5.5	9.0	3.6	6.3	1.6	0.0	9.2
OLF	16.0	22.0	26.6	14.4	16.0	22.9	17.6	15.2	19.9
Total	100.0	100.0	9,904	100.0	100.0	100.0	100.0	100.0	100.0
Number	9,904	12,992	10,433	8,063	2,517	1,185	3,172	441	48,705

For the present purposes, the agricultural and services disciplines will be ignored, the numbers with such degrees being relatively small. Among the remaining disciplines, for males there is a clear division between educational science and the rest. Educational science has a much higher unemployment rate and this is reinforced by a much higher discouraged worker rate. However, only 4 percent of males have chosen this discipline. Among females, the division is between educational science and humanities, and the rest. For them also educational science graduates have relatively high unemployment and discouraged worker rates, and the rates for humanities are nearly as large. Both of these are important disciplines for females, accounting for 20 percent and 27 percent of graduates, respectively.

These figures suggest that there has recently been some overenrolment in educational science. One might speculate that enrolment in this discipline has been encouraged by the substantial recruitment of teachers in recent years, especially in the public sector. With the school-age population stabilizing and the need for additional teachers much diminished, this has led to a large proportion of graduates being unemployed or discouraged. The high rate of unemployment of females in humanities might also be attributable to a mismatch with the kinds of work on offer.

Table 6.4: Wage equations for university graduates aged 25–29 in 2009		
	Males	Females
Age	0.04*	0.00
Humanities	0.20	0.29*
Social sciences	0.07	0.64**
Natural sciences	0.23	0.47**
Engineering	0.33**	0.73**
Agriculture	–0.04	0.92**
Health sciences	0.21	0.59**
Services	–0.01	0.85**
Public*age	–0.02	0.00
Public*educational science	0.41	0.46
Humanities	0.14	0.19
Social sciences	0.40	–0.15
Natural sciences	0.23	0.00
Engineering	0.43	0.02
Agriculture	0.69	–0.50
Health sciences	0.36	0.26
Services	0.65	–0.43
constant	4.70**	5.09**
R^2	0.14	0.20
Number of observations	672	440

Note: * and ** indicate significant at the 5% level and 1% level, respectively.
The omitted category is graduates of educational science working in the private sector

Table 6.4 presents, for males and females separately, the results of regressing the logarithm of monthly earnings on age, educational discipline, and interactions between educational specialization and a dummy variable for working in the public sector, for those working at least 35 hours per week in either the public or the private sector. The data are from the EUS for the first two quarters of 2009. The regressions use the sampling weights provided. The numbers of observations in the last row are the unweighted numbers in the sample.

For males, the only significant finding is that, in the private sector, engineering graduates earn more than graduates of the omitted category, educational science. For females, in the private sector, all other disciplines earn significantly more than educational science graduates. For neither sex is there any significant interactive effect between discipline and working in the public sector. For both sexes, R^2 is quite low.

These results suggest that, in the case of males, engineers working in the private sector have an earnings advantage, as might be expected. Otherwise, discipline is less important than unobserved personal characteristics. In the case of females working in the private sector, educational science graduates are significantly worse paid than all other disciplines. This might be attributable to their excess supply.

If the public sector is used as the default sector, with interactives defined for the private sector, the test results are almost the same. Among males working in the public sector, graduates of engineering and agriculture earn significantly more than graduates of educational science. Among females working in the public sector, graduates of engineering and health sciences earn significantly more than graduates of educational science.

These results suggest that, for male university graduates, the greater number in the private sector is a contributory factor to the their higher average earnings in the private sector. Otherwise, their distribution by educational specialization is not particularly important in determining relative pay in

the two sectors. The mean earnings of females in the private sector are reduced by the low earnings of educational science graduates in that sector, but these are relatively few in number. Otherwise, for females also, the distribution by educational specialization is not particularly important.

However, these findings should be qualified in two respects. First, they depend on an arbitrary conversion of the broad-banded earnings data into representative earnings. Second, it has not been possible to control for the quality of the degrees earned by those in the sample. It might be the case, for example, that the private sector is more selective in this respect, in which case part of the earnings differential would be attributable to a selection effect rather than a sectoral effect.

7. ANALYSIS OF THE POPULATION AND THE LABOUR FORCE

This section provides a description of the population, labour force, and employment in terms of sex, education, and age, using the four quarterly rounds of the EUS in 2008. The 2008 data are used in preference to the 2009 data because the latter relate to only two quarters and therefore have only half as many observations. It is unlikely that there would be much difference, apart from sampling error.

The immediate objective is to examine how labour supply, in terms of labour force participation, has interacted with labour demand, in terms of employment, and the extent to which the market has failed to clear, in terms of unemployment, treating the cross-section as a proxy for a historical record. The availability of previous rounds of the EUS makes it possible to add some further detail, but only on a net basis. It is not possible to determine actual flows between different categories of labour force status. The ultimate objective is to provide the context for Section 6, which investigates the extent to which the earnings differentials in Section 3 can be explained by, and also explain, the labour dynamics.

Male population, labour force, employment, and unemployment

Population and labour force

Figure 7.1 presents estimates of the out-of-school population by education and age for males. Figure 7.2 presents estimates of those who are economically active (employed or unemployed and looking for work), with the same disaggregation. For clarity, only the major categories of educational attainment are labelled. The unlabelled categories are PhD, MSc, vocational apprenticeship, read and write, and illiterate.

The most striking feature of Figure 7.1 is the rapid growth of the number with basic education, ten years of schooling. This level was introduced as a replacement for preparatory (nine years) in 1989. Those individuals who complete six and nine years are still classified by the EUS as elementary and preparatory, even though these qualifications are no longer awarded. Although the preparatory component has been falling, the total number of those with less than secondary has been increasing sharply, as a consequence of the growth in basic. This must be a matter of concern, given that Jordan's objective of becoming a knowledge-based economy will require an increasingly highly educated labour force. This transformation will be achieved only by less-educated generations retiring and being replaced by new generations equipped with better skills. Even under the most favourable conditions, this will be a long-term process. If new generations are little better qualified than their predecessors, the transformation will take longer still.

There are two apparent anomalies in Figure 7.1 that warrant mention. One is that the number of males in the 60–64 age group appears to be larger than that in the 55–59 age group. This must be an artefact, in that the number of births of those now aged 60–64 must have been smaller than that for the 55–59 age group and the number deceased must be greater. The anomaly does not appear in the 2009 sample survey data. In any case, the present analysis is not greatly concerned with these age groups.

