International Wage Determination and Globalization

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Abstract

This paper examines international wage determination using international data on wages and salaries for the year 1998. Across countries wage levels are correlated strongly with local GDP per worker but the strength of the relationship depends on the extent of foreign language knowledge of managers, and varies by occupation. Holding constant GDP per-worker, wages are also correlated with the intensity of local competition, and lower wages with minimum wage rules. Across companies, holding constant national differences, wage levels are correlated with export orientation and multinational status, but the latter only in poorer countries; size of company worldwide, but not domestically; recent revenue growth but not recent profit performance; E-mail usage, and economic sector. Global forces impinge on wages through a number of channels but generally have stronger impacts on executive salaries than on wages of lower-paying occupations.

1 Introduction

This paper examines international wage determination using a data set of wages for five occupations for the year 1998 from a sample of medium to large companies in 58 countries. It is well known that a large part of the variation in wages across countries is associated with variation in GDP per worker across countries. For example, in our data it is possible to account for 60 to 80 percent of the international variation in wages with regressions that

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control for variation in GDP levels alone. There is therefore an inevitable overlap between studies of the variation of GDP across countries and studies of the variation in wage levels across countries.

To avoid this overlap, this paper is about the variation in international wages after controlling for GDP per-worker. The data set we use has the advantage that it covers a large number of countries, and asks the same questions about wages to executives of different companies within each country at the same point in time. It thus achieves greater international comparability than can be achieved by combining wage data from national sources that collect data using different questions with different methodologies at different points in time. The cost however is that the samples are not large for any particular country, with sample sizes on the order of 50 or 60 firms per country.

The paper has five sections. After the introduction, the second section describes the data, reviews basic facts from the sample, and corroborates the data. The third section discusses the expected relationship between wages by occupation and GDP per-worker, presents a benchmark model, and discusses how the strength of this relationship may be informative about the extent of globalization of labor markets. The fourth section presents empirical results on international wage determination. Section 4.1 reports cross-country regression estimates that consider the relation with GDP, levels of market competition, foreign language attainment and labor market regulations. Section 4.2 then presents regression estimates that hold constant country and industry effects and examine firm-level wage determination. This regressions examine the correlation between wages by occupation and nature of the company, size of the company, recent performance of the company, the nature of competitive pressures facing the company, and the external or domestic orientation of the company. The final section summarizes the findings in the context of a discussion of globalization. The issues considered are a) the extent to which wage determination is domestic or international, b) the extent to which this varies by type of profession, d) whether multinationals or firms with global orientation pay differently than domestic firms, e) the extent to which professional workers who speak an international language can sell their services on an international labor market - de-linking their pay from the standard of the domestic labor market.

This paper is complimentary to ongoing research on international wage determination over time by Richard Freeman and Remco Oostendorp (2000). Freeman and Oostendorp examine the determinants of the *standard deviation of log wages* across occupations by country and by year during 1983-1988. We examine the determinants of the *level of log wages conditional*

on local GDP, so the dependent variables in the two studies are different. Freeman and Oostendorp's findings are that a) skill differentials during the 1980s were larger in poorer countries, b) cross-country differences in pay by occupation increased between 1983 and 1998, and c) that local GDP and wage-setting institutions were the two most important determinants of the standard deviation in log wages. The data source in Freeman and Oostendorp is the October Inquiry of the International Labour Office. The I.L.O. data varies by occupation, time and country. The data here varies by occupation, company and country. Hence the main difference is that our data has company variation but the I.L.O. dat offers time variation. The range of occupations in the I.L.O. data is also more detailed than the five occupations considered here.

2 The wage data

2.1 Preliminary review

The data on median wages by occupation and country is shown in figures 1 through 5. Listed on the vertical axis in each of the five figures is the log of the median annual wage in US dollars in 1998 in each country, on a scale of 6 to 12. To understand the units of the log scale, the value of 6 corresponds to an annual income of 403 US Dollars; the intermediate values of 8 and 10 correspond to annual incomes of $2,981 and $22,026 respectively; and the value of 12 corresponds to an annual income of 162,754 US Dollars. Listed on the horizontal axis of each figure is the log of GDP per worker, again in US dollars in 1998. To avoid the effect of variation in national definitions in definition and measurement of the labor force, the labor force is estimated in a uniform way in each country as seventy percent of the population aged 15-65. The 45-degree line is drawn in each figure as a standard to compare wages with GDP per worker: along this line the annual wage equals GDP per-worker. The figures also show the OLS regression line.

One can see immediately a number of basic facts from these figures. First, in each of the five occupations, wages are strongly positively associated with GDP. Second, wages for Office Cleaners and Drivers are below GDP per-worker, wages for Secretaries are roughly equal to GDP per-worker but wages for mangers are substantially above GDP per worker. The former communist countries, Russia, Ukraine, Bulgaria, China and Vietnam tend to stand out from the rest, reporting lower than normal wages for secretaries and managers for given levels of GDP. Latin American countries tend to report higher than normal wages for managers, again for given levels of

national GDP. Fifth, the statistical fit between wages and GDP is weaker for higher wage occupations. Sixth, although wages rise with GDP for all occupations, the unconditional relation tends to be less than one for one.

The outlying countries are usually post-socialist countries. Russia and Ukraine have especially low wages for all the professions. China and Vietnam both tend to have low wages for managers, but their wages for manual workers tend to be in line with their income levels. Central Europe also has low wages but to a lesser extent than Russia, Ukraine, China and Vietnam. For all of the Central European countries, wages tend to increasingly deviate from the global pattern as we rise to higher paying occupations. Poland however appears to be an exception.

There are several possible explanations for low wages in these countries. One is that these countries tend to have a large supply of manual workers relative to demand. Demand has fallen for manual labor during the 1990s with the closing of many State firms and the demise of the Soviet Union as a key consumer for the region. Central European countries also have payroll taxes that rival those of Western Europe with incomes that rival those of Latin America. This encourages under-reporting of wages, perhaps more in these countries relative to Western Europe. It is possible that this practice affects our survey too. In addition, the practice of multiple jobs is more common in Central Europe than elsewhere. People simply are listed as full time workers with two or more firms. They collect what are fictionally called full-time salaries but they actually work part-time. Hence the data may contain more of what are essentially part-time salaries for Eastern European countries. A final explanation is a rise in the share of profits in GDP. Later in this paper we will argue that part of this is an equilibrium associated with the fact that managers in such countries tend not to have foreign language skills that allow them to participate in global labor markets.

2.2 The company survey

The surveys were conducted in 58 countries in January and February of 1999, by local Partner Institutes of the World Economic Forum directly or by professional survey firms hired by the Partners. The Partner Institute's were given tables that reported employment by economic sector and were asked to choose samples in which the distribution of firms was proportional to the distribution of non-agricultural employment across sectors. These employment data were taken from the Yearbook of Labor Statistics of the

International Labour Office.[1] The Partners were also asked to conduct personal interviews with the CEO or top managers in each enterprise. We expect nevertheless that most CEO's delegated this work to a colleague or an assistant. In total 3843 companies filled out all or part of the survey.

Each executive was requested to report the typical monthly salary for year 1998 for the following kinds of workers (see the data documentation in the Appendix for more detail on the survey questions):

1. Office cleaner
2. Driver
3. Mid-level secretary (for example 5-years experience)
4. Mid-level management
5. Senior management

The survey requested full time equivalent monthly wages or salaries in local currency. Firms were asked to report "take home pay". In other words they were asked not to include payroll taxes that they paid on behalf of the worker, but also not to make any deductions for income taxes later paid by the employee, or withholding that they performed on behalf of the worker.

The occupational categories were chosen to be sufficiently broad so that all companies would be able to respond without too much effort, but at the same time sufficiently specific so that the results would be comparable across countries. Virtually all companies have office cleaners, secretaries and managers. The driver category was included on the reasoning that it was one category of manual labor that might be represented in every enterprise. This reasoning is disputable: it is very common in Eastern Europe, parts of Western Europe and South America for companies to have drivers on hand dedicated to running errands, but this is less common in the United States and some other counties. Even so, it was thought important to obtain a wage for a pay-level somewhere between an office cleaner and a secretary.

Of the 3843 surveys returned, 3256 or 84.7 percent contained at least one answer to the wage questions. More detail on this response rate is presented by country in table 1a. Of the 3256 surveys with some response to the wage question, 82.4 percent responded to all the wage questions. The detail by country is presented in table 1b. In these 3256 surveys there were a total of 15,420 wages or salaries reported. Of this number, as shown in table 1c, 241

[1] See Yearbook of Labour Statistics, 1998 p. 1287 or p. 1293 for examples.

or 1.6 percent were thrown out because the values were grossly implausible. A reported wage was deemed implausible if, after sorting wages by country and occupation, the value was different from the next highest or lowest wage by more than a factor of 3.

The monthly wages in local currency were then converted to annual equivalents by multiplying by 12, and to a uniform currency (US Dollars) by using the average annual exchange rate during 1998. Despite the instructions in the question, some survey respondents nevertheless reported the data in dollars or in annual terms or in weekly terms. These were converted on a case-by-case basis. In many cases this was noted in writing in the survey form. In other cases where the reported wage seemed to be a weekly wage or an annual wage but one could not be sure, the case was eliminated.

Its possible that firms with unusually high or low wages for certain occupations would try to hide this by not reporting wages for those occupations. One way to try to assess this is to look at the incidence of partial responses. Table 1d shows a matrix to assess this. To read this table, note that the first row reports that there were 2798 responses to the wage of an Office Cleaner. Of these, 142 did not fill out the question on the Driver's wage and 91 did not fill out the question on the top-manager's salary. The main message of the table is that partial responses are fairly rare in this data: 91 is only 3.3 percent of 2798. The table also shows that partial responses were actually more likely for the lower-paying occupations. For example, it was more likely for those filling out the manager's salary to fail to fill out the Office Cleaners salary than the other way around. Nevertheless, since under-reporting of manager's salaries is an issue in other data sets, we show a break down of these 91 non-respondents in table 1e. The pattern, which also tends to be the case for other examples, is that the non-responses are clustered in certain countries. One can see from the table that several Latin American countries were reluctant to fill out the manager's salary, especially Costa Rica , El Salvador, Bolivia and Venezuela. Judging from the rest of the data, these countries have relatively high salaries for given levels of GDP per worker. If we focus only on these surveys that did not report top-manager's salaries, the table shows that the reported mean salary for the next lowest occupation, mid-managers, tends to be close to the mean for the country, with the exception of Costa Rica. Therefore, except for Costa Rica, this evidence does not suggest that the non-responding firms were high-wage firms.

This survey is sometimes criticized for falling short of a full population census. Yet this criticism misses the main value of the survey. The main value of the survey is that it asks the same question at roughly the same time

to a broad sample of firms all over the world. Exactly which population this survey is representative of, and the accuracy of the responses are important issues. But these can be assessed ex-post, by looking at the characteristics of responding firms or by comparing the responses from the survey with outside evidence.

2.3 Comparisons with independent evidence

To check the accuracy of the data, we do two things. We assess the general accuracy of the survey process by comparing the responses on factual questions to outside data on similar facts. We assess the accuracy of the wage data specifically by comparing it to international wage data from the Bureau of Labor Statistics (hereafter B.L.S.) in this section and with GDP per-worker in figures 1-5 (discussed in the previous section). Later versions of this paper will compare the data to the wage data in the "October Inquiry" of the I.L.O. To assess the representativeness of the sample, later drafts will consider whether the resulting sample is biased in terms of firms size, and sectoral coverage.

We first discuss the accuracy of the World Economic Forum survey in general terms. When we compare the survey responses to outside data on similar subjects we find that the two are positively related, with R-squares of 30 to 60 percent, but typically around 50 percent. We also find that the discrepancies between quantitative data and survey data are often attributable to the fact that the survey responses measure the quality dimension better than the quantitative indicators. We show two examples of this in the appendix and discuss them briefly here. These two examples do not bear on the accuracy of the wage data specifically but are revealing about the accuracy of the survey process in general.

In figure 9 we compare, on one hand, aggregate kilometers of rail tracks divided by land area with, on the other hand, the mean response to a question on the quality of the rail network (ranked from 1 to 7). Note that countries with extensive yet old rail networks such as Poland, Hungary, the Czech Republic, Italy, Ukraine, India, the Slovak Republic, the United Kingdom and the United States, score high on the hard data (measuring only quantity of rail kilometers) relative to their score on the survey data (which presumably measures quality in addition). In contrast France, Japan, Switzerland, Luxembourg and Switzerland, all countries that take care of their railroads, score relatively higher on the survey indicator than the rail-kilometer indicator. This example of a case where the survey appears to record qualitative information absent in the quantitative indicators. In figure 10 we show the

log of the number of Internet hosts per one thousand persons on the vertical axis and, on the horizontal axis, we show the response to a question about whether access to the Internet is fast and cheep. Vietnam ranks as the worse country in which to get access to the Internet on both indicators. It is interesting to consider countries that are reported to have poor access to the Internet despite high rankings on numbers of Internet hosts. From the phrasing of the survey question ('Internet access is fast and cheep') we would expect that these would be countries where either something else such as poor phone lines impedes access to the Internet, or where the cost of access to the Internet is relatively high. There is some evidence for the former. Of the 10 lowest-ranked countries in terms of quality of phone service, based on another survey question, 7 of those are in the northwest of figure 10 - a region that corresponds to large numbers of Internet hosts yet poor access to the Internet: Ukraine, Costa, Rica, Russia, Bulgaria, Poland, Bolivia, and Zimbabwe.

In figure 10b we compare the mean response to the survey question on whether wage setting is centralized to independent data on union density and collective bargaining coverage from the OECD Employment Outlook, July 1997, quoted in Freeman (2000, exhibit 6). The response to the survey question is plotted on the horizontal axis, with higher values corresponding to little centralization of wage setting. On the vertical axis, we plot $(union + cbcov)/2$, where *union* is union density and *cbcov* is the percentage coverage of collective bargaining agreements. One can see from the figure that the two are negatively related, as expected, with low perceived centralization being associated with low union density and low coverage ratios. This graph offers further evidence to support the quality of the survey data. The rankings on centralization from the survey also strongly correlate with the ratings provided in Marshall (1999, table1) on Latin America and Soskice (1996) for industrialized countries.

