



## DOES INDONESIA HAVE A 'LOW PAY' CIVIL SERVICE?

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Government officials and policy analysts maintain that Indonesia's civil servants are poorly paid, and have been for decades, a conclusion that is supported by anecdotal evidence and casual empiricism. In this paper, the relationship between government and private compensation levels is systematically analysed using evidence from two large household data sets, the 1998 Sakernas and the 1999 Susenas. The results suggest that government workers with a high school education or less, representing three-quarters of the civil service, earn a pay premium over their private sector counterparts. Civil servants with more than a high school education earn less than they would in the private sector but, on average, the premium is far smaller than is commonly alleged, and is in keeping with public/private differentials in other countries. The results prove robust to varying econometric specifications and cast doubt on the proposition that low pay is an explanation for government corruption.

### INTRODUCTION

Among academic writers and policy makers alike, Indonesia has been characterised as having a 'low pay' civil service. This is a long maintained and widely shared view. Smith (1975: 722–3), referring to the situation in 1970, suggests that 'Indonesian public officials are among the most poorly paid in the world', with official salaries covering only half of 'essential minimal monthly needs'. Smith goes on to cite low salary levels as a key determinant of government corruption. Gray (1979: 85), also referring to the 1970s, 'wonder[s] how Indonesian civil servants survive ... if [the civil servant] confines himself to the [official] nominal salary plus automatic cash supplements'. Gray documents

sources of illegal income for public officials, but is more circumspect than Smith about the causal connection between low salaries and corruption.

The remuneration of Indonesian civil servants in 1984 is considered by Wirutomo *et al.* (1991), who find parity between private and government compensation for relatively unskilled workers (rank I), but a growing differential in favour of the private sector at higher skill levels. At rank II the private to government pay ratio is 2.7:1, and at the highest government rank (IV), the ratio rises to 5.2:1. A recent report by the World Bank for the Consultative Group on Indonesia paints a similar picture for the late 1990s, with a growing

government/private pay gap at the highest ranks. It finds that '[w]here civil service clerks make about half [the salary] of their private sector counterparts, director-generals make one-tenth to one-fifteenth' (World Bank 2000: 14).

Indonesian government officials share these views. A 1970 commission, the Committee of Four (cited in Smith 1975), attributed widespread public corruption to low salaries. Articles in *The Straits Times* (30 March and 4 April 2000) suggest that similar views are held by contemporary policy makers and were the basis for the huge increase in allowances, amounting to as much as 1,000%, given to some structural staff in April 2000.<sup>1</sup>

The claim that Indonesian civil servants are low-paid raises many questions. Salaries may be low, but relative to what or whom? Are government salaries low relative to international levels or to domestic alternatives? With a civil service, including the armed services and police, of over 4.6 million, are all low-paid or only those at higher ranks? Beyond these matters of fact, the consequences of low pay warrant further scrutiny. Is low pay a primary determinant of corruption?

#### EVIDENCE ON PAY LEVELS

Belief in the inadequacy of government compensation may be widespread, but the evidence to substantiate it has not been sufficient. Anecdotal evidence abounds. Civil servants, especially in the managerial and professional ranks, often claim to know people with similar qualifications who earn multiples of their salaries in the private sector. Academic studies and policy analyses attest to more rigorous comparisons. Smith (1975) conducted a survey of almost 600 government officials and asked them to estimate their monthly expenditure needs. On average, such needs fell well below official salaries. Clark and Oey-

Gardiner (1991) employ a similar methodology in their analysis of faculty compensation at Indonesia's public universities. They compare official salaries with a respondent's identification of 'income needed', and conclude that government pay is below prevailing market wages. But such comparisons are not a robust way of determining the adequacy of government pay. Expenditure behaviour is not exogenous to earnings. If expenditures exceed official income, this may reflect opportunities, both legal and illegal, that civil servants have to secure income from other sources, rather than any inadequacy of government pay.

The studies by Wirutomo (1991) and the World Bank (2000) employ a different method from that used by Smith (1975) and Clark and Oey-Gardiner (1991), comparing government pay at different salary ranks with compensation offered by a sample of private establishments. Wirutomo describes his comparison group as 'big private firms' visited by the author. The World Bank study employs a pay survey undertaken by Watson Wyatt, an international human resource consulting firm. The Watson Wyatt data were compiled from a survey of 79 companies in Jakarta, of which 77 were multinationals, mostly North American or European, and 80% were in banking, information technology, insurance or pharmaceuticals. Such narrow samples of firms should not be considered as representative either of domestic firms or of the labour market alternatives facing most Indonesian civil servants.