The other anomaly is the apparent decrease in those with higher education, particularly bachelor's degrees (interchangeably described here as 'university') in the 20–24 age group compared with the 25–29 age group. This is attributable to the fact that many of those in the 20–24 age group have yet to complete their studies. Almost certainly, the trend of increased numbers in higher education visible in the diagram will continue.
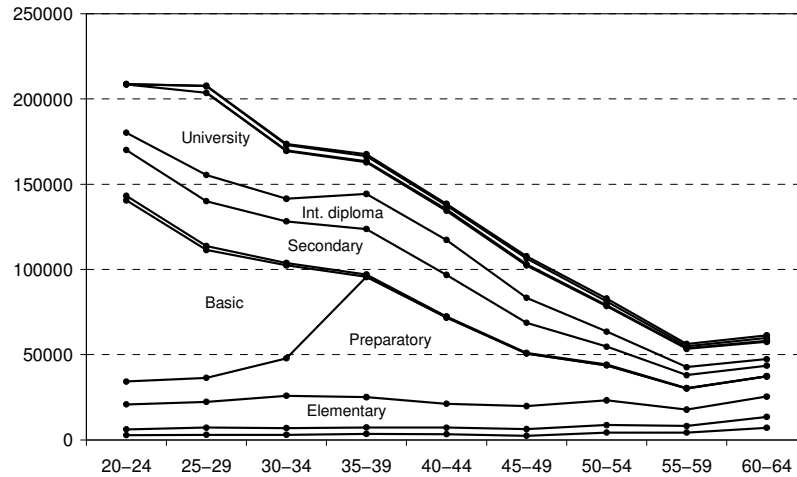
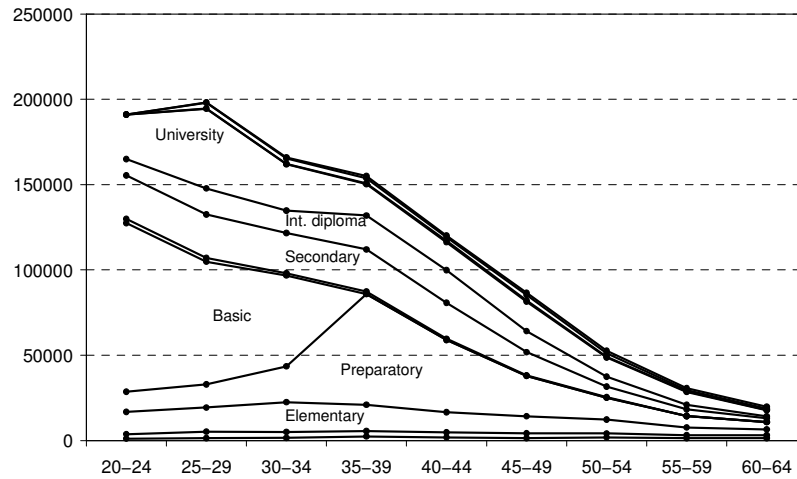Figure 7.1. Out-of-school population, males, EUS data 2008

Figure 7.2. Economically active males, EUS data 2008

Figure 7.2 displays the numbers economically active. For young males of all levels of education, the labour force participation (LFP) rate is close to 1 and Figure 7.2 is very similar to Figure 7.1. For older males, the LFP rate becomes progressively lower and the figures diverge.

Employment

Figures 7.3 and 7.4 show the employment of males in the public and private sectors with the same educational and age disaggregation. Since 2008, the EUS has divided private sector employment into employment in registered establishments and unregistered employment. The latter is relatively small and the distinction has been dropped in the present analysis. The EUS also records employment by international organization. only about 2,000 individuals are in such employment, less than 0.3 percent of the total, and these individuals have been excluded from the present analysis.
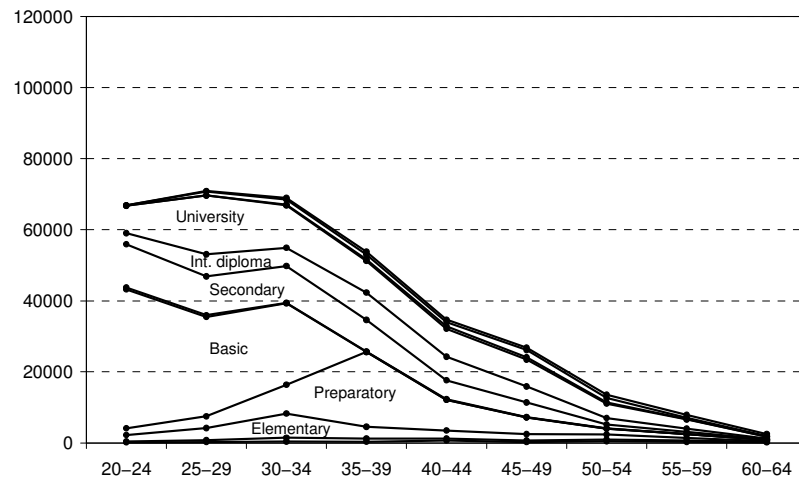
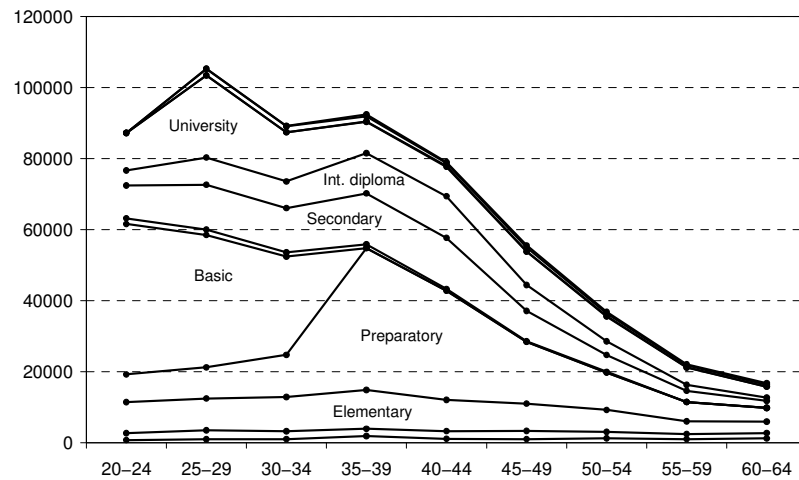Figure 7.3. Employment of males in the public sector, EUS data 2008

Figure 7.4. Employment of males in the private sector, EUS data 2008

The private sector is substantially the more important employer, but otherwise the educational compositions of the two sectors are similar. The main structural difference is the sharper attenuation with age in the public sector, no doubt reflecting relatively modest vesting requirements in the former special pension scheme for this sector. Since 1995 the two sectors have been subject to the same regime, and thus it is possible that this difference will diminish (see Box 5.2).

Unemployment

Figure 7.5 shows unemployment among males by education and age group, using the ILO definition of not having a job, being available to start work within the next two weeks, and having looked for work in the past four weeks. It amounts to 10.3 percent of economically active males.
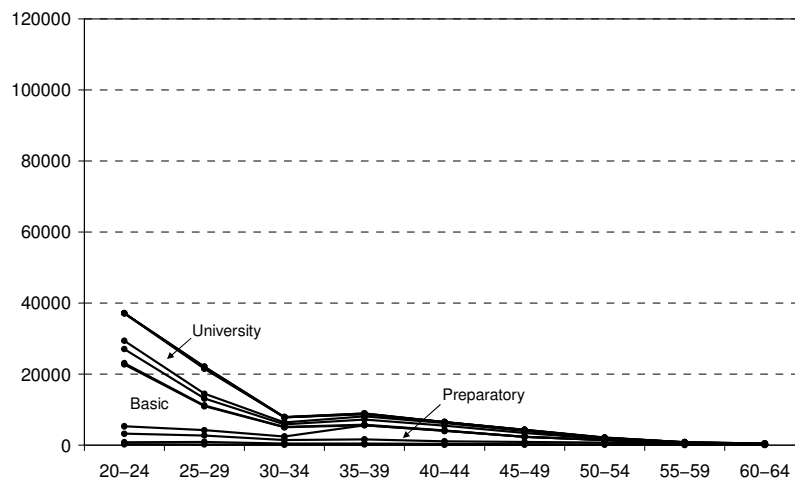
Figure 7.5. Unemployed males, EUS data 2008

When disaggregating unemployment, it is important to consider both the unemployment rates affecting individual components and the sizes of the contributions of the components to the total. Table 7.1 does this for the educational classification, covering those economically active aged 15–64.