Now we compare the wage data with data from the Bureau of Labor Statistics, shown in figures 6, 7 and 8 and reported in appendix table 6. The B.L.S. reports an hourly wage, which was converted to an annual equivalent for comparative purposes. The comparison is useful in assessing the basic plausibility of the wage data, yet there are a number of differences to bear in mind:

1. The BLS data is for production workers in manufacturing; the data here is for the five occupations mentioned above.

2. The BLS data is for midyear 1998; ours are based on questions asked

in January and February 1999 (but presumably refer to calendar year 1998).

3. The BLS data is 100 percent manufacturing. Our firms are from more diverse sectors, with manufacturing accounting for 49 percent of the firms. In the United States, manufacturing is 16 percent of employment. In Germany it is 24 percent and in Brazil it is 12 percent (these numbers are taken from the 1998 Yearbook of Labor Statistics of the International Labor Office in Geneva).

4. Both data are for full-time work.

5. The BLS data includes payroll taxes paid by the firm, our wage data does not.

6. The BLS data cover only 27 of our 58 countries.

7. Neither data set includes non-wage payments such as in-kind benefits, bonuses, stock options or other incentives. In-kind benefits tend to be high in Western Europe and incentives such as stock options tend to be higher in the United States. Therefore, our data on managerial pay may be biased downward in these countries. However, since we are not measuring the pay of top-CEO's, whose pay-packages can be heavily influenced by such incentives, we do not expect that this bias is large. In our data, the median annual wage of a senior manager in the United States is $132,000, which is far below the typical base salary (not including bonuses) for a U.S. CEO of about $400,000. Therefore CEO salaries are typically not in our data set.

Figures 6, 7 and 8 graph this BLS wage against the bottom three wage categories in this paper. All three graphs show a positive association. This raises our confidence that the numbers from the survey are not grossly implausible. Given the numerous differences in occupation and concept, the lack of a closer fit should not be surprising.

3 The wage-GDP relationship and globalization of labor markets

Since it is helpful to have a benchmark model of wage determination, this section discusses what is perhaps the simplest framework. We first examine the case where the domestic labor market is closed to global forces, and then

introduce partial globalization. This framework is used to argue that wage-GDP relationships can be informative about the extent of globalization of domestic labor markets.

The framework builds on the national income identity between wages and GDP. With two occupations this identity may be written $w_1 L_1 + w_2 L_2 + \Pi = GDP$. We close the model by grafting this to a neoclassical theory of the wage structure. Suppose that each of the five occupations contributes to production according to $Y = F(K, L_1, L_2, L_3, L_4, L_5)$, and that these production functions are common across firms. If each firm chooses employment to maximize profits at each point in time, the ratio of any pair of wages will be proportional to the ratio of their marginal revenue products, denoted φ_i (with the subscripts referring to occupations).

$$\frac{w_i}{w_j} = \frac{\varphi_i}{\varphi_j}$$

To simplify matters without altering anything essential, we order the occupations from most productive to least productive, with the subscript "5" corresponding to the most productive occupation. Let the parameter θ_i describe the ratio of the marginal product of the *ith* occupation to that of the next most productive occupation. For example θ_5 describes the ratio of the marginal product of the fifth occupation to that of the fourth occupation.

$$\frac{w_5}{w_4} = \theta_5.$$

With 5 occupations there are $4 = 5 - 1$ such equations and four θ's. The GNP identity may be written as follows:

$$\sum_i w_i L_i + \Pi = GDP,$$

where w_i is the wage and L_i is employment in occupation "i", Π is aggregate nominal profits, or simply all income that does not accrue to labor. In the general case with N occupations, there would be $N - 1$ equations describing relative wages and the GDP identity. Given that the equations are linear, they can be solved for the N wages as a function of the $L's$, aggregate profits, and nominal GDP. One can divide through by total employment L to replace the L_1, L_2 terms with shares "s" of labor in each occupation (e.g. $s_1 = L_1/L$). For illustration, the solution is presented below for the case of three occupations ($N = 3$).

$$w_1 = \left[\frac{1}{s_1 + \theta_2 s_2 + \theta_2 \theta_3 s_3}\right] (GDP - \Pi)/L$$

$$w_2 = \left[\frac{\theta_2}{s_1 + \theta_2 s_2 + \theta_2\theta_3 s_3}\right](GDP - \Pi)/L$$

$$w_3 = \left[\frac{\theta_2\theta_3}{s_1 + \theta_2 s_2 + \theta_2\theta_3 s_3}\right](GDP - \Pi)/L$$

These equations offer a simple benchmark for the relation between wages and GDP *per worker*. Of course, a similar relation between wages and GDP *per capita* can be obtained by multiplying by the employment-population ratio. The equations say that the wage for each occupation will be proportional to GDP per-worker net of profits, with the constant of proportionality depending on the $N-1$ productivity parameters and the shares of labor in each occupation. In the unlikely case where the occupations are equally productive ($\theta_i = 1$), and the occupational shares are equal, the three occupations would each earn GDP per-worker net of profits[2].

This framework helps us interpret the wage-GDP graphs in figure 1 through 5. If we take logs the equations above imply relations of the form $\ln(w_{ikj}) = \theta_{ikj} + \ln(GDP_j - \Pi_j)$, where the subscripts i, j, and k, stand respectively for company, country, and occupation, and where θ_{ikj} is a term that accounts for variation in θ_i and s_i across companies, countries and occupations. Let the θ_{ikj} term have an occupation-specific component that is constant across countries and companies and a random component that varies across countries and companies: $\theta_{ikj} = \theta_k + u_{ij}$. Then simple regressions of log wages on log GDP per worker by occupation control for the θ_k fixed effects but leave u_{ij} and Π_j to the error term (below we deal with the functional form issue that profits per worker do not enter this equation linearly).

If the errors are uncorrelated with GDP per worker, this framework predicts that log-wage vs log-GDP graphs should yield a series of straight parallel lines with slopes of 1.0 and intercepts that differ by the θ_k term for

[2] These equations incorporate many of the supply and demand effects discussed extensively in the literature. On the supply side: a rise in the share of labor in a particular occupation will lower its wage and raise wages of other occupations. On the demand side, a rise in the skill premium for a given occupation will raise its wage, or an increase in GDP from an exogenous source will raise all wages. If we denote the elasticity of the wage with respect to parameter j as ϵ_{wj}, in a two-occupation model we would have $\epsilon_{w_2\theta} = \frac{s_1}{s_1+\theta s_2} > 0$ and $\epsilon_{w_2 s_2} = \frac{-(\theta-1)s_2}{1+(\theta-1)s_2} < 0$ since $\theta > 1$. It can also be shown that a rise in the skill premium will have a greater percentage impact on wages of an occupation if the initial share of that group in the population is small.

each occupation. If simple regressions do not yield slopes of 1, it is a sign that either u_{ij} or Π_j or both, are correlated with GDP per-worker. Note that the simple regression lines in each figure are in fact not parallel with unitary slopes. The slopes are typically less than one, and tend to be smaller for the higher-paying occupations. In the context of the model above, this means that either u_{ij} is negatively correlated with GDP or Π_j is positively correlated with GDP. The latter would imply that the labor share is lower in richer countries. A final possible explanation for slopes that deviate from one is that measurement error in the wage data may be correlated with GDP.

The discussion needs to be modified slightly if we take into account that the equation relates wages with GDP net of profits rather than simply GDP. This essentially means that the wage GDP elasticity should not be one but rather $gdp/(gdp - \pi)$. For example, if the labor share is 20 percent, the elasticity should be 1.2 rather than 1.0.

The discussion above assumes that wage-setting is entirely domestic. To introduce global considerations, suppose now that we examine a poor country in which some workers have skills that make them perfect substitutes for higher paid workers in other countries. International companies are willing to pay these workers the global wage $\bar{w}$ rather than the domestic wage, and because of immigration barriers these workers stay in the country. They therefore continue to be counted in that country's GDP. To see how this would affect the observed relation between wages and GDP, we focus on the case where there are two occupations. The low-paying occupation pays w_1 and the high-paying occupation pays w_2. Suppose further that a fraction β of the high-wage workers have skills that make them marketable to international companies, so that they can earn $\bar{w}$ (higher than w_2). In this economy the GDP identity, written in terms of GDP per worker (denoted in lower case letters: gdp) would be

$$gdp = s_1 w_1 + (1 - \beta) s_2 w_2 + \beta \bar{w} s_2 + \pi.$$

If once again $w_2 = \theta w_1$, the solution for the second wage would be the following

$$w_2 = \frac{\theta}{s_1 + (1 - \beta)\theta s_2}(gdp - \beta \bar{w} s_2 - \pi).$$

But of course this wage would be earned only by $(1 - \beta)$ of those in the higher-paid occupation. Workers who earn the international wage would still be listed in same occupation as the domestic workers that earn w_2, so the observed average wage of this occupation would be a weighted average

of the international wage and w_2. This means that the observed wage for the second occupation would be w_2^* below rather than w_2 above:

$$w_2^* = \beta w + \frac{(1-\beta)\theta(gdp - \beta\bar{w}s_2 - \pi)}{s_1 - (1-\beta)\theta s_2}.$$

This may be simplified to :

$$w_2^* = \frac{\beta\bar{w}s_1 + (1-\beta)\theta(gdp - \pi)}{s_1 + (1-\beta)\theta s_2}.$$

Let us now compute what we would expect to observe in terms of the elasticity of this wage with respect to gdp. The elasticity would now be:

$$\epsilon = \frac{(1-\beta)\theta gdp}{\beta\bar{w}s_1 - (1-\beta)\theta(gdp - \pi)}.$$

Note the relation between this elasticity and the fraction of workers with international skills (β). As β approaches zero, the elasticity approaches the earlier elasticity $gdp/(gdp-\pi)$, but as the fraction rises to one, the elasticity approaches zero. In other words, with increased globalization (defined as rising β), wage-GDP elasticities for given occupations should approach zero. Therefore, a low elasticity with gdp may be interpreted as a sign of greater globalization of labor markets for that occupation.

Doesn't a low elasticity of wages with respect to gdp violate the national income identity in some way? The answer is no because the derivation of the equations above already incorporates the GDP identity. What is happening is that the intuition behind this question is incorporated thorough the s_2 term (or the s_1 term). Note that if the second occupation were 100 percent of the labor force ($s_2 = 1$), then wage determination would boil down to the gdp identity and the equation would reduce to $w_2^* = gdp - \pi$,with an elasticity close to one irrespective of the value of β. More generally, as s_2 rises the elasticity between wages and gdp also rises. The connection between wages and GDP depends on both β and s_2.

4 Results

4.1 Wage determination at the national level - regressions of median wages by country on country-level characteristics.

We show the regression evidence here in steps of increasing complexity: starting with median wages by country and then moving to regressions with wages by country and company.

We have seen from the preliminary review of the data and from figures 1 through 5 that there is a strong simple relation between wages and GDP per worker. The figures also show that post-socialist countries and Latin American countries respectively have lower and higher wages than the cross-country norm. The relation with GDP is strong enough that, as we go through the five occupations from Office Cleaners to Managers, it is possible to explain respectively 90, 92, 82, 70 and 62 percent of the cross country variation by regressing wages on GDP alone. This result is not surprising given the GDP identity mentioned earlier. The task for the remaining analysis is to explain the variation left over after controlling for GDP. How much of this additional variation can be explained by other country specific variables?

If we refer back to the equations in the previous section, we would expect additional explanatory power to come from four kinds of variables: variables that explain the aggregate labor or profit share (Π), variables that explain cross-country differences in occupational premia (the θ_i terms), variables that explain cross country differences in the shares of labor across occupations (the s_i terms), and variables that explain cross country differences in globalization (the β term) . To this list we should add variation in labor market interventions across countries and measurement error.

As determinants of the labor share we consider proxies for the extent of product-market competition, or the reasoning that competition tends to erode profits. We also consider proxies for direct labor market intervention such as the extent to which minimum wage laws are binding, or the extent of centralized wage-setting. To account for differences in β across countries we consider the extent of foreign language attainment.

As a purely empirical matter, one would expect from the poorer fits in the figures on managerial wages and GDP that there is more scope for explaining managerial wages with something other than GDP than the other occupations. We test the globalization model introduced in the previous section, and expect that it would fit the managerial occupations rather than the lower-paying occupations. The empirical proxy for β will be the extent to which managers in the country speak a major foreign language. This is likely to be a crucial determinant for whether managers are useful to foreign companies. Hence, whether or not they actually work in a foreign company, managers that speak one of the major foreign languages should have different reservation wages than managers that speak only the domestic language. For example, if managers in Russia speak English they may receive offers from international companies or companies in other countries that have higher pay standards than Russia; but if they speak only Russian this is less likely.

Those higher outside offers may be expected to increase the domestic salary of such managers relative to their counterparts that speak only Russian.

The empirical model is a mixture model that requires an interaction term between the proxy for β and gdp per worker. Under domestic wage-setting the managerial salary would be $\ln(w) = \theta + \ln(gdp/L)$, where θ is the domestic wage premium for being a manager. However, if the manager speaks a foreign language so she can be regarded as a perfect substitute for other managers in rich countries, her wages would be governed by an international wage setting equation $\ln(w) = \bar{w}$, where $\bar{w}$ is a higher wage from the international labor market. If β percent of the managers in the country speak a foreign language, then average managerial salaries would be partly determined by domestic considerations and partly by global standards. The observed mean wage would be a weighted average between the domestic wage setting equation and the global wage setting equation, with the weights given by the percent of the managers that speak a foreign language: $\ln(w) = (1-\beta)(\theta + \ln(gdp/L)) + \beta\bar{w}$.

There are two empirical implications of this equation. Managerial wages would rise with GDP, but wages would be *less* sensitive to GDP in countries in which a high share of managers spoke a foreign language, since $1-\beta$ would be low in such countries. In addition, the return on speaking a foreign language would be positive, but would be *less* positive in richer countries where the domestic wage was already close to the global standard $\bar{w}$. The mirror image of this statement is that the return premium to speaking a foreign language would be higher in poorer countries than in richer countries. For example, a Brazilian child's expected lifetime income would rise much more by going to an English language school in Rio than would a French child's income from going to an English language school in Paris, since the French domestic wage for French-speaking managers is presumably close to the international wage that the child would qualify for by speaking English.