Given their bases for comparison, it is not surprising that earlier studies conclude that Indonesia's civil servants are paid less than their counterparts in the private sector. It is a well known result, after adjusting for worker education and experience, that multinationals and

large domestic concerns pay higher wages than do domestic or smaller enterprises, other things being equal.<sup>2</sup> Why such firms pay a premium for workers is a subject of some debate (Jenkins 1990). Multinationals, large domestic firms, and many state-owned enterprises tend to have considerable ability to pay their employees. This is because of the economic rents these firms often enjoy owing to protected product markets or economies of scale. Such firms may use these rents to compensate employees in excess of market wages in the hope of attracting and retaining the best workers (an efficiency wage explanation), in order to minimise labour unrest in their operations, or in response to direct government pressure. The superior compensation received by Indonesian employees of foreign and large domestic firms may even indicate that such firms pay 'too much' relative to the reservation wages of their employees. But it is harder to argue that previous studies provide reliable evidence that civil servants receive 'too little'.

An alternative approach to evaluating the relative position of government pay within the Indonesian wage structure is to analyse data from Indonesia's labour force (Sakernas) and household expenditure (Susenans) surveys, both undertaken annually by the government's statistical agency, Badan Pusat Statistik (BPS). These are large household surveys, which identify whether an individual's primary employment is in government or the private sector, and which provide information on monthly earnings and expenditure, on education and experience, and on other human capital attributes. Surprisingly, these surveys do not appear to have been used before to evaluate the relationship between government compensation and prevailing market wages.

#### GOVERNMENT AND PRIVATE SECTOR PAY COMPARISONS USING SAKERNAS

Wage earners represent about one-third of the nation's labour force of 90 million. The remaining two-thirds are primarily self-employed or family workers in agriculture or the informal sector. Among wage earners, roughly 4.6 million are civil servants or work for the armed services or the police.<sup>3</sup>

Earnings and other data from Sakernas are drawn from a representative national sample of 50,000 households. In the 1998 Sakernas survey there were almost 28,000 observations on individual wage earners, of whom 16.7% had the primary sector of economic activity identified as 'government or defence service'. Earnings information, including compensation both in cash and in kind, is obtained from the response to the question: 'What is the average net monthly income that you receive from your primary activity/job?'

Table 1 presents a comparison of government and private pay by level of education. On average, government earnings at Rp 414,000/month *exceed* the national non-government average of Rp 274,000/month. This is not surprising, since government is more education-intensive than private wage sector work. (In the Sakernas sample, 49% of workers engaged in the private wage sector have primary education or lower, compared with only 5% for workers employed by government.) When data are disaggregated by education level, a government pay premium remains at lower education levels; close to pay parity is achieved for graduates of senior high school; and a private sector premium emerges for those with some tertiary education ('Diploma I/II' or 'Akademi/Diploma III') or a university degree ('Universitas/Diploma IV').

TABLE 1 *Monthly Earnings by Education Level, 1998*  
(Rp '000/month, and % of wage earners in category)

Education Level	Private Sector	Government	Ratio: Private to Government Pay
Primary or lower	192 (42.2)	290 (0.7)	0.7:1
Junior high school	239 (13.7)	379 (1.2)	0.6:1
Senior high school	337 (23.5)	392 (8.2)	0.9:1
Some tertiary	530 (3.2)	458 (2.0)	1.2:1
University or higher	771 (3.3)	520 (2.1)	1.5:1
<b>All levels</b>	<b>274</b> <b>(85.8)</b>	<b>414</b> <b>(14.2)</b>	<b>0.7:1</b>

Source: Sakernas, 1998.

Three conclusions emerge from this simple comparison of mean earnings. First, the overwhelming majority of government workers do not receive 'low pay' compared with their private sector counterparts. Close to three-quarters of all civil servants have a high school degree or less, and this group earns pay that is either comparable to or higher than that prevailing among similarly educated workers in the private sector. Second, civil servants with post-secondary education in 1998 did earn less than prevailing market wages, but the pay ratio between the private and public sector for this higher education cohort was of the order of 1.2:1 to 1.5:1. This is well below the ratios reported in earlier studies, which were based on much narrower samples of private sector jobs and hence of market opportunities. Third, the pattern of government pay exceeding private compensation for less educated workers and private pay exceeding government compensation

for more educated workers—the problem of government salary compression—is a pattern common to other civil services (Nunberg 1994). Indonesia's situation does not appear unique.

Sakernas is a rich data set: it allows comparison of government and private pay based on worker attributes other than education, such as age, gender and location, which are commonly found to be significant determinants of earnings. Tables 2, 3 and 4 present regression estimates that include these variables. The results confirm the basic findings reported in the simple comparisons of means in table 1.