Table 7.1 Unemployment by level of education		
	Rate (percent)	Fraction (percent)
PhD	3.1	0.2
MSc	4.1	0.7
Higher diploma	3.4	0.1
Bachelor's	10.3	16.0
Intermed. diploma	6.6	5.8
Secondary	8.5	11.5
Voc apprenticeship	12.0	1.0
Basic	15.0	34.9
Preparatory	8.0	15.1
Elementary	11.0	10.9
Read and write	10.8	2.6
Illiterate	8.2	1.1
All	10.3	100.0

Table 7.1 shows that unemployment of those with basic education is a particularly serious problem, both in terms of its rate and the numbers affected. The preparatory category, now largely replaced by basic, is a matter of concern in terms of numbers, particularly among the older age groups. The other major category, in terms of numbers, is those with bachelor's degrees. These categories are examined more closely in Section 5.

Female population, labour force, employment, and unemployment

Population and labour force

At first sight, the distribution of the female population by education and age appears very similar to that for the male population in Figure 7.1. However, there are two important differences.

One is that the number with less than secondary education has been falling in the youngest age groups. This is entirely to be expected, given Jordan's commitment to the development of a knowledge economy. It is in sharp contrast to the pattern for males.

The other is the very rapid increase in the number of females with bachelor's degrees. This is evident from a comparison of those in the 30–34 and 25–29 age groups. The figure suggests that the process has been reversed for the 20–24 age group, but this is not the case. About 70,000 young women in that age group are still in full-time education. Some will graduate with the intermediate diploma, and increase the numbers in that category, which also seems to be falling, but many will earn university degrees.
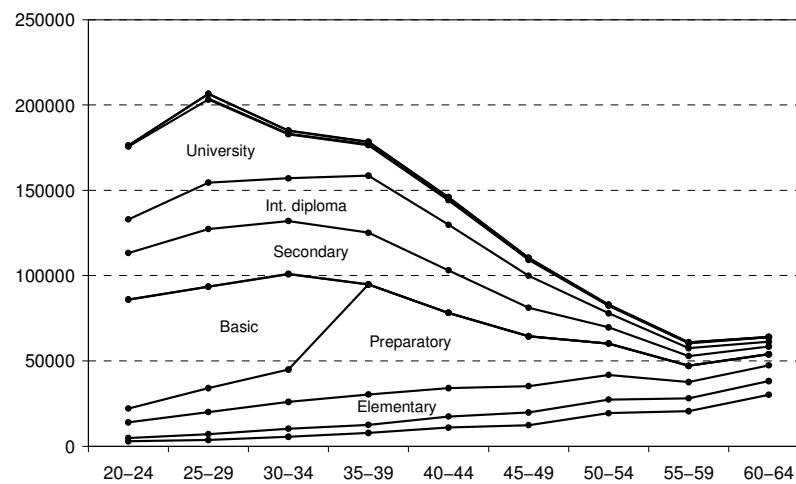

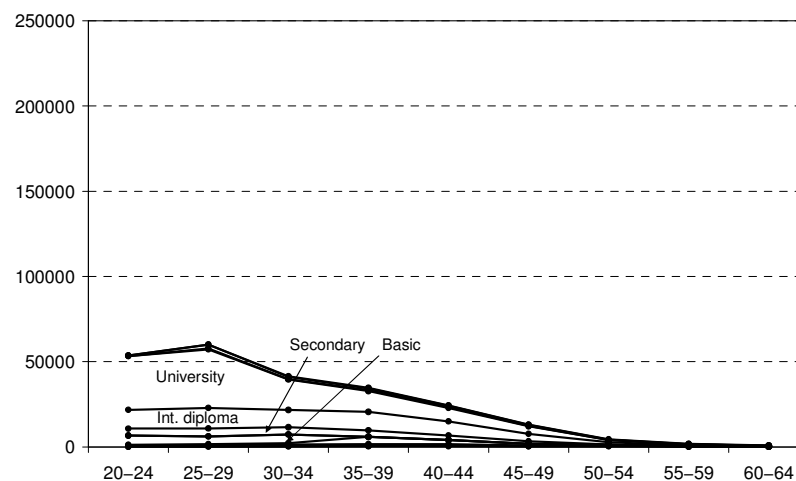Figure 7.6. Out-of-school population, females, EUS data 2008

Figure 7.7. Economically active females, EUS data 2008

Figure 7.7 shows the distribution of economically active females by education and age. The most striking feature, implicit in a comparison with Figure 7.6, is the very low labour force participation rate of females with secondary education, or less, even for the youngest age groups. The majority of economically active females have completed some form of higher education, with the bachelor's degree the dominant qualification.

Figures 7.8 and 7.9 show the distributions of employed females in the public and private sectors. Overall, the public sector is the bigger employer, particularly for those females in older age groups with higher education. For the 25–29 age group, the difference is smaller. A comparison of those aged 20–24 in the two sectors suggests that here the private sector is dominant at all levels of education. However, such a conclusion should be qualified. Rather than take a job in the private sector, some females with bachelor's degrees may prefer to join the queue for employment in the public sector under the points system described in the next section. In the meantime they remain temporarily unemployed or economically inactive. Thus the ultimate distribution of those in the 20–24 age group may not be so different from that for those aged 25–29.
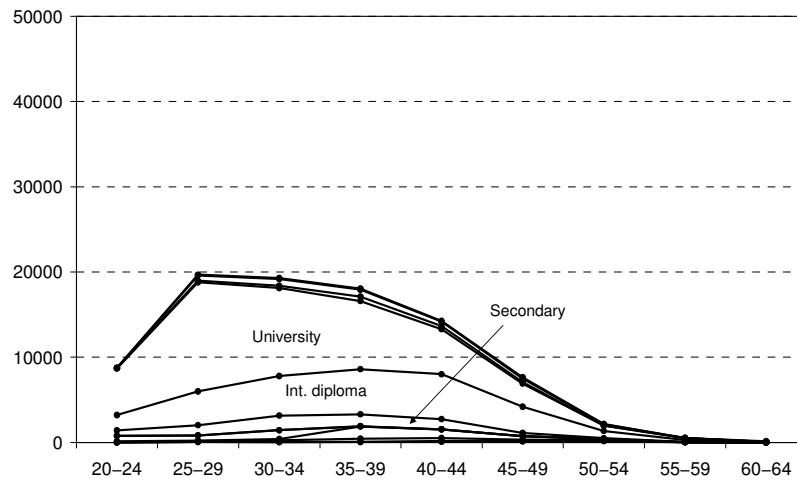

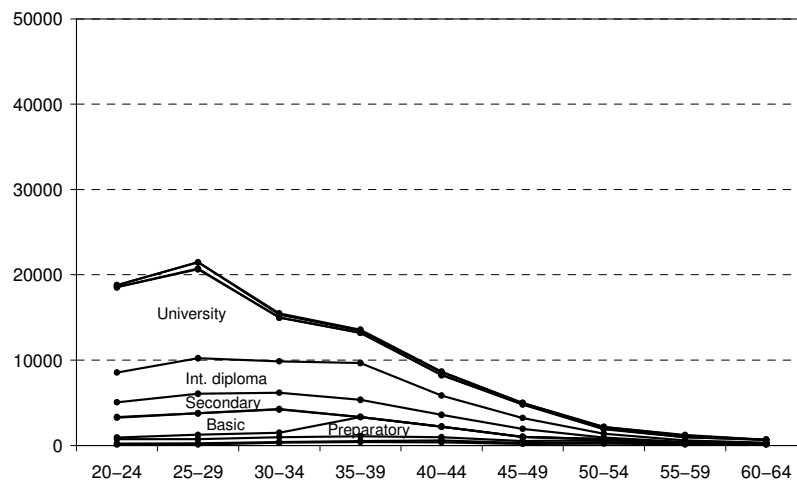Figure 7.8. Employment of females in the public sector, EUS data 2008

Figure 7.9. Employment of females in the private sector, EUS data 2008

Figure 7.10 shows the distribution of unemployed females by education and age. It is dominated by those with higher degrees, those with bachelor's degrees accounting for over half of female unemployment and those with intermediate diplomas nearly another quarter (Table 7.2). Even more than with males, the unemployment is concentrated in the 20–24 and 25–29 age groups. Overall, the unemployment rate is 24.6 percent, but for those age groups it is 48.7 percent and 31.5 percent, respectively.