The regressions equation we estimate and present in table 3 is, for each occupation:

$$\ln(\bar{w}_j) = \alpha_0 + \alpha_1 \ln(gdp/L_j) + \alpha_2 \min w_j + \alpha_3 comp_j + \alpha_4 FL_j + \alpha_5 \ln(gdp/L_j) * FL_j + u_j$$

The dependent variable in each of the five regressions is the log of median wages in US dollars by country. These median wages are regressed on five explanatory variables. *Ln(gdp/L)* is the log of GDP in dollars per worker in 1998, converted at market exchange rates. *Minimum Wage* is a subjective rating of whether minimum wage legislation is binding (rated on a scale of 1-7 where the higher value means not binding). A negative sign on the estimated

coefficient would mean that wages are higher in countries where minimum wage rules are binding, holding other things constant. *Competition* is a subjective rating of the intensity of competition in local product markets by corporate executives (rated on a scale of 1-7 where the higher value means more intense competition). A positive sign would mean that wages are higher in countries with more product market competition. *Foreign Language* is measured differently for English and non English speaking countries. For non-English speaking countries, this is the subjective rating of the extent to which managers in the country speak a foreign language, English or other. This is rated on a 1-7 scale where the higher value indicates maximum language attainment. For English-speaking counties, since the managers already speak the international common language, this is set equal to 6 (a value close to the maximum of 7). Finally, the variable *Ln(gdp/L) * FL* is an interaction variable between log GDP per worker and the foreign language attainment variable, to test for the interaction effect shown in the equation in the previous paragraph. A negative sign would mean that the wage-GDP link is attenuated for managers with high foreign language attainment. Or alternatively that the return differential from speaking a foreign language is higher in poorer countries.

The results from the regressions in table 3 may be summarized as follows.

1. Countries that are perceived to have binding minimum wage rules are estimated to have 13 percent higher wages for Office Cleaners, holding constant their level of GDP. Minimum wage regulations have no apparent effect on wages of higher paying occupations, as we would expect. Much of the cross-country variance for estimating an effect such as this comes from the comparison of Europe, with relatively strong minimum wage laws, and East Asian countries, with little or no minimum wage laws. Of all the European countries in our sample, France is perceived to have the strictest and most binding regulations[3]. If we compare France with Singapore, we can better understand the estimated magnitude of this effect. The median wage for Office Cleaners in France was around 14 thousand dollars per year and in Singapore around 5 thousand dollars. In log units this difference is 1.02. France's GDP in 1998 was only about 7 percent higher than Singapore's. Given the estimated GDP elasticity of 1.04, this difference in GDP can account for only 0.07 log units (approximately 7 percent) of the total wage

[3] This perception that France has strong minimum wage laws is supported the evidence in Abowd, Kamar and Margolis (1999). They estimate the effect on employment rather than wages.

difference of 1.02. The difference between France and Singapore in the rating on the minimum wage question is 2.95 points. Multiplied by the estimated coefficient of -0.13, this can account for -0.38 of the wage difference. Therefore, the estimated minimum wage effect can account for about 40 percent of the wage difference between France and Singapore. In other pairs of countries the estimated minimum wage coefficient can account for much more of the difference in Office Cleaner's wages. If we compare the United States with France, based on the 26 percent higher GDP in the United States we would expect Office Cleaners wages to be 26 percent higher. However, they are in fact only 8 percent higher. The difference in minimum wage regulations can account for a 28 percent difference in wages. Therefore, from the perspective of the regression in table 3, minimum wage regulations not GDP accounts for most of the wage differential for Office Cleaners between France and the United States.

2. Counties with greater market competition are estimated to have higher wages. The evidence is consistent with the view that the mechanism behind this effect is that product market competition reduces the profit share, since the estimated effect is significant in nearly all occupational categories. The effect does however appear less significant for top-managers than the other four occupations. The magnitude of the coefficient estimates suggests that a unit standard deviation change in competition is associated with approximately a 16 percent change in wages (0.33*0.48). Two countries that are interesting in this regard are Greece and the United Kingdom. The U.K. is perceived to have very competitive product markets, with a rating of 5.74, while Greece is perceived to have lower competition, with a rating of 4.51. Wages for Secretaries are 0.94 log points higher in the U.K. than in Greece. Income differences can account for much (0.77) of this gap, but greater competition helps pick up the remainder. In fact in this case it overexplains the gap since it can account for a further 0.36.

3. There is little evidence that democracies have higher wages after controlling for these regressors. In table 3b, we show coefficient estimates when an index of political rights and civil liberties (used for example by Rodrik, 1999) is added to the table 3 regressions. One can see that none of the estimated effects are significant.

4. Our data also do not show a significant effect of the degree of centralized wage setting on wage levels, again after controlling for the

variables in the table 3 regressions. In table 3b the estimated coefficients are shown when centralization is measured as the mean of the survey responses by country on the centralization question.

5. There is evidence for a foreign language premium for the managerial professions. Countries that rate the foreign language attainment of their managers highly tend to show higher salaries for managers for given levels of GDP. Although there appears to be a significant effect of managers language attainment on wages of other occupations, this finding does not consistently appear in other specifications, as will be shown later.

6. There is also strong statistical evidence for an interaction between foreign language attainment and GDP per-worker. According to the interpretation given above, this provides evidence for two parallel effects: wage setting for managers tends to be global rather than domestic in countries where a high fraction of managers speak a foreign language; and the return differential from speaking a foreign language is higher in poorer countries.

The regression estimates were also checked for robustness by examining the residuals and the leverage of particular countries in the sample. We followed the rule suggested by Belsley, Kuh and Welsch (1980, p 24) that if the influence of a particular country was above a critical value[4] then the observation should be excluded. In table 5 we show regressions that were re-estimated after applying this rule and at the bottom the list of excluded countries. The main point to notice from table 5 is that the foreign language and interaction variables are no longer significant for the two lower wage occupations.

To elaborate on point 6 above, one metric for the extent to which wage setting is local rather than global is the estimated slope in cross-country data between wages of that occupation and GDP per-worker. A one-for-one relation with GDP per worker as in the equation $\ln(w) = \theta + \ln(gdp/L)$ may be interpreted as the extreme case of local wage setting. A slope of zero would be the extreme case of global wage setting. We have already seen that wage-GDP elasticities are close to one for the lower paying occupations. For the higher-paying occupations, there is evidence that the slopes depend on

[4]Details are in STATA 7 reference manual volume 3, p. 107. The procedure calculates DFITS, which is an aggregation of the residuals and the leverages: $(DFITS = r_i(\frac{h_i}{1-h_i})^{1/2})$ where $r_i = e_i/(s_i(1-h_i)^{1/2}$ is a standardization of the residuals and h_i is the leverage. The procedure then excludes observations for which $abs(DFITS) > 2(k/n)^{1/2}$.

the extent of foreign language attainment. Using the equation above for reference, the estimated slope is given by $\frac{dw}{dGDP} = \alpha_1 + \alpha_5 FL_j$. But by how much does foreign language attainment alter the slopes? The evidence on this is presented in table 4. This table shows the estimated wage-GDP elasticities for two extremes: maximum and minimum foreign language attainment. The bottom row of this table shows the point estimates for the wage-GDP elasticity evaluated at the minimum value of foreign language attainment of $FL = 2.6$. These are not different from one statistically for any of the occupations, supporting the idea that wage-setting is entirely domestic in countries with low foreign language skills. The top row of Table 4 reports the wage-GDP slopes for high foreign language attainment of $FL = 6.3$ (the highest mean score across all the countries). The estimated slopes are 0.28 for salaries of mid-level managers and 0.19 for salaries of top-managers. These are close to zero, but one can see from the p-values given below the point estimates that they are still different from zero statistically. Therefore, the evidence is that there is considerable globalization of labor markets for managers, and that the extent depends on the degree of foreign language attainment in the country. Still, even for countries in which foreign language attainment is very high, labor markets for managers are not fully global.

Figure 15 shows the same evidence graphically. One can see from the slope of the lower line in the figure that the interaction with foreign language attainment goes a long way in accounting for lower salaries of managers in formerly closed post-communist countries. It also may be part of the explanation for higher than normal salaries for managers in Latin American countries, since elites in these countries tend to be educated in bilingual or non-Spanish speaking schools.

Another way to put the globalization hypothesis is that language attainment acts as a wedge driving apart executive wages of those with and without language skills. This wedge tends to boost average executive wages in highly international countries, but would have no such effect in more closed societies. Therefore, a further test is to see if there is indeed lower dispersion of executive wages in post socialist countries with relatively poor language skills. In our data this tends to be confirmed. The six countries with the lowest standard deviation of executive wages are Russia, Ukraine, Vietnam, Bulgaria, China, Hungary and the Slovak Republic, in that order: all countries with relatively isolated executives until very recently.

A further test for the extent of globalization of labor markets for man-

agers is the degree of equality across the globe in real after tax salaries[5]. In Appendix table 7 we show real after tax salaries for senior managers. The evidence is that while managerial pay exhibits more equality across countries than other occupations, salaries are not equal across the globe. There may be some tendency in this direction within subgroups of countries such as Latin America or Europe, but it is not true generally across the world.

4.2 Wage determination in companies - regressions of company wages on company characteristics

This section shows the evidence on company-level wage determination by presenting a series of tables of log wage regressions by occupation with a variety of company characteristics as explanatory variables. After controlling for country-specific determinants of wages, we examine the impact of five broad groups of variables. First is the status of the firm (domestic/international and private/government), second the size of the firm, third the recent performance of the firm, fourth the nature of competition facing the firm and finally the economic sector of the firm. The number of potential variables in this list is large and thus cumbersome to report in a single table. We started by examining the regressions reported in Appendix table 2 and 5 which include a large number of variables, and eliminated several variables using F-tests and T-tests. For example, we found that size of the company in the domestic market was not significantly correlated with wages after controlling for the size of the company worldwide (see table A2 for this result). We also found no evidence that the nature of outward foreign direct investment of the company was correlated with wages when we controlled for other measures of international status of the company (to save space these results are not shown here). We also found that variables that measure the nature of domestic competition faced by the firm in the product market were not significantly correlated with wages in the presence of other controls

[5] The difference between this test and the one conducted above in with the regressions is the following. With international barriers to migration, international pay equality among managers may still be enforced by firms biding for scarce labor in different countries. This arbitrage would tend to force equality in salaries across countries measured in a common currency, after adjusting for taxes firms pay. The salary data relevant for this issue is data in a single currency (dollars), adjusted for cross country differences in firm taxes. However, when the arbitrage is enforced by mobility of managers across the globe, one would expect to see equality in real after tax salaries which take into account local costs of living, employee taxes and value added taxes. The data is table A7 make this adjustment. Since ther are large barriers to international migration, arbitrage enforced by firms seems more relevant.

(compare Appendix table 4 and 5 for this result). The lack of evidence here confirmed our priors. Since there was an issue about the power of the tests, we compared results with and without controls before eliminating a variable (other than country and industry dummies which were in all regressions).

The simpler specification we arrived at after eliminating these variables is presented in table 6. This is the preferred specification that will be used for the quantitative estimates. All regressions were estimated with a full set of country-specific and industry-specific dummy variables to completely take out country effects and industry effects. We assumed that the errors were correlated within countries and report robust t-ratios that allow for clustering. The excluded country in the country dummies is always Argentina, and the excluded economic sector is always the food and beverages sector. Some tables have additional excluded categories if additional dummy variables are used. The coefficient estimates on the included dummy variables should be interpreted as marginal impacts relative to these excluded categories.

The main results contained in table 6 can be summarized as follows.

1. Wages vary significantly by nature of the company. Table 6 shows estimates of the extent to which multinational firms, export-oriented firms or government organizations pay differently than firms oriented to the domestic market. It is sometimes alleged that multinational firms pay less for unskilled labor than the local labor market because they have monopsony power or other compensating advantages to offer such as greater job security. Defenders of multinationals usually object that the evidence is just the opposite, that multinational pay more than local firms. One model for the latter is that multinationals try to strike a balance between maintaining uniform pay norms across the firm world-wide and paying what the domestic labor market will bear. If this explains multinational behavior, we would expect to observe that the multinational wage premium would be higher in low wage countries that are farther than international pay norms. To test for this, we allow the multinational wage effect to differ between industrialized and developing countries. According to the estimates in table 6, companies that sell in both the domestic and foreign markets (i.e. exporting companies) pay higher salaries for managers than companies that sell exclusively to the domestic market, by about 7 to 9 percent, as can be seen by the estimates in regressions 4 and 5. Companies that are units or subsidiaries of multinationals and are operating in developing countries appear to pay higher wages across the board when compared to domestic companies. The estimated pre-

mium varies between 7 and 16 percent, and tends to be higher for the higher-paying occupations. Moreover, this multinational effect is additional to a size effect, since the estimates are significant even though the regression also controls for size. Subsidiaries of multinationals in developed countries (labelled "OECD" in the table) do not pay as high a premium, as indicated by the fact that the estimated coefficients on the interaction variable in the third row of the table tend to be negative. The full estimated "OECD" multinational premium is the sum of the estimated coefficients in the second and third rows, presented in the fourth row. These estimates suggest, reasonably, that the multinational premium is zero in OECD countries after controlling for size. The fifth row of the table shows that government organizations tend to pay significantly lower salaries than domestic private sector firms.

2. There is also evidence that larger firms pay higher wages, but only when size is measured by worldwide employment, not domestic employment. The estimates are shown in rows 7-10 of table 6. The excluded category is the smallest firms (0-500 employees). Relative to these firms, companies with worldwide employment in the range 1,000-10,000 pay a wage premium of between 6 and 21 percent, and again the premium is larger for higher paying occupations. Table A2 in the appendix shows the evidence that the domestic size variables are not important when controlling for the world size variables.

3. There is evidence for performance bonuses in wages, but only for managerial salaries. Rows 11 and 12 shows evidence that salaries for mid-managers and top-managers are about three percent higher in companies that report high revenue growth over the past three years. These variables are categorical variables but not straight 0/1 dummy variables. Roughly speaking, each extra 10 percent of revenue growth is associated with a 3 percent wage premium for managers. There is also modest evidence that top managers in firms that show strong export growth receive higher wages, on the order of about 4 or 5 percent. However, this effect is sometimes not significantly different from zero. It is also worth noting the results in table A3 of the appendix that wages are sensitive to revenue growth and not profitability of the firm. The profit variable is dropped for insignificance in all specifications.