In table 2, following standard human capital theory, the semi-logarithmic earnings equation (1) is estimated. The dependent variable is the natural logarithm of monthly earnings ( $E$ ) of individual  $i$ , and the independent variables include age ( $A$ ) and age-squared, to account for the expected curvature in age-earnings profiles. Five discrete cat-

TABLE 2 *Determinants of Monthly Earnings of Wage Employees, 1998*

Variables	All Wage Employees		Urban Employees Only	
	Coefficient	(t-Statistic)	Coefficient	(t-Statistic)
Constant	10.41	(192.1)	10.42	(143.5)
Age	0.04	(15.9)	0.05	(13.8)
Age-squared	-0.0004	(-11.5)	-0.0004	(-9.0)
<b>Education</b>				
Primary	0.32	(17.4)	0.34	(12.4)
Junior high school	0.53	(26.0)	0.55	(18.1)
Senior high school	0.82	(39.9)	0.86	(28.7)
Some tertiary	1.16	(41.5)	1.21	(31.5)
University	1.26	(33.9)	1.33	(29.3)
<b>Dummy variables</b>				
Government	0.10	(5.7)	0.002	(0.1)
Male	0.40	(33.6)	0.31	(22.6)
Urban	0.15	(10.9)	-	-
No. of observations	27,759		16,366	
R <sup>2</sup>	0.39		0.39	
F	652.4 (10, 1,027)		383.3 (9, 598)	

Source: As for table 1.

egories of education are included ( $S_2$  to  $S_6$ ). The omitted category is 'less than completed primary education'. Specifications also include the following dummy variables: government ( $G$ : 1 = government and defence services; 0 = all other), gender ( $M$ : 1 = male; 0 = female), and urban ( $U$ : 1 = urban; 0 = rural).

$$\ln(E_i) = \alpha_c + \alpha_a A_i + \alpha_{a2} A_i^2 + \sum_{s=2,6} \beta_s S_{s,i} + \delta_g G_i + \delta_m M_i + \delta_u U_i + \varepsilon_i \quad (1)$$

Age and age-squared have the expected signs, and high degrees of significance. Education variables exhibit increasing and significant earnings differentials associated with higher levels of schooling. Men earn a significant premium over women, as do urban over rural wage workers. In the estimation on the entire wage sector, government

workers, on average, earn an estimated *pay premium* over the private sector, other things being equal, of about 10%.<sup>4</sup> If the sample is restricted to urban employees, the magnitude and significance of the coefficients on age, education and gender remain roughly the same, but the government premium is indistinguishable from zero. In other words, among urban employees, government and non-government workers, on average, have the same reported earnings from their primary job if human capital characteristics are held constant.

Why is there a difference in the 'government' coefficient between the entire wage sector and the urban only sample? The entire wage sector sample includes rural private sector wage workers – primarily plantation labour – who tend to earn lower wages than their urban

TABLE 3 *Earnings Structure by Education: Government versus Private Employees (All Wage Employees), 1998*

Variables	Coefficient	(t-Statistic)	Coefficient on Interaction Term <sup>a</sup>	(t-Statistic)
Constant	10.43	(193.1)		
Age	0.04	(15.6)		
Age-squared	-0.0004	(-11.2)		
<b>Education</b>				
Primary	0.32	(17.2)	0.02	(0.09)
Junior high school	0.52	(25.3)	0.14	(0.78)
Senior high school	0.80	(38.7)	0.05	(0.30)
Some tertiary	1.22	(37.6)	-0.16	(-0.91)
University	1.36	(29.5)	-0.28	(-1.59)
<b>Dummy variables</b>				
Government	0.11	(0.62)		
Male	0.40	(33.6)		
Urban	0.15	(10.9)		
No. of observations	27,759			
R <sup>2</sup>	0.39			
F	451.2	(15, 1,027)		

<sup>a</sup>Coefficient on the product of each education dummy variable and the government dummy variable.

Source: As for table 1.

counterparts. Central government employees, on the other hand, are covered by a unified salary structure that does not differentiate on the basis of rural or urban location: rural government employees, who account for one-third of all government employees, earn the same amount as urban government employees. Thus if parity in pay between the government and private sectors holds in the urban sample, the same would not be expected in the full sample, which would tend to show a government premium.

Tables 3 and 4 extend the analysis by looking 'behind' the average return to government employment. The regres-

sion equations used to generate the results in tables 3 and 4 examine differences by education in the earnings structure of government and the private sector. Added to the basic earnings function of table 2 are interactive dummy variables showing the interaction between government employment and education levels. Extending equation (1) yields:

$$\ln(E_i) = \alpha_c + \alpha_a A_i + \alpha_{a2} A_i^2 + \sum_{s=2,6} \beta_s S_{s,i} + \delta_g G_i + \delta_m M_i + \delta_u U_i + \sum_{s=2,6} \beta_s^I S_{s,i} G_i + \varepsilon_i \quad (2)$$

The coefficients on the interaction terms ( $\beta_s^I$ ) indicate whether there is an

TABLE 4 *Earnings Structure by Education: Government versus Private Employees (Urban Employees Only), 1998*

Variables	Coefficient	(t-Statistic)	Coefficient on Interaction Term <sup>a</sup>	(t-Statistic)
Constant	10.44	(144.3)		
Age	0.05	(13.4)		
Age-squared	-0.0004	(-11.4)		
<b>Education</b>				
Primary	0.34	(12.3)	0.10	(0.46)
Junior high school	0.53	(17.3)	0.25	(1.15)
Senior high school	0.84	(28.0)	0.06	(0.29)
Some tertiary	1.26	(29.6)	-0.16	(-0.71)
University	1.43	(26.8)	-0.26	(-1.14)
<b>Dummy variables</b>				
Government	-0.003	(-0.21)		
Male	0.31	(22.7)		
Urban	-	-		
No. of observations	16,366			
R <sup>2</sup>	0.39			
F	256.2	(14, 598)		

<sup>a</sup>See table 3, note a.