There is a further dimension to be taken into account. The definition of unemployment is that of the ILO: not in work, available to start work within two weeks, and having searched for work in the past four weeks. Those who satisfy the first two conditions but not the third are sometimes termed discouraged workers. In the case of males, the distinction between being unemployed and being a discouraged worker is not critical because there are relatively few of the latter. In the case of females, their inclusion in the unemployed would increase the number of the latter by two-thirds and the unemployment rate to 35.5 percent. Figure 7.11 shows their distribution by education and age.
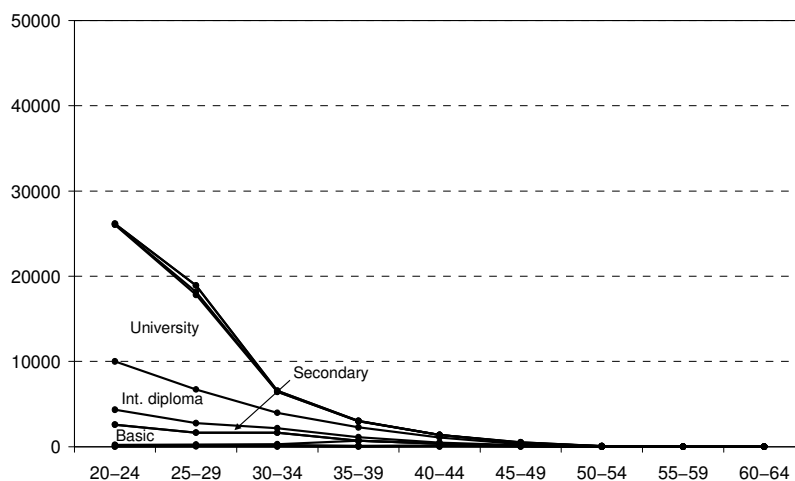
Figure 7.10. Unemployed females, EUS data 2008

Table 7.2 Unemployment by level of education		
	Rate (percent)	Fraction (percent)
PhD	2.3	0.0
MSc	16.6	1.9
Higher diploma	18.9	0.7
Bachelor's	27.8	52.8
Intermediate diploma	22.9	23.0
Secondary	20.3	7.7
Voc. apprenticeship	0.0	0.0
Basic	35.5	9.9
Preparatory	11.4	2.0
Elementary	15.0	1.3
Read and write	15.4	0.5
Illiterate	3.9	0.2
All	24.6	100.0

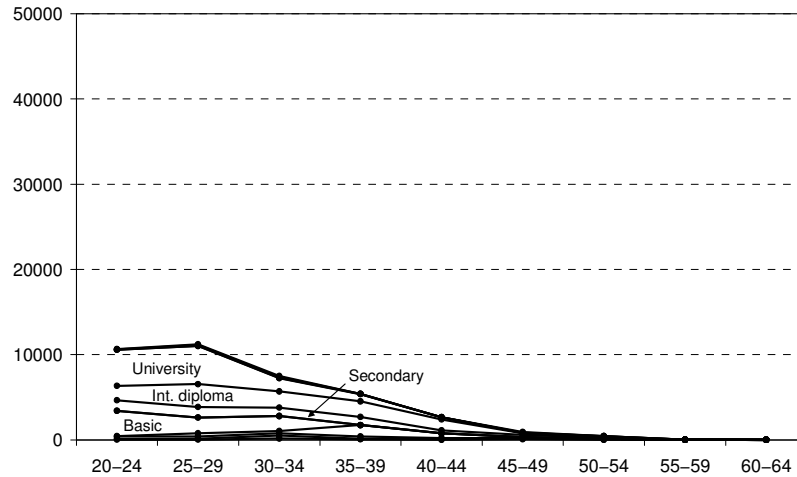Figure 7.11. Female discouraged workers, EUS data 2008

The data reviewed in this section indicate that the number of new Jordanian entrants to the labour force has been growing very rapidly for the past two generations. The inflow will peak in five to ten years' time and will then fall as a delayed response to the recent reduction in the birth rate. However, for the foreseeable future, there will be a sustained increase in the labour supply. This will be exacerbated by a disproportionate increase in the number of females entering the labour force. Historically, most females with higher education have sought employment and most of the rest have remained economically inactive. The increase in numbers of females with higher education will therefore lead to a relatively rapid rise in this segment of the labour force. However, the rate of growth of employment opportunities for university graduates has not been sufficient to permit the absorption of the increase in the supply, with the consequence that female university graduates account for much of present unemployment, with a particularly high rate among the young.

For males, there is a similar problem of incomplete absorption of university graduates. There is also a further problem. There has been a surprisingly rapid growth of male entrants to the labour force equipped only with basic education, who likewise have struggled to find employment.

The next section looks at these major areas of concern in more detail.

8. CRITICAL EDUCATIONAL CATEGORIES

The previous section has identified male and female university graduates and males with basic education as the most important unemployment concerns. This section will examine these educational categories in greater detail, looking at their occupational distributions and, in the case of the university graduates, their areas of educational specialization. Of course, unemployment is more widely spread, but the issues relating to the other categories will to some extent be similar.

Male and female university graduates

School teachers

In most countries a significant proportion of university graduates take up careers as school teachers. Jordan is no exception. It is therefore worthwhile to make an assessment of the size of this type of graduate employment, and even more important, to assess its likely future as a source of additional jobs for new graduates entering the labour force.
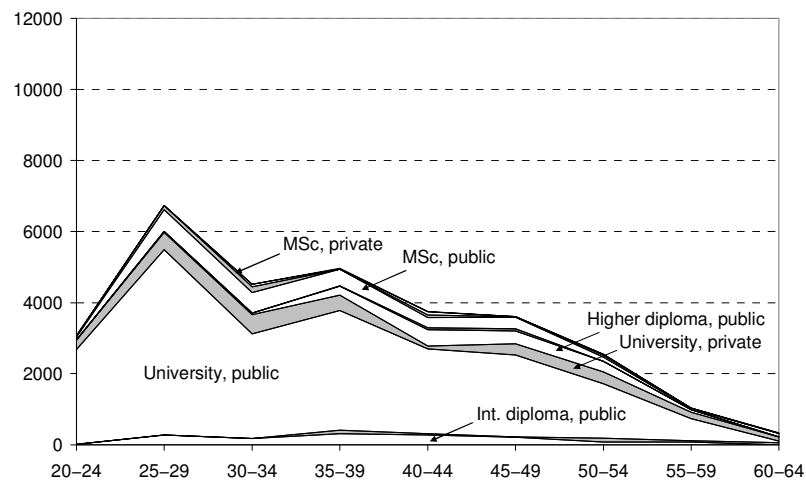