4. E-mail usage also correlates with higher wages, and this is true for all occupations. Office cleaners get an extra 2 percent in E-mail literate companies, Secretaries get an extra 3 percent, and managers get an

extra 4 percent. This does not mean that when companies adopt E-mail, earnings rise overnight. Rather, E-mail usage is probably a proxy for other unobservables such as the quality of the capital in the company, or the skill level of the employees, and these in turn account for higher wages.

5. Of the industry intercepts, the textile and apparel sectors report lower wages for all occupations by between 15 and 27 percent. The financial services sector reports 12 percent higher salaries for managers. The petroleum and chemical sector reports higher salaries for the top four occupations and the computer sector reports higher salaries for the managerial occupations. Beyond this however, perhaps the surprising result is that the industry-specific premia are not as pervasive as have been found in single-country studies.

6. It is also worth noting what *does not* correlate with wages. As mentioned, companies with growing profits do not seem to pay higher wages (at least after controlling for revenue growth). And finally the nature of the competition that a company faces does not seem to have a significant effect on wages. In particular, companies in rich countries that report that their prime competition is from imports do not seem to pay lower wages.

5 Summary and concluding comments about globalization

If we were asked to make a dichotomous choice between whether wage setting was more "local" or "global", the answer would have to be "local". The national income identity alone suggests that this would be true, unless there are strongly offsetting differences across countries in occupational premia, occupational labor shares or profit shares. In any case the evidence here in figures 1 through 5 confirms that local wage setting is the rule. Wages and salaries in any location are far more closely linked to the general income level in that location, than to wages of similar occupations in any other location. We are still a long way away from a world in which an Office Cleaner's pay in London is equal to an Office Cleaner's pay in Bombay.

However, the *strength* of the relation across countries between wage rates and GDP per worker can be informative about the nature of global labor markets. This paper argues that anytime a fraction of the workers in a given occupation are paid according to international standards, that will

be revealed in terms of lower cross-section elasticities of wages with respect to local GDP. This elasticity will also depend on the share in the domestic labor force of workers in that occupation. But as long as workers in that occupation are not the entire labor force, the elasticity will be informative about the extent of globalization of the labor market for that particular occupation.

There is evidence that executive salaries are sensitive to the extent of foreign language attainment of managers in the country. Countries with high foreign language attainment or which already speak English tend to exhibit a weaker link between executive salary levels and local GDP per worker. To the extent that foreign language attainment has increased in recent years, this is a force that has two side effects. One is to boost GDP to the extent that foreign companies increasingly pay local managers international rather than domestic salaries. The other is to raise local income inequality because other domestic labor markets are not subject to the same forces. Both effects would be larger the poorer the country.

Other variables that appear to have explanatory power on wages after holding local GDP constant are the extent of competition in domestic product markets, and minimum wages (for the lowest paying occupation only). Two variables that have no significant effect in our data after controlling for these variables are the extent of democratic rights and the degree of centralized wage setting.

There are several ways in which global forces can impinge on wages. One, mentioned above, is internationalization of wage-setting for certain professions. This is one possible source of resentment against globalization in poorer countries, and it may be increasing. A second comes from the strong empirical link between wages and local GDP. To the extent that global integration is a growth engine, and considering that sustained growth can double or triple GDP, global integration would have a strong dynamic effect on wages through that channel.

A third channel would be differing pay norms of internationally-oriented companies as against domestically-oriented companies. A cursory glance at the wage data here makes it clear that the act of closing a factory in a rich country and opening a similar factory in a poorer country will enable the firm to employ lower-wage labor (with caveats for skill and productivity differences of course). From the perspective of workers in richer countries, the trend in this direction is at best neutral if the job gets replaced by a similar-paying job in another sector or firm. From the perspective of a worker in the receiving country, an important issue is whether the firm pays a premium over the domestic wage. The evidence here is that there

is some multinational premium in poorer countries, with the quantitative impact varying from 5 to 16 percent. However, the premium is higher in the higher paying occupations and is not always significant for lower-wage Office Cleaners or Drivers. It is worth reminding in this context that our evidence does not speak to behavior of multinationals regarding wages of factory workers or production workers.

This paper also shows evidence that countries that are perceived to have greater levels of competition also tend to pay higher wages for given levels of GDP per-worker. Although there are large standard errors on the estimated effects, the point estimates are large enough that the estimates are statistically different from zero. The possible impact of global integration in shifting value-added from profits to wages is worth further examination.

The evidence also continues to point to a strong size-wage relationship. Since multinational status and size are positively correlated, some of the positive effect of multinational status is being estimated here as a size effect. But however it is labelled, this provides another sense in which global integration can boost wages. To the extent that globalization leads to the entry of larger firms, the impact on wage levels is positive.

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List of Figures.

Figure 1

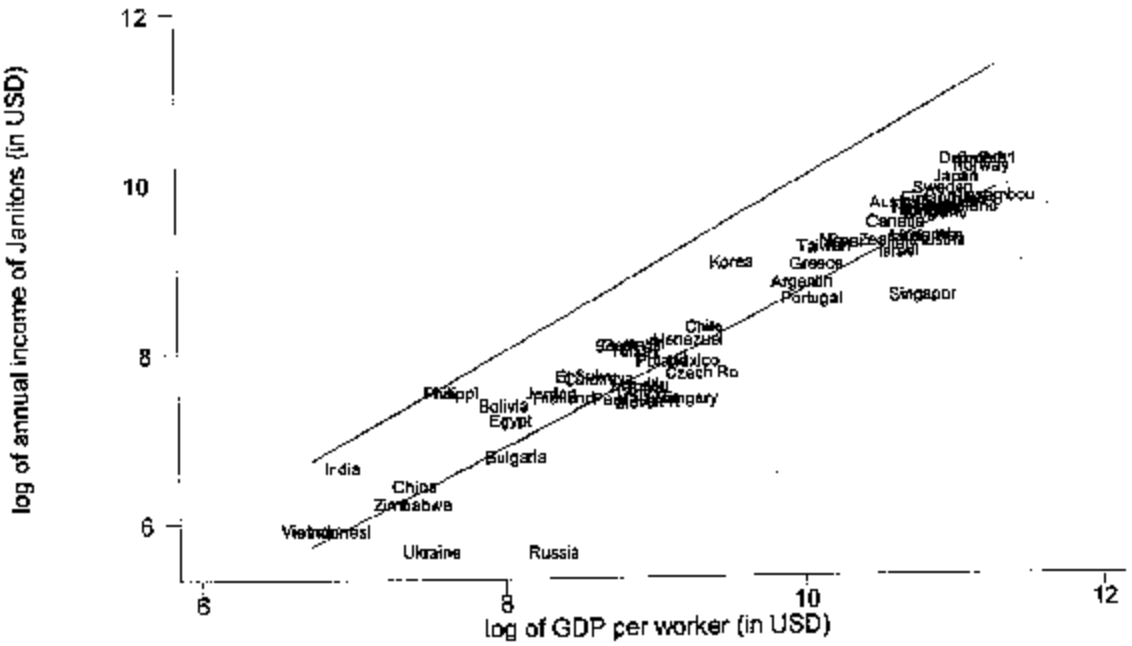

log of annual income of Janitors (in USD)
12
10
8
6
India
China
Zimbabwe
Ukraine
Russia
Bulgaria
Egypt
Bolivia
Chile
Mexico
Czech Re
Hungary
Korea
Greece
Portugal
Singapor
6
8
10
12
log of GDP per worker (in USD)

Figure 2

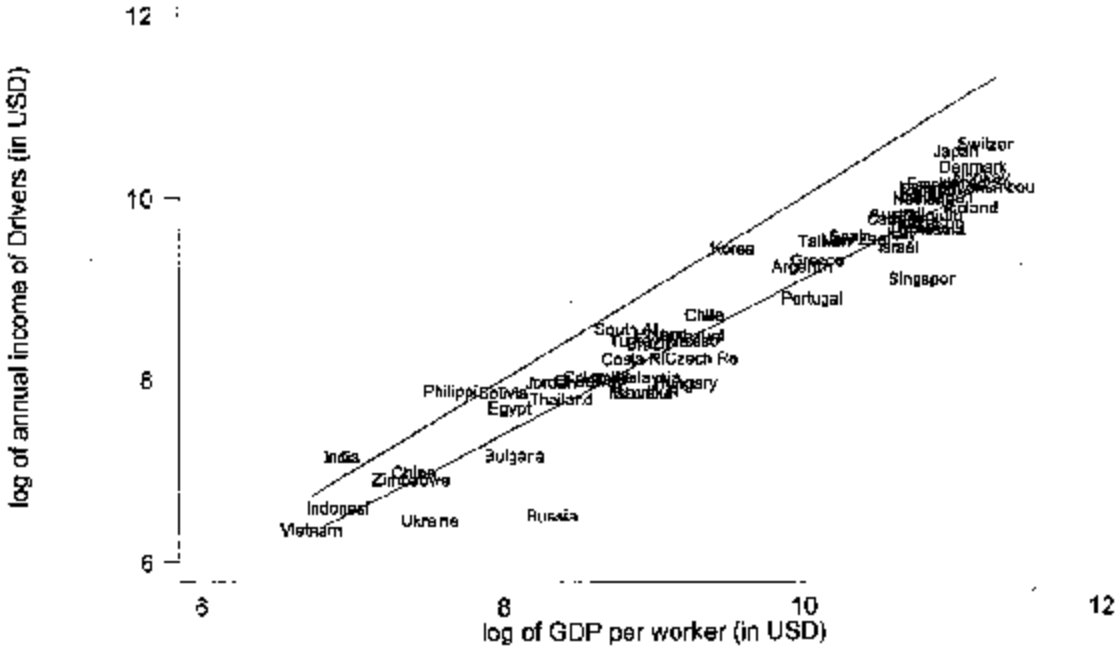
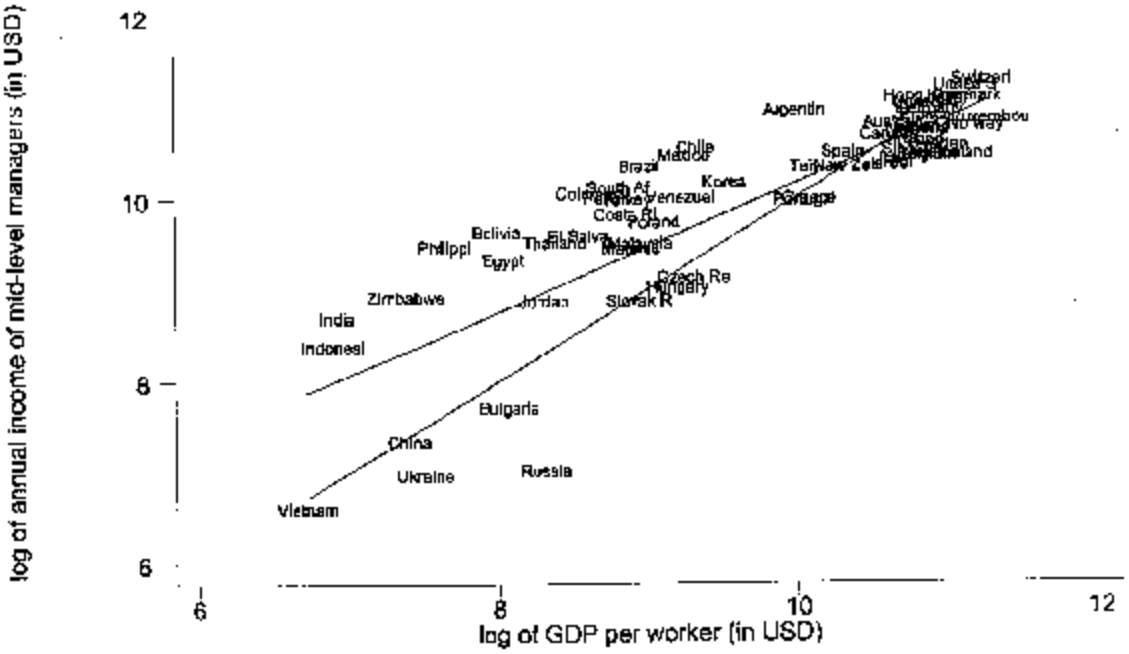

log of annual income of Drivers (in USD)
12
10
8
6
6
8
10
12
log of GDP per worker (in USD)
Switzer
Japan
Denmark
Finland
Korea
Greece
Argentin
Singapor
Portugal
Chile
Costa Ri
Czech Re
Hungary
Philippi
Bolivia
Egypt
Thailand
India
Bulgaria
Zimbabwe
Indonesi
Vietnam
Ukraine
Russia

Figure 3


log of annual income of Secretaries (ln USD)
12
10
8
6
6
8
10
12
log of GDP per worker (in USD)
Switzerl
Denmark
Korea
Chile
Czech Re
Hungary
Slovak R
Philipp
Zimbabwe
Bulgaria
China
Ukraine
Vietnam
Russia

Figure 4


log of annual income of mid-level managers (in USD)
12
10
8
6
6
8
10
12
log of GDP per worker (in USD)
Argentin
Chile
Brazil
Mexico
Korea
Venezuel
Poland
Philippi
Bolivia
Thailand
Egypt
Zimbabwe
India
Indonesi
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Hungary
Bulgaria
China
Ukraine
Russia
Vietnam