Source: As for table 1.

additional premium awarded to workers by education based on their sector of employment. The impact on earnings of government employment is now the sum of the coefficient on the 'government' dummy variable and the coefficient on the relevant interactive dummy variable on education ( $\beta_s + \beta_s^I$ ).

Both the entire wage sector sample (table 3) and the urban only sample (table 4) suggest that those government workers with a high school education or less earn a premium over their private sector counterparts. On the other hand, government workers with some tertiary education or a university degree earn less than they would in the private sector. The respective premiums are, at

most, around 25%, with relatively weak statistical significance. The econometric evidence, as in the simple comparison of average pay in table 1, does not indicate that the government is, over all, a low wage employer, nor is there evidence of the huge private pay advantages for educated workers reported by previous studies.

These results are maintained after subjecting the analysis of pay differentials to more stringent econometric specifications. Two econometric problems confront the earnings regression reported in this paper. First, workers for whom we observe earnings are not a random sample of the population but a potentially self-selected one. If this po-

tential self-selection is correlated with the variables of interest, then the uncorrected estimates would be biased, as they would capture both a 'participation' effect and a direct effect on earnings.<sup>5</sup> Second, unobserved household and community characteristics correlated with the included characteristics (including the 'government' dummy variable) are not specified in the model. Not correcting for these would potentially bias the estimates, for example, ascribing to government a pay differential actually awarded to unspecified worker attributes. Employing the approach used by Behrman and Deolalikar (1995) in their analysis of gender differentials in the returns to schooling in Indonesia, we estimate alternative specifications in an attempt to correct for these potential estimation problems. These approaches yield coefficients that are little different from those obtained using the basic formulations in tables 2 to 4. (The appendix provides details of the alternative econometric approaches.)

#### GOVERNMENT AND PRIVATE SECTOR PAY COMPARISONS USING SUSENAS

Because the results on government versus private pay run counter to conventional wisdom, it is important to identify other data that might offer an independent test of the relationship. In addition to its labour force survey, BPS also carries out an annual household expenditure survey (Susenas). This contains questions similar to those in the Sakernas, and permits alternative estimates of how government pay relates to prevailing market wages.

The 1999 Susenas was available for the purposes of this study, and covers over 160,000 households. About one-third of these have household heads who report positive wage income. A comparison of mean earnings from this

sample (results not shown) by education level reveals findings similar to those of table 1. Because of inflation, nominal earnings are higher in 1999 than in 1998, but the ratio of government to private pay by education level is similar.

Table 5 reports regression estimates for the subsample of wage earning household heads in the 1999 Susenas. Only household heads are employed in this part of the analysis because there is only one value of expenditure per household. Therefore, the right-hand side variables in the model need to be aggregated in some way so that there is only one observation per household. We choose to record the characteristics (wage earning status, gender and education) of the *head* of the household. This choice maintains simplicity in the model (for example, there are no fractional education levels), and allows simple comparisons to be made between the Susenas earnings and expenditure models described below, as well as with the already reported Sakernas earnings model.

The first regression presents an earnings equation run on all wage earning household heads. The results are essentially the same as those from the Sakernas (table 2): earnings increasing but at a decreasing rate with age; earnings increasing with education; and earnings higher for men and in urban areas. The 'government' dummy variable is positive and remains significant (with a t-statistic of 2.3). But the relative effect of government employment on monthly earnings, about 4%, is less than half that found in the Sakernas data. This may be because the Susenas results, unlike those from the Sakernas, are for household heads only, and most household heads are male. Since women working for government earn a greater premium (or smaller deficit) over their private wage alternative than do men, other things being equal, a smaller coefficient

TABLE 5 *Determinants of Earnings and Expenditures of Household Heads Who Were Wage Employees, 1999*

Independent Variables	Dependent Variable			
	Ln(Monthly Earnings)		Ln(Household Expenditure per Person)	
	Coefficient	(t-Statistic)	Coefficient	(t-Statistic)
Constant	10.51	(141.6)	12.48	(224.6)
Age	0.05	(14.4)	-0.05	(-19.5)
Age-squared	-0.0005	(-12.4)	0.0006	(19.5)
<b>Education</b>				
Primary	0.26	(15.7)	0.11	(12.8)
Junior high school	0.49	(27.1)	0.28	(25.6)
Senior high school	0.73	(40.6)	0.49	(39.7)
Some tertiary	1.01	(42.8)	0.67	(35.9)
University	1.15	(25.7)	0.88	(33.9)
<b>Dummy variables</b>				
Government	0.04	(2.3)	-0.01	(-1.0)
Male	0.47	(30.4)	-0.12	(-10.5)
Urban	0.22	(18.5)	0.26	(21.9)
No. of observations	54,513	54,513		
R <sup>2</sup>	0.32	0.34		
F	617.8 (10, 1,689)	545.8 (10, 1,689)		