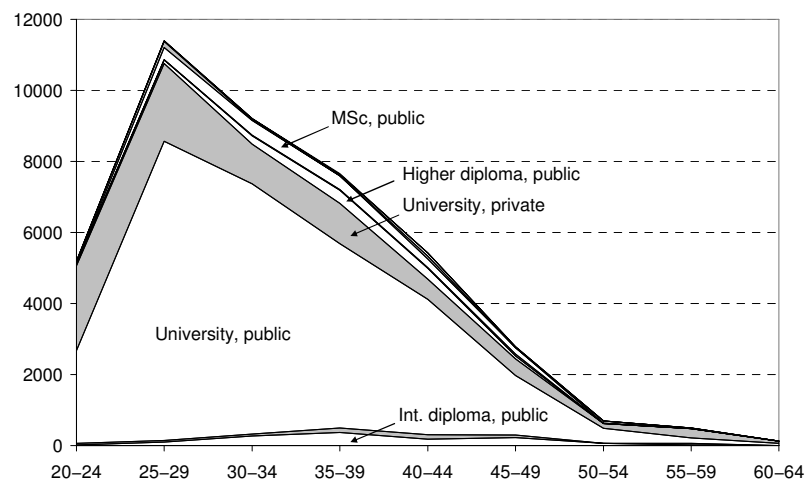Figure 8.1. Male teachers by education, sector, and age, EUS data 2008

Figure 8.2. Female teachers by education, sector, and age, EUS data 2008

Figures 8.1 and 8.2 show, for males and females, respectively, the distribution of school teachers by age and educational qualification. For each educational qualification, the division between public and private sector employment is shown by using grey shading for the latter. The figures show that the profession is overwhelmingly staffed by individuals with bachelor's degrees. This is true, even for the older age groups. In some countries, many, sometime the majority, of teachers were once recruited with less than graduate qualifications. With the recognition of the need to upgrade the quality of educational provision, as well as extending its coverage, these teachers have gradually been replaced by others with graduate qualifications. In Jordan, it is clear that a high-quality policy has been in place for several generations. There are some teachers with only the intermediate diploma, but they form an insignificant proportion of the total, even for the older age groups. The figures give the present cross-section, rather than developments through time, but the picture is not in doubt.

Second, the figures reveal that the profession has increasingly become dominated by women. This is entirely to be expected. In the region, teaching is considered to be a particularly appropriate profession for educated women because it is relatively easy to address the workplace concerns and sensibilities of conservative families.

Third, the figures suggest that, after a rapid increase until a few years ago, the rate of recruitment has significantly declined. It is difficult to be sure about this point. Many of those in the 20–24 age group are university students who have yet to graduate, and it is possible that some may find teaching jobs. The actual position will not be clear for several years. Nevertheless, a fall-off in recruitment should be the logical consequence of the stabilization of the school-age population. The EUS data indicate that the birth rate peaked about 1996. As a consequence, the school age population is now close to its maximum and will soon start falling. The high rate of unemployment among recent female university graduates, shown in Figure 7.10, is also consistent with a fall-off in teacher recruitment.

Employment prospects of university graduates

Of course, school teaching is not the only employer of university graduates, even for females. The next issue is to determine its relative importance. Figures 8.3 and 8.4 show the occupational distributions of university graduates, for males and females respectively, categorized as teachers, other professionals, and non-professionals. For the present analysis, the 'other professionals' category consists of those in major group 1—legislators, senior officials and managers—and major group 2—professionals—other than teachers.

For males, teaching accounts for about 15 percent of the employment of university graduates. For the youngest age groups, particularly those aged 25–29, the private sector, for which teaching is a relatively insignificant activity, has overtaken the public sector as the majority employer of those employed in Jordan. The last qualification is important. Many educated male Jordanians have sought employment abroad, but there appears to be little information on their qualifications or occupations. Even their total number is subject to doubt.
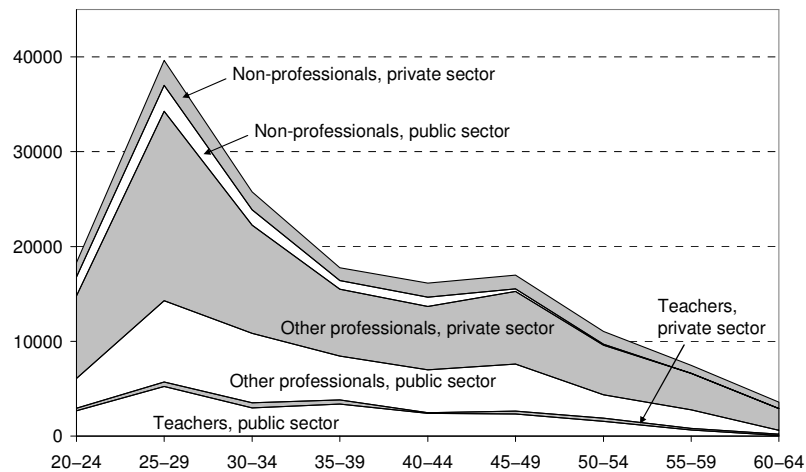
Figure 8.3. Male university graduates by occupation, sector, and age, EUS data 2008
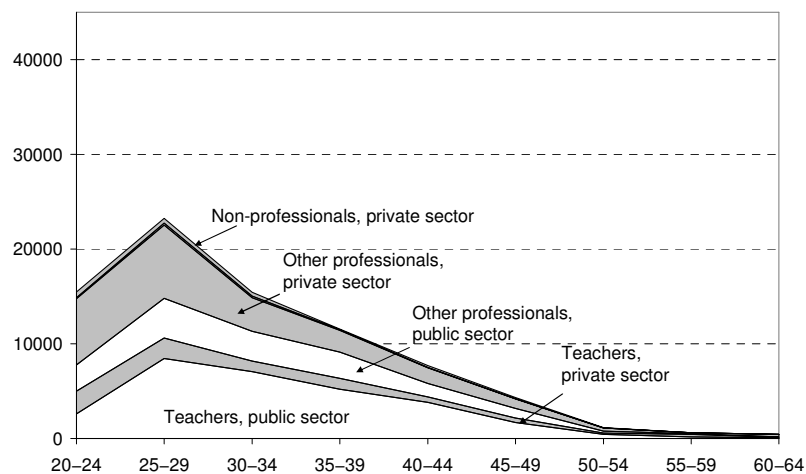
Figure 8.4. Female university graduates by occupation, sector, and age, EUS data 2008

Figure 8.3 suggests that the youngest cohort differs from its predecessors in that it is experiencing difficulties in finding employment, with numbers in both the public and the private sectors sharply down. Of course, it is not possible to be certain about this. Many of this cohort are still students, and many of those who have graduated may still be considering their alternatives.

Figure 8.4 presents the same distributions for female university graduates. Here the picture for the youngest cohort is also poor, but not as bleak. Public sector employment as teachers has fallen sharply, but other forms of employment have held up.

The next issue is whether Figures 8.3 and 8.4 can shed light on the employment prospects of university graduates, bearing in mind the high unemployment rates of both sexes, particularly those in the youngest age groups, in Figures 7.5 and 7.10?

> **Box 8.1**   The points system for the Civil Service recruitment of university graduates
>
> University graduates seeking Civil Service employment may be awarded up to 20 points on academic merit and 20 for antecedence.   12 of the academic points are for the quality of the university degree and the other 8 for the quality of performance in secondary school examinations. The 20 for antecedence are divided into up to 10 for years since graduation and up to 10 for each year since initial application, the rate in both cases being one point per year. There is a provision for extending both antecedence allocations to 15 years.
>
>   Teachers are recruited from those with the highest totals thus determined, subject to an age restriction of 45 years, which can be relaxed if there is a shortage of applicants. Teachers are exempted from competitive examinations. For vacancies in other parts of the Civil Service, except health, which also receives special treatment, short lists of up to six candidates are prepared on the basis of the academic merit and antecedence points. The short-listed candidates take an examination, which is allocated up to 40 points, and an interview, which is allocated a further 10. Recruitment is based on the cumulative total.