Figure 5

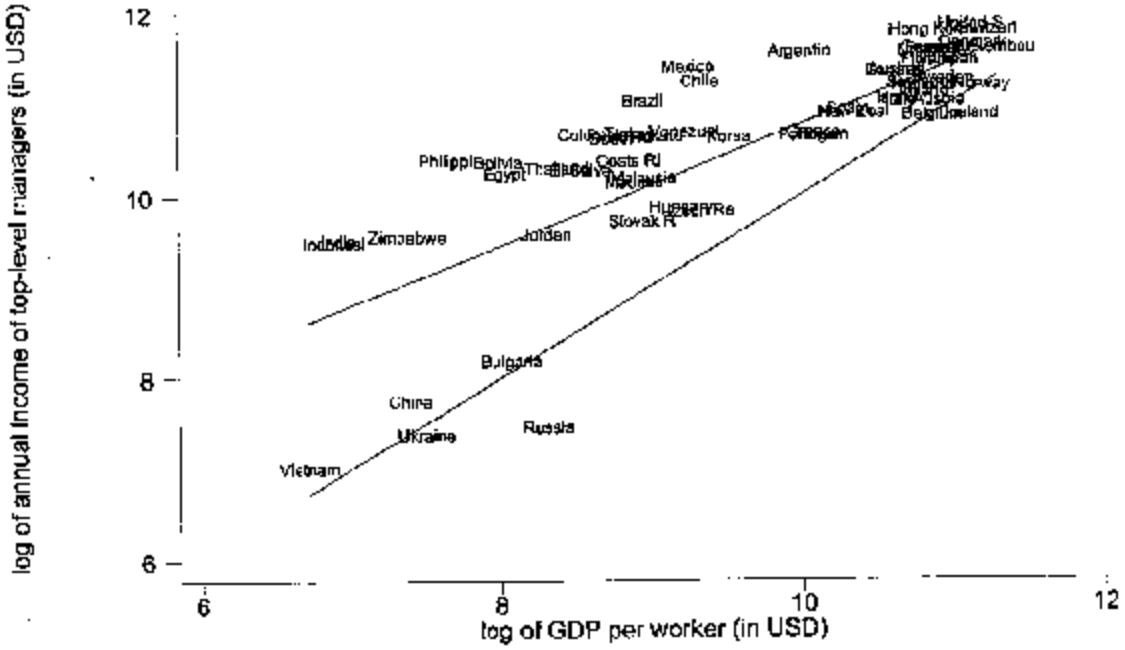

log of annual income of top-level managers (in USD)
log of GDP per worker (in USD)
12
10
8
6
6
8
10
12
Argentin
Mexico
Chile
Brazil
Korea
Zimbabwe
Jordan
Bulgaria
China
Ukraine
Russia
Vietnam

Figure 6

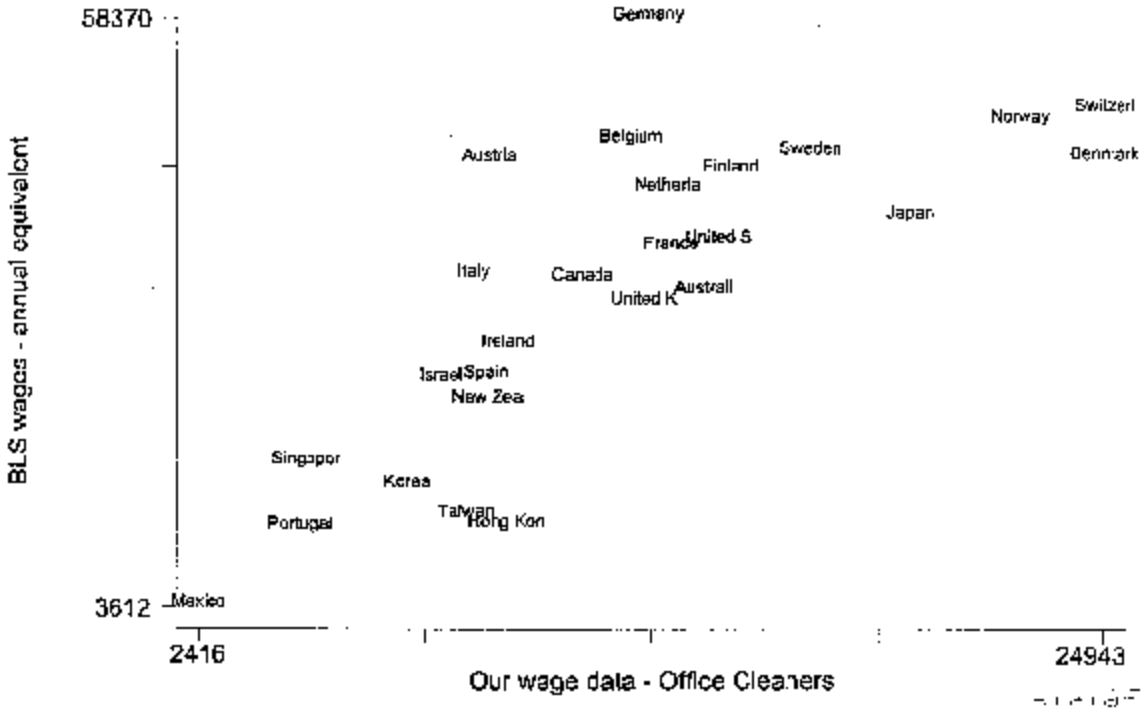

58370
3612
BLS wages - annual equivalent
Germany
Norway
Switzerl
Belgium
Sweden
Denmark
Austria
Finland
Netherla
Japan
United S
France
Italy
Canada
Australl
United K
Ireland
Israel
Spain
New Zea
Singapor
Korea
Taiwan
Hong Kon
Portugal
Mexico
2416
24943
Our wage data - Office Cleaners

Figure 7

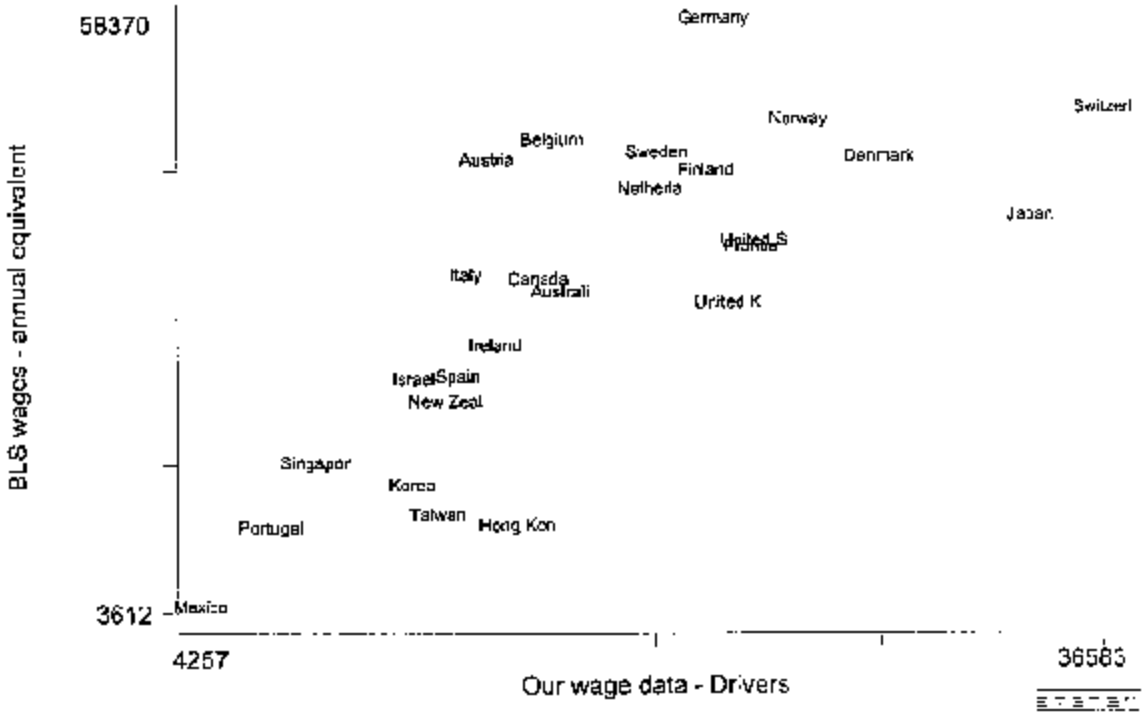
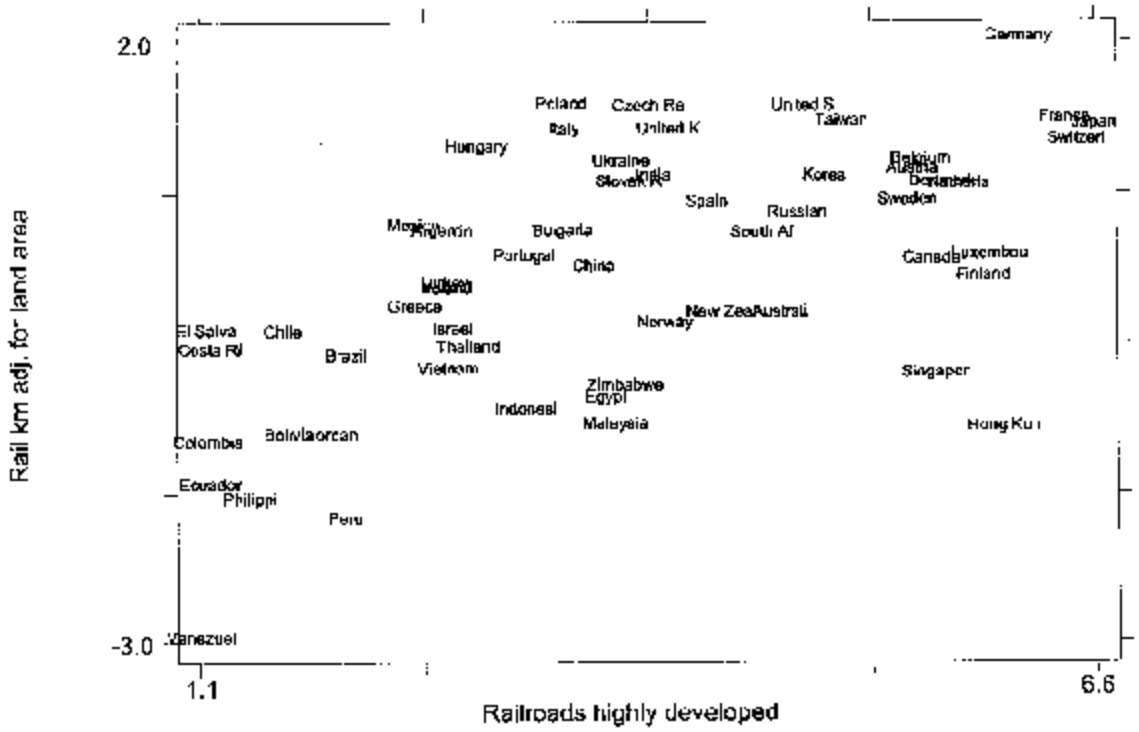

58370
3612
Germany
Switzerl
Norway
Belgium
Austria
Sweden
Finland
Denmark
Netherla
Japan
United S
Italy
Canada
Australi
United K
Ireland
Israel
Spain
New Zeal
Singapor
Korea
Taiwan
Hong Kon
Portugal
Mexico
4257
36583
BLS wages - annual equivalent
Our wage data - Drivers

Figure 8


58370
Germany
Switzerl
Norway
Belgium
Austra
Sweden
Finland
Netherla
Denmark
Japan
United S
France
Italy
Canada
Australi
United K
Ireland
Spain
New Zeal
Singapor
Korea
Taiwan
Hong Kor
Portugal
3612
Mexico
6945
41571
BLS wages - annual equivalent
Our wage data - Secretaries


Rail km adj. for land area
2.0
-3.0
1.1
6.6
Railroads highly developed
Germany
Poland
Czech Re
United S
Taiwar
France
Japan
Switzeri
Italy
United K
Hungary
Ukraine
Korea
Spain
Russian
Sweden
Bulgaria
South Af
Portugal
China
Canada
Finland
Greece
Norway
New Zea
Australi
El Salva
Chile
Costa Ri
Israel
Thailand
Brazil
Vietnam
Singapor
Zimbabwe
Egypt
Indonesi
Malaysia
Colombia
Ecuador
Philippi
Peru
Venezuel