Source: Susenas, 1999.

cient on the 'government' dummy variable in the Susenas than in the Sakernas is expected.<sup>6</sup>

The second regression in table 5 offers an indirect test of relative government compensation levels. It uses the expenditure information in the Susenas, and the dependent variable is no longer earnings but the logarithm of monthly household expenditures per household member. If government pay is significantly lower than market wages, expenditure levels in households headed by government workers might be expected to be lower as well. This is not the case. After allowance is made for the age, education and gender of the household head, and for urban/rural location

and size of household, the effect of sector of employment on household expenditures is not significantly different from zero. Households headed by government workers, on average, do not have lower expenditures than their private sector counterparts. As in the results using the Sakernas, if interaction terms are added by education level, average household expenditures are a little higher for those with a junior high school or lower education level and a government job, at parity for high school graduates, and lower for those with more education and a government rather than a private sector job (table 6).<sup>7</sup>

These results alone, based on relative household expenditures by sector of

TABLE 6 *Expenditures by Education Level for Households Headed by Government versus Private Sector Employees, 1999*

Variables	Coefficient	(t-Statistic)	Coefficient on Interaction Term <sup>a</sup>	(t-Statistic)
Constant	12.49	(226.4)		
Age	-0.06	(-19.8)		
Age-squared	0.0007	(19.7)		
<b>Education</b>				
Primary	0.11	(12.0)	0.07	(1.0)
Junior high school	0.27	(23.3)	0.02	(0.3)
Senior high school	0.49	(38.2)	-0.08	(-1.2)
Some tertiary	0.74	(31.9)	-0.25	(-3.6)
University	0.96	(29.6)	-0.28	(-3.8)
<b>Dummy variables</b>				
Government	0.09	(1.3)		
Male	-0.12	(-10.7)		
Urban	0.26	(21.8)		
No. of observations	54,513			
R <sup>2</sup>	0.34			

<sup>a</sup>See table 3, note a.

Source: As for table 5.

employment of the household head, are an imperfect test of the relationship between earnings in the government and the private sector. Households headed by civil servants might respond to lower wages by finding other sources of income, both legal and illegal, or by sending more family members into the labour force. But the absence of lower expenditures among households headed by civil servants is at least consistent with the hypothesis that government workers are not systematically underpaid relative to market opportunities. And when these findings are combined with the Susenas results on relative earnings parity between the government and private sectors, a mutually consistent picture emerges.

The Susenas results refer to another year, are drawn from a different sample, permit use of expenditure as well as earnings data, and confirm the findings from the Sakernas data on 1998. There is no evidence that government is a 'low pay' employer for the average government employee. Even for the more educated, who do earn less in government than they would in the private economy, the differentials are not large and not of the order of magnitude reported in previous studies.

#### RECONCILING THE EVIDENCE

The estimates of government/private pay differentials obtained from BPS surveys are so different from the findings of earlier studies, and from official

views on civil servant pay, that it is important to try to reconcile these differences. One explanation, that BPS data are of low quality and cannot be relied upon, is not persuasive. The basic age-education-earnings profile that emerges from the regression analysis is too similar to results from other countries, both in the direction and magnitude of specific coefficients and in the degree of explanatory power, to allow the conclusion that the survey is seriously flawed. Other researchers familiar with these data reach a similar conclusion (Behrman and Deolalikar 1995). A related explanation is that 1998 and 1999 were in the midst of the financial crisis and are atypical years. Concerning government/private pay differentials, this may be true. But the direction of bias during these years is to generate a smaller government pay premium (or a larger government pay deficit), because adjustments in nominal pay during these crisis years happened more slowly in government than in the private sector.

Another possibility is that BPS data systematically under-represent earnings. It is easy to see why reported earnings in the survey may be too low. When asked, 'What is the net monthly income you received from your primary job?', individuals may report only their basic salary and not allowances or fringe benefits. Alternatively, they may be reluctant to reveal their true earnings to a government enumerator for fear that such information may be used against them, for example, by tax authorities. But for either omission to account for the estimated pattern of government versus private pay within the Sakernas or Susenas data requires that individuals who work in the private sector are more, *not less*, likely than government workers to forget to include allowances and fringe benefits, or to consciously un-

der-report actual earnings. If under-reporting is equally distributed across all workers, reported earnings will systematically be too low, but the estimated differential between government and private workers will remain unaffected.