The public sector does not look promising in terms of employment opportunities. The prospects for females have been undermined by the apparent collapse in the recruitment of new teachers and the fact that the number of existing teachers approaching retirement age is relatively small.   Some of both sexes may hope to yet hope to enter public service. The points system (see Box 8.1) puts new graduates at a disadvantage with similarly-qualified peers of greater age, but, after queuing for some years, they in turn will have an advantage over their successors. The fact that there are so many who are unemployed, rather than economically inactive, suggests that there are some who harbour such expectations.

Possibly the private sector might take up some of the slack. However, an assessment of the growth prospects of the private sector is beyond the scope of the present analysis. The existence of substantial numbers of highly-educated young people in need of employment suggests that there should be no constraint from the human resources side, but this is not a sufficient condition for growth, and even if growth occurs, there is no guarantee that it will sufficiently labour-intensive to provide employment on the scale required.

This leaves three other possibilities. One is that the established pattern of at least temporarily seeking employment in other countries in the region may be expanded. However, this is unlikely to have much impact on female unemployment.

A second possibility is the replacement of non-Jordanian nationals working Jordan. The EUS, which mostly excludes non-Jordanians, cannot be used to assess the scope for replacement employment. The ES also misses many non-Jordanians because it does not cover agricultural workers or those not working in registered establishments. However, neither of these exclusions should impact greatly on those with a university education.   The estimate of 3,000 non-Jordanian university

graduates that can be obtained from the 2006 ES thus probably at least provides a serviceable order of magnitude. It is small compared with the 49,000 unemployed Jordanian university graduates and doubtless many of the non-Jordanian graduates possess specialized skills that would not be easily replaced or are subject to working conditions that would not be attractive to Jordanians. The scope for replacement therefore appears marginal.

The third possibility is downtrading to occupations previously occupied by those with less than university education. This is happening in nearly every country in the world. Describing the phenomenon more positively as the educational upgrading of occupations, it is a major driver behind improvements in efficiency, workers in a given occupation discharging their functions more intelligently, more speedily, with greater responsibility and with less need for supervision than their predecessors.

This process will happen in Jordan, too. Indeed, in the case of males, there are signs that it is probably already occurring. From Figure 8.3 it can be seen that about 22,000 male university graduates are working in nonprofessional occupations. The largest three-digit occupational categories are 7,500 working in retail sales occupations, 7,000 working as mining and construction labourers, and 1,500 working in associate professional financial occupations. Doubtless some of the 22,000 have taken subprofessional jobs temporarily while continuing to search for a job more appropriate to their education, but only 1,500 of them reported that they were actively seeking another job. Female university graduates, on the other hand, exhibit no such willingness to downgrade, temporarily or otherwise.

In any case, downtrading is a zero-sum game. It may provide non-traditional employment for university graduates, but mostly at the expense of reducing the employment prospects of those in the educational categories that otherwise would have taken the jobs. It thus constitutes a shifting of the unemployment problem, not a solution.

Males with basic education

The other area of acute unemployment relates to males with basic education. The underlying issues responsible for this high rate of unemployment doubtless are complex, too complex to be understood through the analysis of household survey data. A proper understanding can be obtained only by a more focused, complementary, survey of the subpopulation affected. The following remarks are not intended as a substitute for such a study.

Of those with basic education who are employed, the 2008 EUS data indicate that 121,000 work in the private sector and 100,000 in the public sector. While those in the private sector are scattered over a whole range of occupations, no fewer than 62,000 of those in the public sector are classified simply as working in a 'non-technical occupation'. (The code is actually that for construction labourer, but it is not to be taken literally). An inspection of the earnings distributions indicates that, in general, of males with basic education, those in the public sector classified as belonging to this category are paid somewhat more than other public sector workers and somewhat more again than private sector workers.

These findings suggest that the contrast between the attractions of public sector and private sector employment for those with basic education is such that new entrants to the labour force, rather than take a private sector job, are willing to remain unemployed in the hope that an opportunity in the public sector will present itself. These expectations are likely to have been encouraged by the scale of public sector recruitment at this level in recent years.

Even if this hypothesis is on the right lines, there is a further issue. One must be concerned by the fact that so many males terminate their education at the basic level, when their prospects might be significantly improved by staying in school for a further two years and earning the secondary school leaving certificate.

One possible reason follows from the conditions of recruitment discussed in Box 8.3. It may simply be a question of incentives. For those seeking Civil Service recruitment, dropping out with only basic education and continuing with training may place the individual in a much better position than continuing with secondary education. The EUS, in common with the ES, does not give information on training courses.

Another factor might be the weakness of incentives provided by earnings differentials. Box 8.2 outlines the structure of civil service employment as described in current Civil Service Statute (Statute No. 30 of 2007, available at
 http://www.csb.gov.jo/csbwebpage/English_Web_Page/main/MAIN.HTM). Table 8.1 presents some data on public sector pay scales taken from the same statute, for those newly recruited and for those with 5, 10, 15, 20, and 25 years of service. The entry points for holders of bachelor's degrees and holders of the intermediate diploma are specified precisely, but the statute does not make similar statements for those with lower educational qualifications. As a default, the table provides data for those who have started in the first year of each of the three degrees in that category. The marriage allowance of JD10 (JD15 if there is a minor in the household) has been excluded from all calculations.

Box 8.2 The structure of civil service employment

Civil service employment is divided into four categories: the High Category, comprising very senior posts; the First Category, comprising those with Bachelor's degrees or postgraduate degrees; the Second Category, comprising those with the intermediate diploma; and the Third Category, comprising those with secondary education or less. The First, Second, and Third Categories are subdivided into degrees and years as follows:

First Category: a Special degree followed by seven ordinary degrees. Passage through degrees 2–7 takes five years. Up to fifteen years are allowed for the first degree and ten for the Special degree.

Second Category: nine degrees, with passage through degrees 2–8 taking five years and 15 years being allowed for the first degree.

Third category: three degrees, with 40 years being allowed for each.

Article 47 of the statute states that university graduates are placed in the third year of the seventh degree of the First Category on recruitment, unless they have earned the degree by correspondence, in which case they start in the first year of that degree.

Two-year intermediate diploma holders start in the third year of the ninth degree of the Second Category. Those whose programmes have taken three years start in the first year of the eighth degree.

Those with lower educational qualifications are inserted in the first degree of the Third Category with advancement of five or eight years of work experience according to occupation.

Box 8.3 The points system for the Civil Service recruitment of 'Third Category' workers

The points system for 'third group' workers (blue-collar workers and others of similar status), in common with that for the first and second groups described in Box 5.1, also allocates 100 point in total over a series of dimensions. It allocates 50 points to an assessment of performance that may involve tests, interviews, or both. Of the other 50, only 12 are allocated to educational level, with 5 being offered for basic education, 7 for secondary, 10 for obtaining the secondary certificate, and 12 for obtaining a community college diploma. Up to 15, at the rate of 3 points per year, may be awarded for work experience, but this must be modest or non-existent for recent entrants to the labour force. The other 25 points may be awarded for training courses, both long-term and intensive. Long term courses of six months, one year, and two years duration earn 6, 10, and 15 points, respectively. Short-term courses (two weeks or more) related to a vacancy, taken at an accredited training agency, may be awarded two points, up to a maximum of ten.