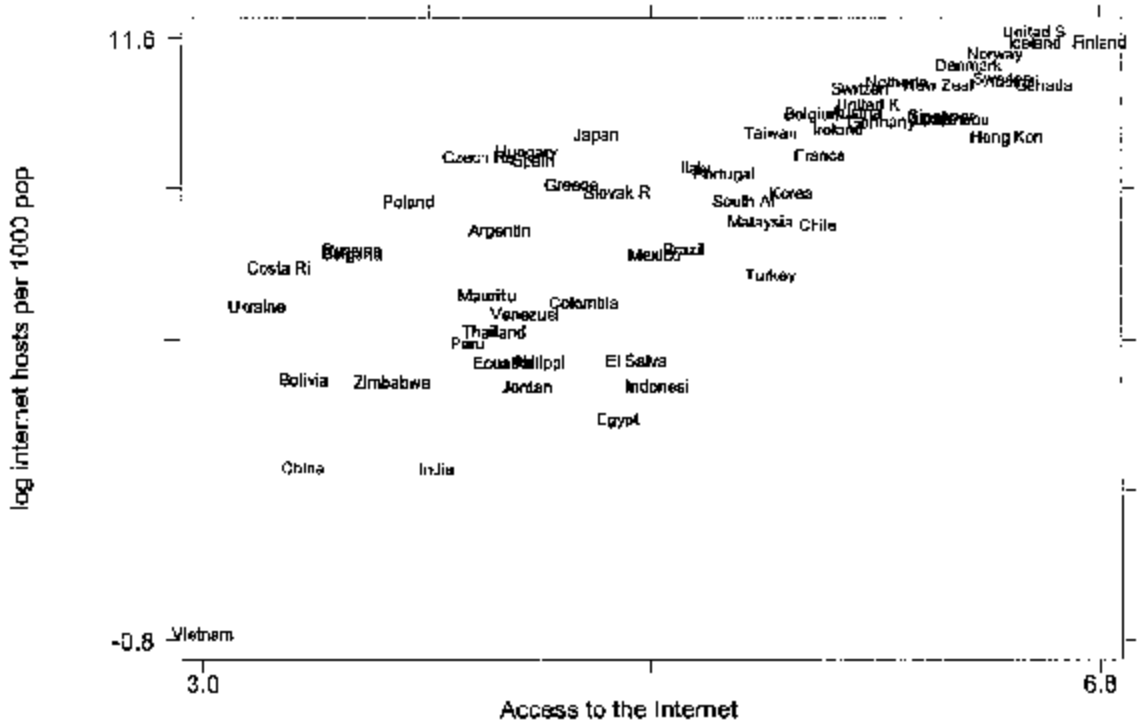
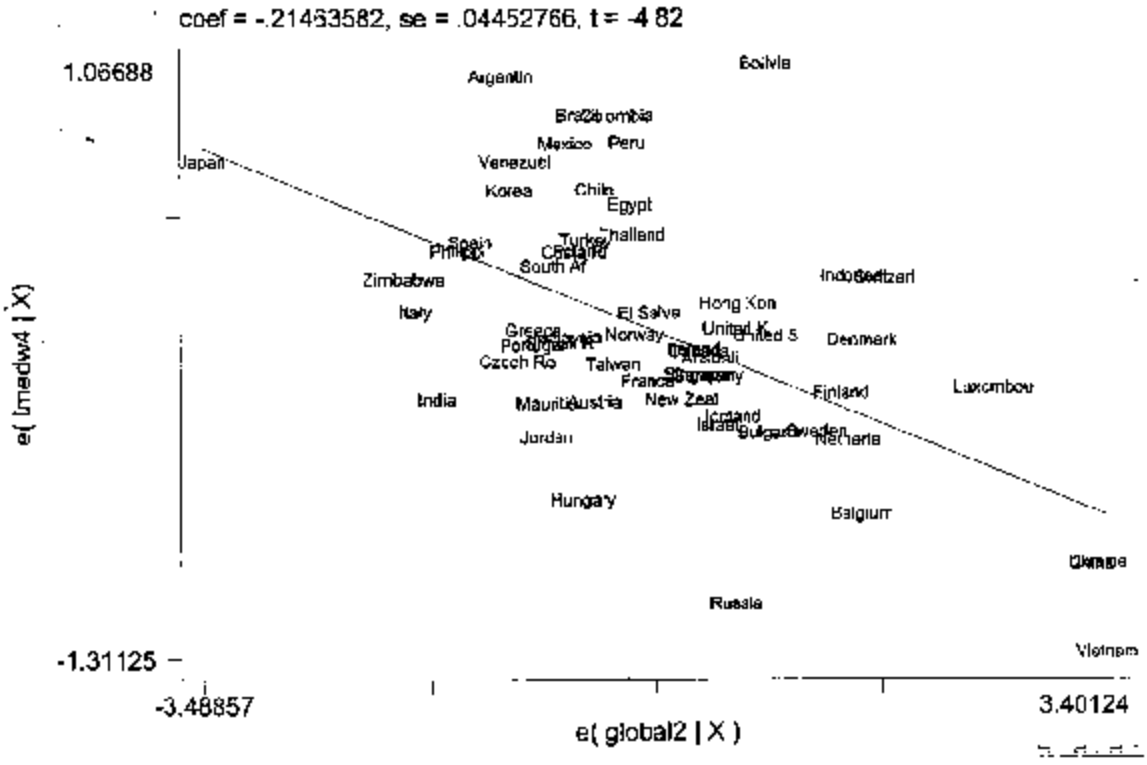
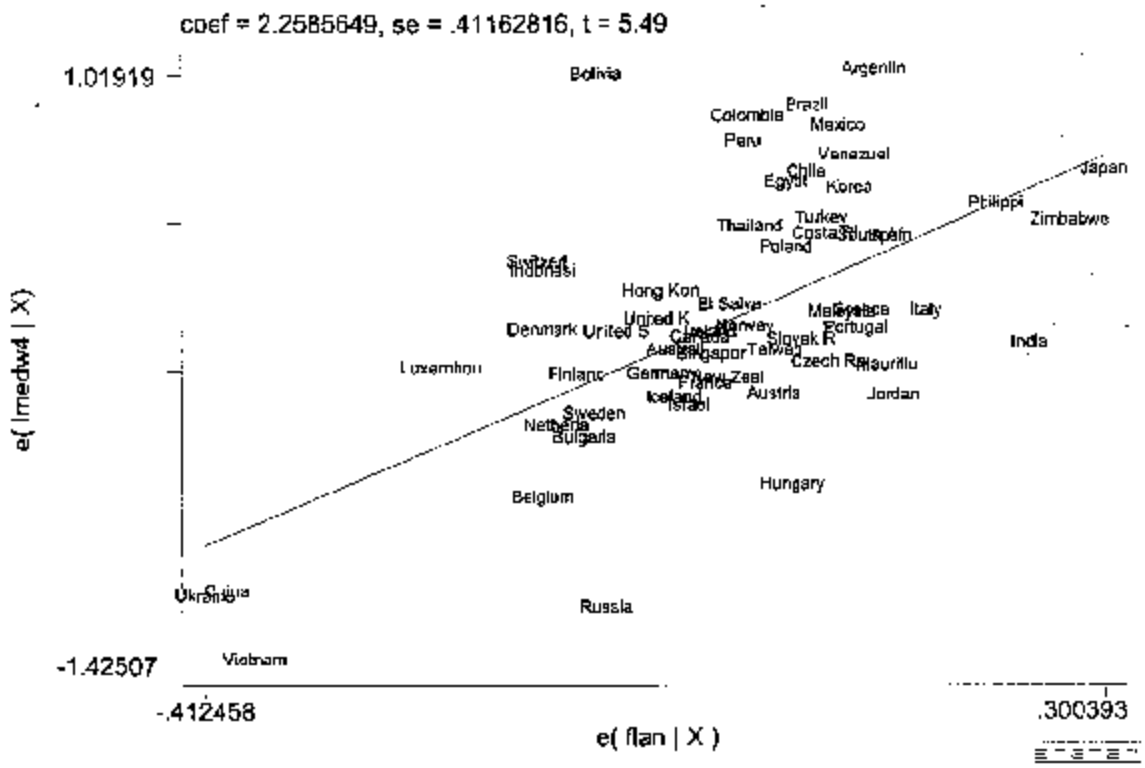
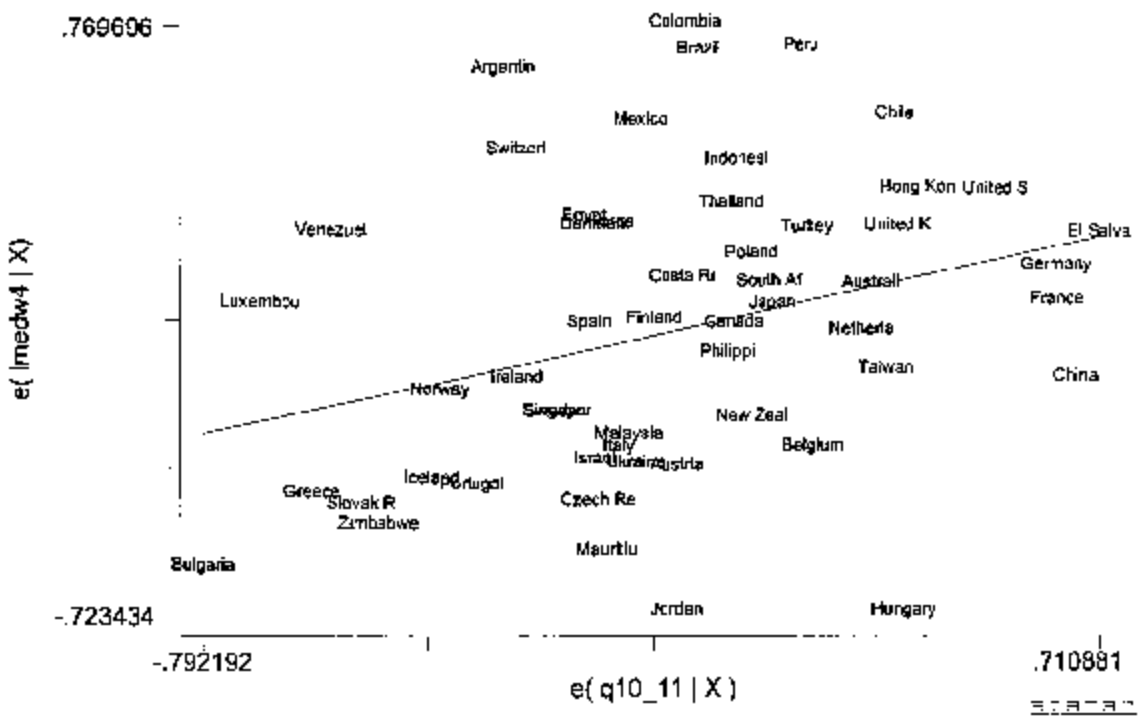

log internet hosts per 1000 pop
11.6
-0.8
3.0
6.8
Access to the Internet
Finland
Hong Kon
Japan
Taiwan
France
Poland
Argentin
Chile
Turkey
Costa Ri
Ukraine
Columbia
Thailand
El Salva
Bolivia
Zimbabwe
Jordan
Egypt
China
India
Vietnam

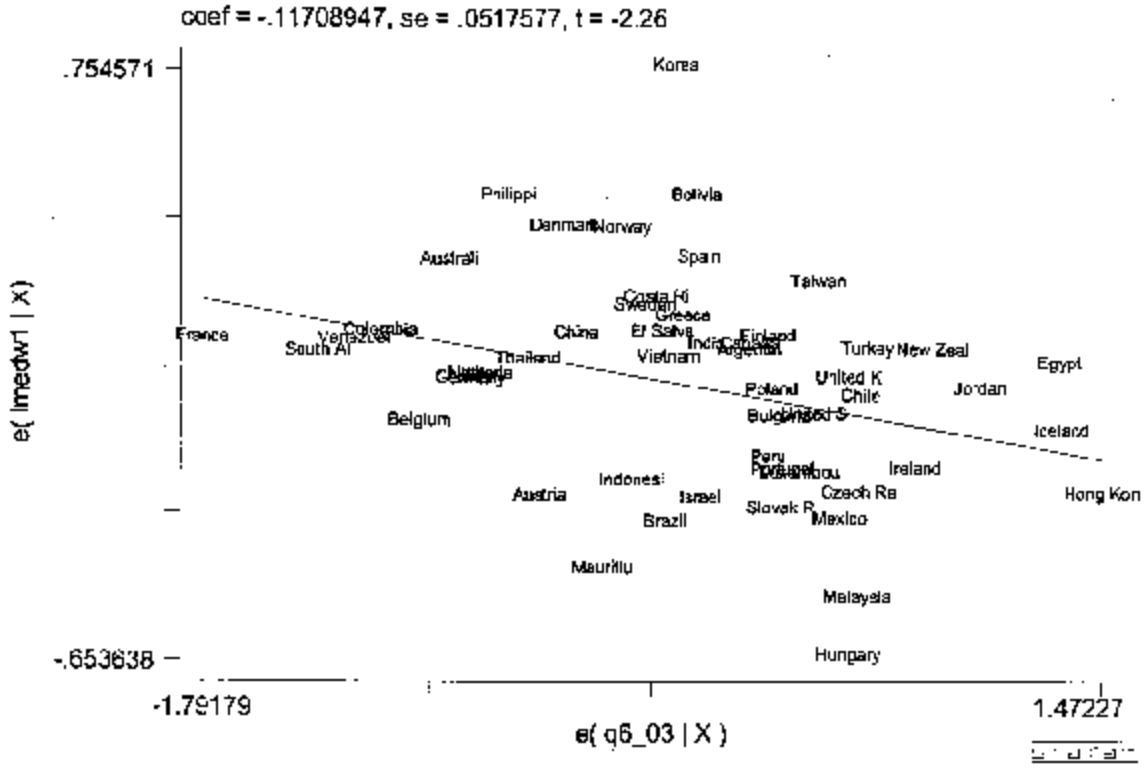
Figure 10b

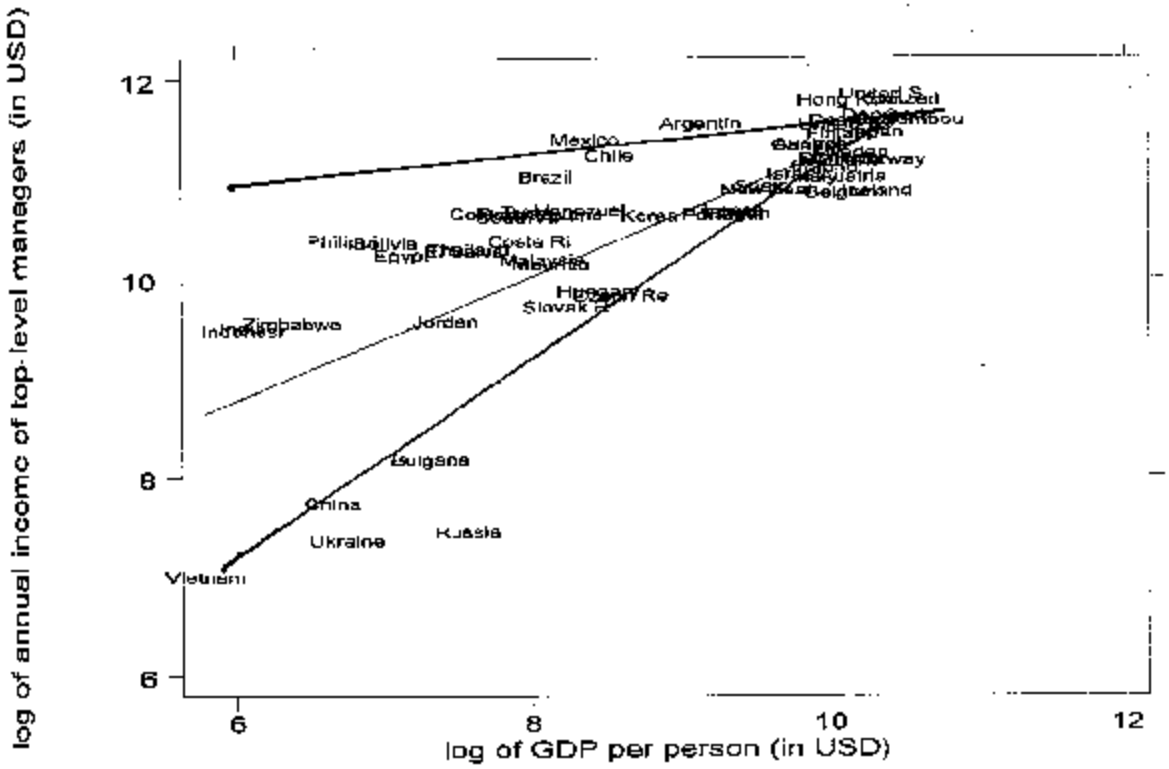

1.53497
Finland
Sweden
Denmark
Belgium
Austria
Norway
Germany
Australi
Italy
Netherla
Portugal
France
Spain
United K
Swilzerl
Canada
New Zeal
Japan
United S
-1.469
union density & cb coverage
2.1
6.1
Wage setting is not centralized