If there is a bias in reporting, it is civil servants who more often may systematically report lower than actual earnings. Private employers may have less, not more, complicated systems of allowances and fringe benefits, because they are not as constrained by law and regulations in revising their salary scales. Government workers are known to receive legal side-payments associated with their positions. Payments such as honoraria, per diem payments in excess of actual travel expenses, and project bonuses are legally sanctioned forms of compensation in government, are often transacted in cash, are said to be less prevalent in the private sector, and may not be included by civil servants in response to questions on earnings. The direction of potential under-reporting of earnings does not suggest a reason why the estimated government premium over private compensation either is too large or is in the wrong direction.

The prevalence of non-legally sanctioned payments raises a third possible explanation for the failure of the Sakernas and Susenas data to support the conventional view of significant pay advantages in the private sector. The existence of such payments, including illegal surcharges levied on government-provided goods and services (for example, side-payments required to get a licence or permit approved), kickbacks on government purchases, and graft involved in tax evasion is commonly acknowledged in Indonesia. These payments may represent a significant source of earnings for a larger number of civil servants than do equivalent

illegal actions of private workers. If civil servants were to include rather than exclude their 'extra' earnings in response to questions about 'average net monthly income' in primary jobs, then their self-reporting of earnings would systematically overestimate official wages. Independent evidence on government pay scales rejects this interpretation of the data.

In August 1998, the date of the Sakernas survey used in this paper, government salaries were based on 1997 salary scales. These scales cover four salary ranks, each further divided into four or five sub-ranks. Within each sub-rank, salaries are determined by years of service. Government employment data from the State Personnel Administration Board indicate the number of civil servants by sub-rank. Selecting the mid-point salary to represent the mean basic wage for each of the 17 sub-ranks results in an estimate of average government earnings in 1997 of Rp 310,000/month. Because of the financial crisis, a 15% across-the-board increase in government salary scales was applied in April 1998, raising the average estimated basic salary in government to Rp 356,500/month. Statutory allowances, including family, spouse and rice allowances, amount to a further 15% of the basic salary. Adding these supplements to the basic wage predicts an August 1998 estimate of Rp 410,000/month.<sup>8</sup> This is remarkably similar to the 1998 Sakernas estimate of official wages for government workers of Rp 414,000/month. Earnings reported by Sakernas appear to refer to official wages only.

If not through data accuracy, how else can the differing results of the various studies on government pay be reconciled? Earlier research on government pay focused on specific occupational categories, often in the managerial

ranks, and compared pay levels to a narrow set of well-paying domestic and foreign enterprises. BPS data permit a different comparison, between broad education categories and relative to the entire labour market. Unfortunately, these BPS data do not support comparisons at the very top of the occupation hierarchy, and are ill suited to judging the reservation wages of senior managers and professionals. More detailed human resource surveys are required for this purpose.

If the different survey designs are not perfect substitutes, and if the empirical results from the various types of surveys are accurate, then what may be mistaken is the interpretation of the data. There may be a 'fallacy of association', where significant pay differentials between top government officials and senior corporate executives in the highest-paying enterprises have been considered as pointing to likely pay gaps for *all* civil servants. For lower ranks, which comprise the majority of civil servants, this gap does not appear to exist relative to the entire domestic labour market.

Even for senior ranks, the observed gap may not be the appropriate target for setting salaries. For many civil servants, basic salary and standard allowances do not capture the total compensation received. Furthermore, senior government officials and professionals worldwide tend to earn less than their private sector counterparts. Government employment possesses 'a compensating differential', where greater employment security, the exercise of power, sometimes a less demanding pace and the opportunity to serve one's country can compensate for lower earnings. Determining adequate compensation for the most senior administrative and professional cadre is a challenge all governments

face, and requires more detailed scrutiny than is afforded by this analysis.

#### PAY, CORRUPTION AND GOVERNMENT PERFORMANCE

It has long been alleged that the low pay of Indonesia's civil service is responsible for widespread corruption in government. Results from BPS surveys in 1998 and 1999 cast doubt on these conclusions. Most government employees appeared to earn amounts comparable to their opportunity cost—that is, to the earnings they might have received in the private wage sector. These results may be even stronger as of the end of 2000. Presidential decrees in April 1999, and again in April and May 2000, raised nominal government salaries well in excess of price inflation. With more limited recovery in the market economy, government pay may now exceed private pay for all but a fraction of the nation's 4.6 million government employees.

If the assumption of low pay is inaccurate, so must be any simple linkage

between pay and corruption. How can we explain the prevalence of petty corruption by lower ranking government workers, if they earn a premium over the private sector? And can the alleged 'big corruption' among higher-ranking officials realistically be tied to the pay they receive relative to their non-government counterparts? Rather than identifying corrupt behaviour as a response to 'low pay', it is more helpful to view it as a response to opportunity. Soliciting bribes, arranging kickbacks or practising extortion all represent calculated risks, where costs and benefits of corrupt behaviour are weighed. If the risks of getting caught are low and punishment minimal, corruption is apt to flourish. Increases in official pay raise the expected cost of losing one's job. But unless actions are taken to punish corrupt behaviour, pay increases alone will do little to change the cost/benefit calculation, and corruption need not abate. Changes in compensation levels can be part of a package to reform civil servant behaviour, but other elements are essential to reducing corrupt practices.