   Thus a basic education graduate who stays on in school for two years, but does not earn the secondary certificate, is no better off than one who terminates at basic and takes a vacancy-related two-week training course. Even if he (or she, but in this discussion, it will be mostly he) were to earn the secondary school certificate, he would be no better off than an individual who had dropped out and taken a six-month long-term course, and at a significant disadvantage to one who had spent the entire two years in training.
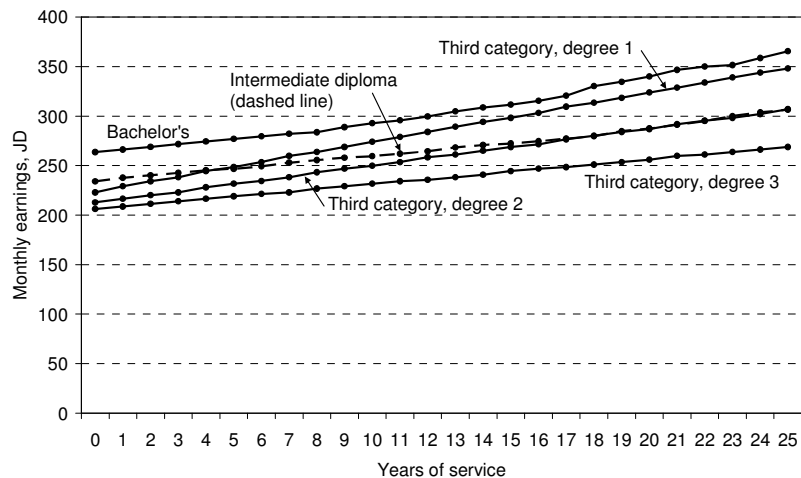

Figure 8.5. Pay progression in the civil service, by years of service

Table 8.1 Civil service pay by years of service					
	Basic salary	Basic allowance	Cost of living allowance	Living standard allowance	Total
University					
Entry	82	25	115	42	264
5 years	93	28	115	41	277
10 years	106	32	115	40	293
15 years	122	37	115	38	312
20 years	140	49	115	36	340
25 years	164	57	115	29	365
Int. diploma					
Entry	60	15	115	44	234
5 years	71	18	115	43	247
10 years	82	21	115	42	260
15 years	93	23	115	41	272
20 years	106	27	115	40	288
25 years	122	31	115	39	307
Category 3, degree 1					
Entry	72	18	90	43	223
5 years	94	24	90	41	249
10 years	116	29	90	39	274
15 years	137	34	90	37	298
20 years	159	40	90	35	324
25 years	180	45	90	33	348
Third Cat, degree 2					
Entry	63	16	90	44	213
5 years	79	20	90	43	232
10 years	95	24	90	41	250
15 years	111	28	90	40	269
20 years	127	32	90	38	287
25 years	144	36	90	37	307
Third Cat, degree 3					
Entry	57	14	90	45	206
5 years	68	17	90	44	219
10 years	79	20	90	43	232
15 years	90	23	90	42	245
20 years	100	25	90	41	256
25 years	111	28	90	40	269

Figure 8.5 illustrates the progression of earnings with service for the five employment levels shown in the table. A remarkable feature is the way in which pay of those in the first degree of the Third Category overtakes the pay of intermediate diploma holders and comes close to that of those with bachelor's degrees. Likewise, the pay of those in the second degree of the Third Category eventually catches that of intermediate diploma holders. At first sight, the rewards for a bachelor's degree seem surprisingly small and those for the holders of the intermediate diploma nonexistent.

The reality is almost certainly somewhat different. There are numerous other allowances relating to the nature and difficulty of the job, the exercise of responsibility, and the location. Extra annual increments may be awarded on various grounds. Such adjustments are necessary in order to keep the

public sector competitive for key skills. The basic structure has to remain stable over many years because it forms an implicit contract with the employees, but there has to be flexibility that allows some response to market forces. The various allowances and increments are almost certainly more highly correlated with some types of education than with others. The only was to evaluate the true incentives provided by the system as a whole is to undertake econometric analysis of the micro data available in the administrative records. Such data were not available for the purposes of the present analysis. In the absence of such data, it can only be said that Table 8.1 and Figure 8.5 are not inconsistent with the hypothesis that public sector pay is relatively generous for those with secondary education or less and that it has weakened the incentives for completing secondary education and continuing to higher education.

9. IMPLICATIONS FOR POLICY ANALYSIS

The present study has focused on relative earnings by level of education in the public and private sectors and on the implications for incentives relating to labour supply by sex and level of education. The limits to the depth of the analysis must be acknowledged from the outset. The use of household survey data provides a robust quantitative framework for describing economic activity in terms of labour force participation, employment, and unemployment, by sex, age, and education, in a way that is otherwise not possible except by means of a census of population. However, the lack of precision in the measurement of earnings severely restricts the analysis of the economic implications of the findings. In particular, it limits the evaluation of incentives, both in terms of choosing to seek work in the public sector rather than the private sector, or vice versa, and, prior to that, in terms of decisions relating to educational attainment. As always, there is a need to complement survey analysis with less formal investigative techniques that, even if subjective, may nevertheless be enlightening.

Comparisons of earnings in the public and private sectors

The starting point was a comparison of public and private sector pay. The survey data allow one to establish that, for the dominant postsecondary qualification, the bachelor's degree, median pay for males is higher in the private sector than in the public sector, while for females it is about the same. The survey data also reveal wide variations in the distribution of pay for both sexes and sectors, particularly in the private sector.

However, without further information, it is not possible to come to definite conclusions concerning the competitiveness of pay in the two sectors, and even less possible to offer policy prescriptions. For example, the fact that, among holders of bachelor's degrees, those with the very highest rates of pay tend to be in the private sector, does not imply that public sector pay is not competitive. It could just be that the skills thus rewarded are specific to the private sector and in limited supply. Entrepreneurship might be an example.

Equally, the fact that the lowest rates of pay are also in the private sector does not mean that the lowest paid are less skilled than their public sector counterparts. The latter might just be benefiting from the fact that, in a credentialist recruitment process, luck may be more important than talent. The existence of a competitive element in some public sector recruitment is a step in the right direction, at least in principle. How well it works in practice can be known only by those directly involved.

In the case of teachers, the numerically most important occupation of holders of bachelor's degrees in the public sector, there is no competitive element. The points system that governs recruitment is not a substitute because it does not provide any guarantee that only the most able will be selected. On the contrary, it allows those who have exhibited mediocre academic performance to reach parity, for recruitment purposes, with their more talented peers by queuing longer for a job. Further, the statute does not seek to differentiate between either institutions or disciplines. In many countries, there is a tendency for the pay offered to new teachers to be unattractive to those with degrees in technical disciplines, and correspondingly excessive for those with liberal arts degrees, in relation to market rates, with the consequence that either there is a shortage of teachers with technical skills or that those who are recruited are not among the best. Only those who are actively involved in the recruitment process can be in a position to know whether or not these are problems in Jordan.

The existence of a queue of unemployed university graduates is consistent with the hypotheses that the public sector is either overpaying or not being sufficiently selective, but any definite conclusions would be unwarranted.

For lower levels of education, there is evidence that the public sector is paying more than the market rate. In theory, the lowest monthly pay in the public sector should be JD206. This is far above the private sector minimum pay, JD150. The estimates of median pay in Section 5 appear to confirm that the public sector pays relatively highly. In great measure, this is attributable to the provision of a cost of living allowance of JD90 and a living standard improvement allowance of about JD40 (see Table 8.1). Given its greater job security, and probably also more benign working conditions, most individuals with low levels of education must find working in the public sector irresistibly attractive.