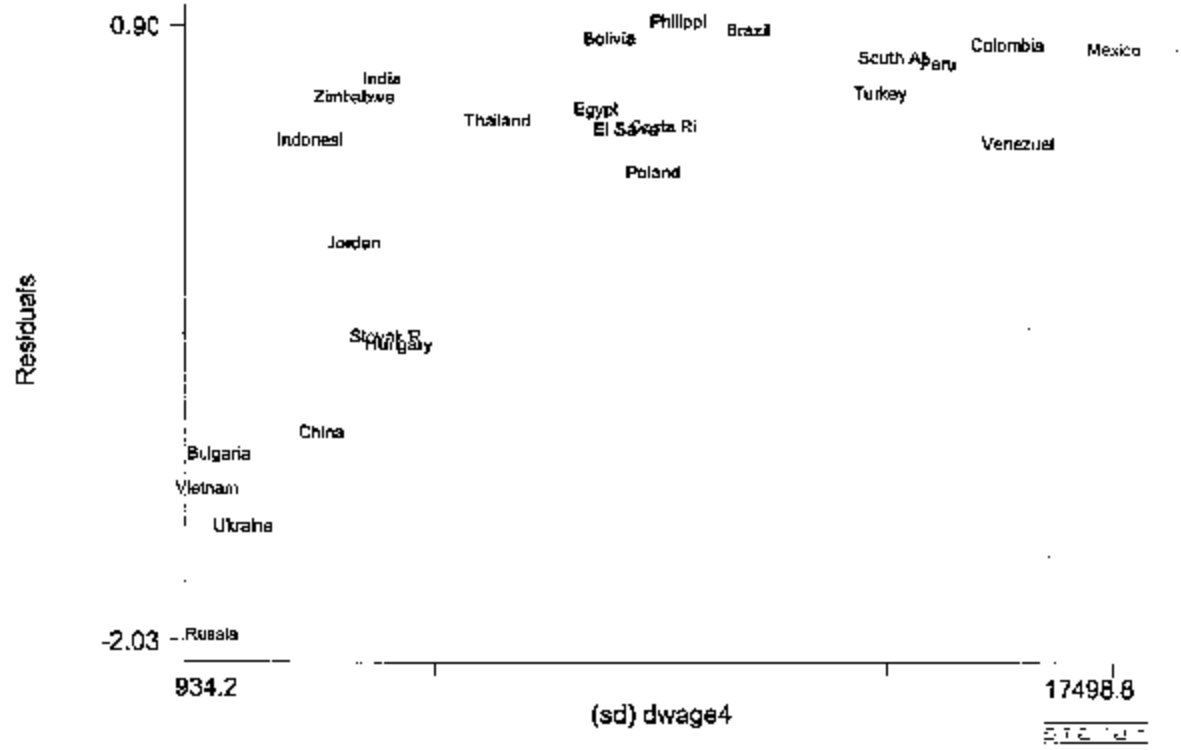

coef = -.21463582, se = .04452766, t = -4.82
1.06688
-1.31125
e(lmedw4 | X)
-3.48857
3.40124
e(global2 | X)
Bolivia
Argentin
Japan
Venezuel
Korea
Chile
Egypt
Zimbabwe
Italy
El Salva
Hong Kon
United K
Denmark
Czech Re
Taiwan
India
New Zeal
Finland
Luxembou
Jordan
Hungary
Belgium
Russia
Vietnam


coef = 2.2585649, se = .41162816, t = 5.49
1.01919
-1.42507
e(lmedw4 | X)
-.412458
.300393
e(flan | X)
Bolivia
Argentin
Brazil
Colombia
Mexico
Peru
Venezuel
Chile
Egypt
Korea
Japan
Philippi
Zimbabwe
Thailand
Turkey
Poland
Hong Kon
United K
Denmark
United S
Italy
India
Luxembou
Finland
Germany
Austria
Jordan
Sweden
Bulgaria
Hungary
Belgium
Ukraine
Russia
Vietnam


coef = .3320473, se = .1487463, t = 2.23
.769696
-.723434
e(lmedw4 | X)
-.792192
.710881
e(q10_11 | X)
Colombia
Brazil
Peru
Argentin
Mexico
Chile
Switzerl
Indonesi
Thailand
Hong Kon
United S
Venezuel
Egypt
Germanie
Turkey
United K
El Salva
Poland
Costa Ri
South Af
Australi
Germany
Luxembou
Japan
France
Spain
Finland
Canada
Netherla
Philippi
Taiwan
China
Norway
Ireland
Singapor
New Zeal
Malaysia
Italy
Belgium
Israel
Ukraine
Austria
Iceland
Portugal
Greece
Slovak R
Czech Re
Zimbabwe
Mauritiu
Bulgaria
Jordan
Hungary


coef = -.11708947, se = .0517577, t = -2.26
.754571
-.653638
e(lmedwr1 | X)
-1.79179
1.47227
e(q6_03 | X)
Korea
Philippi
Bolivia
Denmark
Norway
Australi
Spain
Taiwan
Sweden
Greece
France
Colombia
China
Finland
Turkey
New Zeal
Egypt
Thailand
Vietnam
United K
Chile
Jordan
Belgium
Iceland
Indones
Ireland
Austria
Israel
Czech Re
Hong Kon
Brazil
Mexico
Mauritiu
Malaysia
Hungary


log of annual income of top-level managers (in USD)
12
10
8
6
6
8
10
12
log of GDP per person (in USD)
Mexico
Argentin
Chile
Brazil
Jordan
Zimbabwe
China
Ukraine
Russia
Vietnam


0.90
-2.03
Residuals
Phillppl
Brazil
Bolivia
Colombia
Mexico
South A
Peru
India
Zimbabwe
Turkey
Thailand
Egypt
El Salvador
Ri
Indonesi
Venezuel
Poland
Jordan
Hungary
China
Bulgaria
Vietnam
Ukraine
Russia
934.2
17498.8
(sd) dwage4

List of Tables.

Table 1a. Sample Sizes and Percent with a Response.

	Number of Surveys Returned	Number of Surveys with a Response to the Wage Questions	Percent with a Response
	(1)	(2)	(2)/(1)
Argentina	121	97	80.2
Australia	58	49	84.5
Austria	53	44	83.0
Belgium	30	21	70.0
Bolivia	101	95	94.1
Brazil	85	74	87.1
Bulgaria	83	62	74.7
Canada	85	70	82.4
Chile	150	138	92.0
China	121	108	89.3
Colombia	76	56	73.7
Costa Rica	100	93	93.0
Czech Republic	70	62	88.6
Denmark	31	26	83.9
Egypt	40	39	97.5
El Salvador	100	95	95.0
Finland	19	18	94.7
France	24	18	75.0
Germany	56	45	80.4
Greece	47	41	87.2
Hong Kong	54	47	87.0
Hungary	82	69	84.1
Iceland	39	33	84.6
India	98	86	87.8
Indonesia	33	30	90.9
Ireland	59	45	76.3
Israel	38	30	78.9
Italy	66	53	80.3
Japan	75	54	72.0
Jordan	51	49	96.1
Korea, Republic of	41	36	87.8
Luxembourg	9	8	88.9
Malaysia	38	36	94.7
Mauritius	38	34	89.5
Mexico	29	23	79.3
Netherlands	36	30	83.3
New Zealand	88	80	90.9
Norway	50	42	84.0
Peru	76	64	84.2
Philippines	42	37	88.1
Poland	56	49	87.5
Portugal	123	92	74.8
Russian Federation	147	128	87.1
Singapore	67	62	92.5
Slovak Republic	17	14	82.4
South Africa	160	142	88.8
Spain	76	49	64.5
Sweden	26	23	88.5
Switzerland	54	40	74.1
Taiwan	50	43	86.0
Thailand	66	63	95.5
Turkey	36	31	86.1
Ukraine	67	39	58.2
United Kingdom	54	44	81.5
United States	132	109	82.6
Venezuela	117	94	80.3
Vietnam	62	59	95.2
Zimbabwe	41	38	92.7
All Countries	3843	3256	84.7

Table 1b. Number of Partial Responses.

	One (of five) wage questions answered	Two	Three	Four	All Five	Percent with Complete Response
Argentina	0	0	8	21	68	70.1
Australia	0	1	6	3	39	79.6
Austria	0	0	5	3	36	81.8
Belgium	0	0	0	1	20	95.2
Bolivia	3	2	13	27	50	52.6
Brazil	0	0	0	2	72	97.3
Bulgaria	1	0	2	5	54	87.1
Canada	0	1	12	7	50	71.4
Chile	1	0	12	19	106	76.8
China	1	1	2	4	100	92.6
Colombia	0	2	5	10	39	69.6
Costa Rica	1	7	6	37	42	45.2
Czech Republic	1	0	3	2	56	90.3
Denmark	0	0	1	0	25	96.2
Egypt	0	1	0	0	38	97.4
El Salvador	0	1	3	14	77	81.1
Finland	0	0	0	1	17	94.4
France	0	0	0	1	17	94.4
Germany	0	0	1	3	41	91.1
Greece	0	1	0	4	36	87.8
Hong Kong	0	0	1	4	42	89.4
Hungary	0	1	4	8	56	81.2
Iceland	0	0	3	4	26	78.8
India	0	0	0	4	82	95.3
Indonesia	0	0	1	0	29	96.7
Ireland	0	0	6	10	29	84.4
Israel	0	1	3	1	25	83.3
Italy	0	0	5	6	42	79.2
Japan	0	1	14	2	37	68.5
Jordan	0	0	0	0	49	100.0
Korea,Republic o	0	0	1	4	31	86.1
Luxembourg	0	0	1	1	6	75.0
Malaysia	0	0	0	1	35	97.2
Mauritius	0	0	0	2	32	94.1
Mexico	0	0	0	1	22	95.7
Netherlands	0	0	1	3	26	86.7
New Zealand	0	2	14	18	46	57.5
Norway	0	0	4	4	34	81.0
Peru	0	0	2	8	54	84.4
Philippines	0	0	0	3	34	91.9
Poland	0	1	2	4	42	85.7
Portugal	1	1	1	4	86	92.4
Russian Federati	0	0	6	10	110	85.9
Singapore	0	0	8	6	49	79.0
Slovak Republic	0	0	0	3	11	78.6
South Africa	0	0	3	6	133	93.7
Spain	0	1	2	6	40	81.6
Sweden	0	0	3	0	20	87.0
Switzerland	0	1	3	5	31	77.5
Taiwan	0	0	0	4	39	90.7
Thailand	0	0	0	0	63	100.0
Turkey	0	0	0	1	30	96.8
Ukraine	0	1	0	2	36	92.3
United Kingdom	0	0	6	4	34	77.3
United States	0	0	17	18	74	67.9
Venezuela	1	3	2	13	75	79.8
Vietnam	0	1	0	4	54	91.5
Zimbabwe	0	0	0	2	36	94.7
All Countries	10	31	194	339	2682	82.4

Table 1c. Further Information on the Sample.

	Total reponses to the wage questions	Number reporting non-local currency	Number reporting in US Dollars	Number eliminated for implausible values	Percent eliminated for implausible values (4)/(1)
Argentina	448	25	5	7	1.6
Australia	227	20	5	5	2.2
Austria	207	5	5	3	1.4
Belgium	104	0	0	1	1.0
Bolivia	404	0	0	1	0.2
Brazil	368	15	10	3	0.8
Bulgaria	297	0	0	2	0.7
Canada	316	5	0	4	1.3
Chile	643	15	15	3	0.5
China	525	40	5	7	1.3
Colombia	254	20	10	6	2.4
Costa Rica	391	0	0	4	1.0
Czech Republic	298	10	10	4	1.3
Denmark	128	0	0	2	1.6
Egypt	192	5	5	0	0.0
El Salvador	462	0	0	2	0.4
Finland	89	5	0	2	2.2
France	89	10	5	2	2.2
Germany	220	5	0	2	0.9
Greece	196	15	10	3	1.5
Hong Kong	229	25	5	11	4.8
Hungary	326	0	0	4	1.2
Iceland	155	0	0	3	1.9
India	426	20	5	6	1.4
Indonesia	148	5	5	3	2.0
Ireland	203	15	5	8	3.9
Israel	140	5	5	0	0.0
Italy	249	15	5	7	2.8
Japan	237	5	0	3	1.3
Jordan	245	0	0	1	0.4
Korea,Republic of	174	0	0	3	1.7
Luxembourg	37	0	0	1	2.7
Malaysia	179	10	0	2	1.1
Mauritius	158	0	0	0	0.0
Mexico	114	20	20	4	3.5
Netherlands	145	10	0	6	4.1
New Zealand	348	10	10	4	1.1
Norway	198	5	5	1	0.5
Peru	308	15	10	2	0.6
Philippines	182	10	5	4	2.2
Poland	234	15	10	3	1.3
Portugal	447	65	10	17	3.8
Russian Federatio	614	5	5	5	0.8
Singapore	289	40	30	7	2.4
Slovak Republic	67	0	0	2	3.0
South Africa	698	20	10	10	1.4
Spain	232	15	0	10	4.3
Sweden	109	5	5	1	0.9
Switzerland	186	10	0	3	1.6
Taiwar	211	0	0	2	0.9
Thailand	315	15	15	5	1.6
Turkey	154	15	15	4	2.6
Ukraine	190	15	0	4	2.1
United Kingdom	204	10	0	7	3.4
United States	493	10	0	6	1.2
Venezuela	440	15	10	5	1.1
Vetnam	288	60	55	12	4.2
Zimbabwe	188	0	0	2	1.1
All Countries	15420	680	330	241	1.5

Table 1d. Non-response matrix

	Total Sample	Of which: non-response to: Janitor	Driver	Secretary	Mid-manager	Top-manager
Janitor	2798	0	142	32	33	91
Driver	2777	121	0	32	29	85
Secretary	3042	276	297	0	38	104
Mid-manager	3046	281	298	42	0	85
Top-manager	2975	268	283	37	14	0

Table 1e. Possible Under-reporting of Manager's Salaries.