#### NOTES

- \* The authors would like to thank Barbara Nunberg, who oversaw the study that generated this work, and Jere Behrman, Martin Rama and two anonymous referees for their comments. Deon Filmer is an Economist at The World Bank. David L. Lindauer is Stanford Calderwood Professor of Economics at Wellesley College. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of The World Bank, its Executive Directors, or the countries they represent.
- 1 In addition to being classified by rank, Indonesian civil servants may be classified as functional or structural staff. Functional positions are filled primarily by professionals. Structural staff, who in addition to their civil service rank are designated
  - by echelon, occupy the top managerial positions, and constitute about 10% of all civil servants.
  - 2 Graham (2000) reviews cross-country evidence of the superior pay offered by multinationals as compared with prevailing domestic wages.
  - 3 Estimates of the size of the labour force and of the number of wage earners refer to 1999, and are based on the Sakernas as reported in BPS (1999), *Labour Force Situation in Indonesia*, Jakarta, table 15.9. Government employment is drawn from independent estimates provided by the State Personnel Administration Board (BKN, Badan Kepegawaian Negara) and the Ministry of Finance.
  - 4 In a semi-logarithmic equation the coefficient on a dummy variable cannot be interpreted as the relative effect of the

- variable on the dependent variable. Instead, in order to calculate the relative effect,  $\gamma$ , the coefficient,  $\alpha$ , must be transformed according to  $\gamma = e^\alpha - 1$ . When the coefficient on a dummy variable is close to zero, the coefficient is a close approximation to the relative effect. See Halvorsen and Palmquist (1980) for a complete derivation.
- 5 The canonical example is the relationship between education and wages. According to economic theory, only individuals whose wage exceeds the threshold 'reservation wage' will participate in wage work. One would therefore expect that individuals with more education and higher wages would be over-represented in a sample of wage workers. The effect of this selection would be to underestimate the relationship between education and wages for the population as a whole, since low-education/low-wage individuals are rare in the selected sample.
  - 6 Carrying out the same regression on the total sample of wage earners, and not just on household heads, yields results that are even more similar to those in the Sakernas.
  - 7 In table 6 the sign of the age variables, as well as that of the male dummy variable, has changed. This is because the variables now refer to the age and gender of the household head. These are intrinsically linked to household size and composition, which are incorporated into the dependent variable (i.e. household expenditures *per capita*) but not controlled for in the regression. When the regression includes the number of household members and its square, the effects of age and of being male become significantly positive, and all the other coefficients are qualitatively unchanged.
  - 8 Estimates of official compensation should also include the mean value of functional and structural allowances (note 1). However, there is no simple way to map such allowances onto the salary scales. If they were included, the estimated mean level of official compensation would be higher than Rp 410,000/month.

## REFERENCES

- Behrman, Jere, and Anil Deolalikar (1995), 'Are There Differential Returns of Schooling by Gender? The Case of Indonesian Labour Markets,' *Oxford Bulletin of Economics and Statistics* 57 (1): 97-117.
- Clark, David H., and Mayling Oey-Gardiner (1991), 'How Indonesian Lecturers Have Adjusted to Civil Service Compensation,' *Bulletin of Indonesian Economic Studies* 27 (3): 129-41.
- Graham, Edward (2000), *Fighting the Wrong Enemy: Antiglobal Activists and Multinational Enterprises*, Institute for International Economics, Washington DC.
- Gray, Clive (1979), 'Civil Service Compensation in Indonesia,' *Bulletin of Indonesian Economic Studies* 15 (1): 85-113.
- Halvorsen, R., and R. Palmquist (1980), 'The Interpretation of Dummy Variables in Semi-logarithmic Equations,' *American Economic Review* 70: 474-5.
- Jenkins, Rhys (1990), 'Comparing Foreign Subsidiaries and Local Firms in LDCs: Theoretical Issues and Empirical Evidence,' *Journal of Development Studies* 26 (2): 205-28.
- Nunberg, Barbara (1994), 'Experience with Civil Service Pay and Employment Reform: An Overview', in D. Lindauer and B. Nunberg (eds), *Rehabilitating Government: Pay and Employment Reform in Africa*, The World Bank, Washington DC.
- Smith, Theodore (1975), 'Stimulating Performance in the Indonesian Bureaucracy: Gaps in the Administrator's Tool Kit', *Economic Development and Cultural Change* XXIII (4): 719-38.
- Wirutomo, P., et al. (1991), 'Labour in the Indonesian Public Service', in Wouter van Ginneken (ed.), *Government and Its Employees*, Avebury and ILO, Aldershot: 113-34.
- World Bank (2000), 'Indonesia: Seizing the Opportunity: Economic Brief for the Consultative Group', World Bank, Jakarta.