Incentives for educational attainment

With regard to incentives for educational attainment, the rate of progression of earnings with education in the private sector appears appropriate. Table 8.1 indicates that, controlling for age, a male with secondary education earns 16 percent more than one with basic education. A male with an intermediate diploma from a community college earns a further 14 percent. Those with bachelor's degrees earn 30 percent more than those with intermediate diplomas. (This differential may seem a little high, for just two extra years of schooling, but there is probably an ability differential as well.) Those with MSc degrees earn 17 percent more than university graduates. These figures are all very approximate, given the nature of the earnings data, but they are entirely in line with what one would expect in other countries. For females, the differentials below intermediate diploma are not of great practical relevance because the labour force participation rates are very low. For higher education they are similar to those for males, the differences probably being largely attributable to sampling error.

By contrast, the incentives provided by educational earnings differentials in the public sector are much weaker. The increase from basic to secondary is only 7 percent. The increase from secondary to intermediate diploma is 11 percent. That from intermediate diploma to bachelor's degree, only 16 percent. Likewise, sectoral cross-differentials do not appear to be conducive to educational attainment. In particular, a male with basic education in the public sector tends to earn more than a secondary graduate in the private sector. The reason for the flatness in public sector earnings profiles is, of course, that major components of earnings, the cost of living allowance and the living standards improvement allowance, are minimally education-related.

The relatively generous rates of pay in the public sector for lower levels of education therefore appear dysfunctional in two respects. They make working in the private sector even more unattractive than it would otherwise be, and they weaken the incentives for educational attainment. Given Jordan's objective of becoming a knowledge economy, this is a matter of concern.

Unemployment

Finally, it may be in order to make some remarks about the high rate of unemployment. In the short to medium term, unemployment is a macroeconomic problem that cannot be resolved by supply-side policies relating to earnings differentials or education. Measures to re-align public and private sector pay cannot be expected to have any immediate effect on the unemployment problem, in so far as it is caused by an insufficiency in the aggregate demand for labour. Increases in private-sector demand will depend upon private-sector economic growth, and then only if it is of an employment-generating nature. An increase in public sector demand can, of course, be effected at any time that it seems politically expedient but, as with other countries that are better endowed with human than natural resources, this is a measure that always has to be considered with care. Increases in public sector employment have to be paid for, and if this means increasing the burden of taxation on the private

sector, thereby reducing its competitiveness and inhibiting the entrepreneurial spirit, the long-term cost can be very high. This is a major concern throughout the world.

The one area where changing earnings patterns can have a relatively quick effect is on labour supply. In this respect, the Jordanian labour market is unusual, for two reasons. First, the labour force participation rate of less-educated women is very low. Peebles, Darwazeh, Ghosheh, and Sabbagh (c.2007) have shown that this is at least partly due to cultural factors and accordingly may be expected to be resistant to change. However, precisely because the participation rate is so low, any change that does occur would be likely to be in the direction of an increase, aggravating the unemployment problem.

The second unusual feature of the Jordanian labour market is the absence abroad of substantial numbers of males. It is very likely that the outflows and return flows may to some extent be influenced by the compensation on offer in the domestic labour market, taken in conjunction with the probability of finding employment at all. From this point of view, any measure that makes the domestic labour market more attractive is likely to exacerbate the problem of unemployment.

The only way in which earnings relativities can have an effect on unemployment, and then only in the medium to long term, is on the quality of the labour force through their influence on the decisions of individuals and their families concerning their educational investments. The existence of an educated labour force with realistic expectations concerning earnings can be a positive factor in encouraging investment, foreign or otherwise, and growth. But it is only a necessary factor, not a sufficient one.

Policy prescriptions

This report does not offer any concrete policy prescriptions. Analysis based on the analysis of survey data, especially high-quality surveys such as the EUS and ES, is objective and unchallengeable. However, as is always the case, there are limits to the depth of detail. These limits are important for some of the issues that have been discussed. For example, both the EUS and ES contain data on level of educational attainment and specialization. But they do not shed any light on variations in skills and ability within the credential classification, and these variations are potentially very important when comparing recruitment and employment in the public and private sectors.

Instead, three areas of policy concern, one general and two specific, will be summarized.

The general level of public sector pay

In Section 2 of this report it was argued that the conventional economic model does not apply to pay determination in a labour-surplus economy. As a consequence, public sector pay is primarily determined by the financial resources available to the public sector and social considerations. The question then arises as to whether the general structure of public sector pay might be too high or, for that matter, too low. One needs to assess whether the aggregate public sector wage bill might be placing an undue burden on the private sector and discouraging activity in it. One also needs to assess whether it is leaving sufficient resources for the government to develop the infrastructure of the country to encourage economic growth, for example, improved transport and facilities that might promote the tourist industry. These macroeconomic issues are outside the scope of this report, but nevertheless they should be kept in mind in any discussion of public sector pay.

Public sector recruitment of those with less-than-secondary education

The data reveal that in recent years the public sector has recruited substantial numbers of individuals with less-than-secondary education, and that the pay of such individuals has been higher than that of

their peers in the private sector, despite the fact that public sector employment offers job security and, generally, shorter working hours and, perhaps, more benign working conditions. This may have had two serious dysfunctional effects. One is that it may have made the low-paid work that such individuals can command in the private sector even more unattractive, exacerbating the problem highlighted in World Bank (2007) of the paradoxical existence of a high rate of unemployment coexisting with the extensive private sector employment of foreigners. Another is that it has flattened the earnings-education profile in the public sector, reducing the incentive to take the most of opportunities for educational attainment.

As has already been noted, the flatness of public sector, as a function of education, is attributable to important components of pay that are minimally education-related. These components have been increased substantially in recent years, and as a consequence there may be less inequality than before in the earnings of those in public service. However, these components also have a negative effect on inequality, in that they have improved the position of less-educated individuals fortunate enough to hold jobs in the public sector relative to the position of the rest of the less-educated population. The increases in the minimum wage in the private sector has probably reduced the inequality between those working in the public sector and those working in the private sector, but only for those who have jobs. Those who do not have jobs are relatively, even worse off than before. For those who have no intention of working, obviously this does not matter, but in the case of those who are unemployed or discouraged because they are unlucky or because there are social or cultural obstacles to their employment, as appears to be the case for many less-educated women, the increases in pay in the public and private sectors will have made their situation relatively even worse and aggravated their dependency.

Public sector recruitment of university graduates

The issues relating to the public sector recruitment of university graduates have been discussed extensively above and will only briefly be summarized here. It appears that the median earnings of male university graduates are somewhat lower than those in the private sector, and that those of females in the two sectors are about the same, in so far as comparisons can be made with the categorized data available in the EUS. However, averages convey only part of the relationships. Looking at the entire distributions of earnings, for both sexes the distribution for the public sector lies largely within that for the private sector, with fewer high earnings and fewer low ones. These observations are consistent with the hypothesis that the public sector requires a narrower range of skills than the private sector and is paying competitively. But they are also consistent with the hypothesis that the public sector might be paying too little for certain types of skill in short supply and too much for others that are abundant. It is not possible to discriminate between these hypotheses using survey data. The existence of a queue of unemployed university graduates is consistent with the hypotheses that the public sector is either overpaying or not being sufficiently selective, but it is not possible to draw definite conclusions from survey data alone. Only those in charge of recruitment for the Civil Service are in a position to know.

In particular, there must be a concern whether the public sector recruitment of teachers is as selective as it might be. There is no competitive element in their recruitment, the points system of recruitment in principle delays, but does not prevent, the recruitment of individuals of mediocre academic ability, and it is not clear that the hiring process makes it possible to recruit high-calibre teachers in technical subjects. Only those directly involved in teacher recruitment will be able to assess these matters.

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