**APPENDIX**

In their analysis of gender differentials in the returns to schooling in Indonesia, Behrman and Deolalikar (1995) outline two potential econometric problems in earnings regression estimates. First, workers for whom we observe earnings are not a random sample of the population but a potentially self-selected one. While the Sakernas data do not provide entirely convincing variables to allow for statistically correcting the estimates, household demographic composition variables can be used in a first stage

model to control for the potential selectivity of receiving wages. Specifically, the probability of reporting earnings and the determination of those (log) earnings are jointly estimated. Variables for the number of household members under age 10, the number aged between 10 and 59, and the number aged 60 and over are included in the participation equation, but not in the earnings determination equation. The assumption underlying this restriction is that the age profile of the household determines the op-

APPENDIX TABLE 1A *Selection Corrected Estimates: Determinants of Monthly Earnings of Wage Employees, 1998*

Variables	All Wage Employees		Urban Employees Only	
	Coefficient	(t-Statistic)	Coefficient	(t-Statistic)
Constant	10.4	72.5	12.4	105.9
Age	0.043	10.5	-0.006	1.26
Age squared	-0.0004	7.34	0.0003	4.81
<b>Education</b>				
Primary	0.32	17.3	0.29	9.14
Junior high school	0.53	26.0	0.54	16.2
Senior high school	0.81	30.1	0.64	17.4
Some tertiary	1.15	23.3	0.72	13.8
University	1.25	24.9	0.90	16.05
<b>Dummy variables</b>				
Government	0.10	5.72	-0.009	0.44
Male	0.40	17.3	0.030	1.54
Urban	0.15	8.69	-	-
Selection model Rho <sup>a</sup>	-0.015 p-value = 0.84		-0.829 p-value <0.001	
Chi-square test for joint significance of identifying instruments (df = 3)	28.43 p-value <0.001		4.91 p-value = 0.178	
No. of observations	122,242 (27,759 wage workers)		54,490 (16,366 wage workers)	

<sup>a</sup>Sample selection using Heckman selection model. Identifying instruments are the numbers of household members aged 0 to 9, 10 to 59, and 60 and over.

Source: Sakernas, 1998.

portunity cost of participation in the wage labour market, but does not directly determine earnings.

The second potential problem is of unobserved heterogeneity. There are potentially unobserved household and community characteristics that are correlated with the included characteristics (including the 'government' dummy variable), but are not specified in the model. Not correcting for these would potentially bias the estimates. In order to allow for this possibility, a household fixed-effects model of the (log) earnings equation is estimated. An additional benefit of this procedure is that if selectivity is based on household attributes, as is assumed in most empirical applications, then this fixed-effects approach should control for selectivity in the wage labour market as well as for the more

generic potential unobserved heterogeneity problems.

Both of these approaches yield estimates that are little different from those in tables 2 to 4. In the all-Indonesia estimates the identifying instruments are jointly significantly different from zero in the participation equation, but the point estimate of an approximate 10% average pay premium in the public sector remains (appendix table 1A). In the urban-only sample, the identifying variables perform less well and are jointly insignificantly different from zero. The resulting estimate of the average government premium remains insignificantly different from zero. The selection-corrected interactive models also yield the point estimates that show that the public sector premium diminishes with the level of education, and

APPENDIX TABLE 1B *Fixed-Effects Estimates: Determinants of Monthly Earnings of Wage Employees, 1998*

Variables	All Wage Employees		Urban Employees Only	
	Coefficient	(t-Statistic)	Coefficient	(t-Statistic)
Constant	10.4	81.0	10.4	68.8
Age	0.046	7.70	0.049	6.04
Age squared	-0.0004	5.15	-0.0004	3.57
<b>Education</b>				
Primary	0.29	7.98	0.34	6.28
Junior high school	0.43	9.68	0.48	7.57
Senior high school	0.71	13.4	0.84	12.4
Some tertiary	1.05	14.3	1.16	12.9
University	1.16	13.8	1.31	14.0
<b>Dummy variables</b>				
Government	0.07	1.74	-0.004	0.08
Male	0.36	19.2	0.29	12.9
Urban	12.4	1.06	-	-
No. of observations	15,123		9,406	
R <sup>2</sup>	0.762		0.748	

Source: Sakernas, 1998.

becomes negative for those with at least some tertiary education (results available from authors).

The fixed-effects estimates yield similarly consistent results. Since this estimation method relies on within household variation to identify an effect, the significance of the results is lower. Nonetheless, the point estimate on the average public sector premium

is about 7% in the all-Indonesia sample (and is significantly different from zero at the 10% level), and remains insignificant in the urban-only sample (appendix table 1B). The interaction models again suggest that the public sector premium becomes negative only for those with at least some tertiary education (results available from authors).