	Number of surveys that report Janitors wage but not top-managers salary	Mean wage of mid-managers for the surveys listed in column 2 (when reported)	Mean wage of mid-managers across all surveys
Argentina	0	.	56502.8
Australia	0	.	55265.8
Austria	1	.	34850.5
Belgium	0	.	38365.6
Bolivia	10	14642.5	15799.1
Brazil	0	.	31033.3
Bulgaria	0	.	2348.8
Canada	0	.	47210
Chile	5	34587.2	35527.8
China	1	.	2474.2
Colombia	5	24801.9	24998.1
Costa Rica	28	23729.7	19453.6
Czech Republic	2	17513.1	9853.4
Denmark	0	.	55819.2
Egypt	1	.	12001.6
El Salvador	9	15946.4	16615.8
Finland	0	.	42822.3
France	0	.	53829.8
Germany	0	.	61724.1
Greece	0	.	23654.5
Hong Kong	0	.	67552
Hungary	1	7832.2	9169.4
Iceland	0	.	35018
India	0	.	6596.9
Indonesia	0	.	4929.5
Ireland	0	.	37389.2
Israel	0	.	31060
Italy	1	.	35032.6
Japan	0	.	61832
Jordan	0	.	7766.1
Korea	0	.	26060.5
Luxembourg	0	.	57871.6
Malaysia	0	.	14516.7
Mauritius	1	12034.2	12197
Mexico	0	.	34370
Netherlands	0	.	52474
New Zealand	0	.	30556
Norway	0	.	44625.8
Peru	2	.	22619.7
Philippines	1	9207.6	14624.8
Poland	2	16742.8	16780.6
Portugal	1	.	23273.3
Russia	10	719.6	1223.9
Singapore	1	.	36928.3
Slovak Republic	0	.	7335
South Africa	0	.	25271.5
Spain	0	.	39070
Sweden	0	.	38528.1
Switzerland	0	.	75311.7
Taiwan	0	.	28373.1
Thailand	0	.	14117.8
Turkey	0	.	21595.6
Ukraine	0	.	1406.1
United Kingdom	0	.	68003.1
United States	1	115980	79845.9
Venezuela	7	26516.6	26887.6
Vietnam	1	.	1149.5
Zimbabwe	0	.	7801.6

Table 2. Descriptive statistics of variables in regressions.

Variable	bservations	Mean	Std. Dev.	Min	Max
Country Regressions					
log median wage - Janitor	58	8.28	1 27	5.57	10.12
log median wage - Driver	58	8.71	1.17	6.29	10.61
log median wage - Secretary	58	9.03	1 11	6.16	10.84
log median wage - Mid-manager	58	9.85	1 11	6.54	11.22
log median wage - Top-manager	58	10.48	1.12	6.94	11.79
log GDP per worker in US$	58	9.55	1 33	6.73	11.30
Minimum wage question	58	4.57	0 76	2.87	6.06
Competition question	58	5.01	0 48	3.83	5.96
Foreign language attainment of managers	58	5.26	0 96	2.75	7.00
log(GDP)* FL	58	51.01	14.48	20.61	79.08
Firm regressions					
log wage in US $- Janitor	2798	8.02	1.25	3.96	10.60
log wage in US $- Driver	2777	8.48	1.18	5.45	11.34
log wage in US $- Secretary	3042	8.87	1.16	4.88	11.29
log wage in US $- Mid-manager	3046	9.72	1.26	5.57	12.39
log wage in US $- Top-manager	2975	10.36	1.32	5.75	13.71
domestic firm sells domestically	3625	0.25	0.43	0.00	1.00
domestic firm sells both home and abroad	3625	0.43	0.49	0.00	1.00
Subsidiary of multinational	3625	0.25	0.43	0.00	1.00
Subs. Of mnational * OECD	3625	0.07	0.25	0.00	1.00
government enterprise	3625	0.04	0 20	0.00	1.00
government organization	3625	0.03	0.16	0.00	1.00
Employment worldwide 0-500 persons	3698	0.26	0.44	0.00	1.00
Employment worldwide 500-1000 persons	3698	0.11	0.31	0.00	1.00
Employment worldwide 1,000-10,000 persons	3698	0.29	0.46	0.00	1.00
Employment worldwide 10,000-100,000 persons	3698	0.21	0.41	0.00	1.00
Employment worldwide 100,000+ persons	3698	0.06	0.24	0.00	1.00
Revenue growth	3462	3.39	1.09	1.00	5.00
Profit trend	3505	2.32	0.79	1.00	3.00
Export growth	2300	2.35	0.66	1.00	3.00
competition is many domestic competitors	3391	0.22	0.41	0.00	1.00
competition is a few large domestic competitors	3391	0.33	0.47	0.00	1.00
competition is one dominant national competitor	3391	0.06	0.23	0.00	1.00
Competition is primarily imports	3391	0.09	0.29	0.00	1.00
competition is multinationals operating in the countr	3391	0.30	0.46	0.00	1.00
Email usage in company	3593	6.13	1.60	1.00	7.00
food and beverages	3698	0.10	0.30	0.00	1.00
textiles apparel	3698	0.04	0.19	0.00	1.00
housing/ household	3698	0.03	0.16	0.00	1.00
health	3698	0.03	0.17	0.00	1.00
personal care	3698	0.01	0.12	0.00	1.00
entertainment/ leisure	3698	0.02	0.13	0.00	1.00
general business services	3698	0.13	0.33	0.00	1.00
financial services	3698	0.15	0.35	0.00	1.00
transport	3698	0.07	0.26	0.00	1.00
telecommunications	3698	0.03	0.17	0.00	1.00
office products	3698	0.01	0.08	0.00	1.00
defense	3698	0.00	0.06	0.00	1.00
metals / materials	3698	0.09	0.28	0.00	1.00
petroleum / chemicals	3698	0.08	0.27	0.00	1.00
forest products	3698	0.02	0.14	0.00	1.00
semiconductors / computers	3698	0.02	0.14	0.00	1.00

Table 3. Regressions explaining median wages for five occupations by country as a function of minimum wage regulations, product market competition and foreign language attainment of managers.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Ln(GDP/L)	1.04	1.01	1.20	1.63	1.72
	(5.44)**	(6.33)**	(6.32)**	(6.45)**	(5.95)**
Minimum wage	-0.13	-0.09	-0.08	-0.07	-0.04
	(2.13)*	(1.77)	(1.28)	(0.86)	(0.46)
Competition	0.31	0.33	0.29	0.36	0.35
	(2.53)*	(3.23)**	(2.38)*	(2.21)*	(1.87)
Foreign Language (FL)	0.63	0.60	1.37	2.26	2.58
	(2.03)*	(2.30)*	(4.43)**	(5.49)**	(5.48)**
ln(GDP/L) * FL	-0.05	-0.05	-0.12	-0.21	-0.24
	(1.55)	(1.92)	(3.55)**	(4.82)**	(4.77)**
Observations	58	58	58	58	58
R-squared	0.94	0.95	0.92	0.85	0.81

Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

Ln(GDP/L) is log of GDP,in dollars per worker in 1998, converted at market exchange rates.

Minimum Wage is subjective rating of whether minimum wage legislation is binding (rated on a scale of 1-7 where higher value means not binding). Negative sign means that wages are higher in countries where minimum wage rules are binding, *ceteris paribus*.

Competition is subjective rating of the intensity of competition in local product markets (rated on a scale of 1-7 where higher value means most intense competition). Positive sign means that wages are higher in countries with more competition.

Foreign Language: for non-English speaking countries, this is the subjective rating of extent to which managers in the country speak a foreign language, English or other. This is rated on a 1-7 scale where the higher value indicates maximum language attainment. For English-speaking counties, since the managers already speak the lingua franca, this is set equal to 6

Ln(gdp/L) * FL: This is an interaction variable between log GDP per worker and the foreign language attainment variable. The negative sign indicates that the positive correlation between managerial pay and GDP per-worker of the country is attenuated in countries in which managers speak some foreign language or English. For high levels of foreign language attainment, the coefficient estimates imply that the wage-GDP elasticity falls from 1.0 to about 0.2, suggesting that professionals with foreign language skills participate in a global, not local, labor market.

Table 3b. Additional variables added to regression in table 3: estimated coefficients and t-ratios.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Democracy Index (0-1=max democracy) (Rodrik 1999)	0.03 (0.16)	-0.07 (-0.39)	-0.03 (-0.18)	0.02 (0.08)	-0.01 (-0.04)
De-centralized wage setting (Survey ruling)	0.01 (0.11)	0.01 (0.31)	0.02 (0.44)	0.07 (1.10)	0.08 (1.20)

Table 4. Point estimates of the wage-GDP elasticity from regressions in table 3.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Evaluated at maximum foreign language attainment (FL=6.3)	-	-	0.45	0.28	0.19
(p-value for test if elasticity=0)			(0.00)	(0.00)	(0.03)
Evaluated at minimum foreign language attainment (FL=2.6)			0.89	1.07	1.09
(p-value for test if elasticity=1)			(0.33)	(0.61)	(0.59)

Table 5. Robust versions of regressions in Table 3.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Ln(GDP/L)	0.84	0.92	1.31	1.55	1.71
	(4.76)**	(5.17)**	(7.80)**	(6.55)**	(6.31)**
Minimum wage	-0.12	-0.07	-0.06	-0.04	-0.01
	(2.26)*	(1.62)	(1.18)	(0.61)	(0.13)
Competition	0.11	0.23	0.22	0.33	0.31
	(1.04)	(2.55)*	(2.17)*	(2.23)*	(1.86)
Foreign Language (FL)	0.36	0.45	1.43	2.19	2.59
	(1.01)	(1.92)	(5.52)**	(5.58)**	(5.84)**
ln(GDP/L) * FL	-0.02	-0.04	-0.13	-0.21	-0.24
	(0.51)	(1.44)	(4.56)**	(4.93)**	(5.15)**
Observations	52	54	53	54	53
R-squared	0.95	0.96	0.94	0.86	0.82
Excluded Countries	Singapore Switzerland Zimbabwe Japan Russia Ukraine	Singapore Switzerland Japan Russia	Indonesia Switzerland Hungary Japan Russia	India Bolivia Vietnam Russia	India Indonesia Bolivia Vietnam Russia

Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

Ln(GDP/L) is log of GDP in dollars per worker in 1998, converted at market exchange rates.

Minimum Wage is subjective rating of whether minimum wage legislation is binding (rated on a scale of 1-7 where higher value means not binding). Negative sign means that wages are higher in countries where minimum wage rules are binding, *ceteris paribus*.

Competition is subjective rating of the intensity of competition in local product markets (rated on a scale of 1-7 where higher value means most intense competition). Positive sign means that wages are higher in countries with more competition.

Foreign Language: for non-English speaking countries, this is the subjective rating of extent to which managers in the country speak a foreign language, English or other. This is rated on a 1-7 scale where the higher value indicates maximum language attainment. For English-speaking counties, since the managers already speak the lingua franca, this is set equal to 6.

Ln(gdp/L) * FL: This is an interaction variable between log GDP per worker and the foreign language attainment variable. The expected negative sign means that the wage-GDP link is attenuated for managers with high foreign language attainment.

Table 6. Wage determination in companies - preferred specification.

Regressions of log wages by occupation on dummy variables for the status of the company, size of the company, performance of the company, and economic sector. Regression errors are assumed to be independent across countries but correlated within countries.

The excluded categories for the dummy variables are:

Country: Argentina.
Type of Firm: "domestically based firm that sells mainly in the domestic market".
Size: 0-500 employees worldwide.
Sector: food and beverages.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Dummy variable for domestic based firm that sells in both domestic and foreign markets.	0.01 (0.54)	0.02 (0.65)	0.03 (0.86)	0.07 (2.00)	0.09 (2.53)*
Unit/subsidiary of Multinational operating in the country	0.04 (0.90)	0.07 (1.90)	0.16 (3.92)**	0.14 (2.98)**	0.12 (2.37)*
Unit/subsidiary of Multinational operating in the country Times "OECD" dummy variable	-0.04 (0.68)	-0.06 (1.17)	-0.10 (1.74)	-0.04 (0.66)	-0.05 (0.62)
Sum of previous two estimated coefficients (F-test for sum 0)	0.00 (0.00)	0.01 (0.12)	0.06 (2.02)	0.10 (3.27)	0.07 (1.66)
Government or quasi-government enterprise	0.00 (0.04)	-0.02 (0.42)	-0.12 (2.03)*	-0.08 (1.41)	-0.11 (1.72)
Government Organization	-0.11 (2.14)*	-0.01 (0.14)	-0.19 (1.04)	-0.17 (2.17)*	-0.45 (4.87)**
500-1,000 employees Worldwide	0.04 (1.60)	0.08 (2.45)*	0.07 (2.13)*	0.11 (2.47)*	0.09 (1.69)
1,000-10,000 Worldwide	0.06 (2.22)*	0.09 (2.92)**	0.09 (3.14)**	0.17 (4.61)**	0.21 (5.02)**
10,000-100,000 Worldwide	0.09 (2.82)**	0.11 (3.33)**	0.13 (3.76)**	0.22 (5.22)**	0.23 (6.88)**
100,000+ Worldwide	0.02 (0.49)	0.04 (0.88)	0.11 (2.48)*	0.26 (4.27)**	0.30 (4.56)**
Revenue growth in past three years (1=negative; 2=0%;3=1-10%;4=11-20%; 5=20+%)	0.00 (0.42)	-0.00 (0.12)	0.01 (0.94)	0.03 (2.97)**	0.03 (3.21)**

Export growth (1=decreasing; 2=steady;3=increasing)	0.01 (0.55)	-0.00 (0.02)	0.01 (0.27)	-0.00 (0.14)	0.04 (1.82)
E-mail usage	0.02 (2.80)**	0.02 (3.21)**	0.03 (3.02)**	0.04 (2.81)**	0.04 (2.89)**
Industry dummies					
textiles/apparel	-0.15 (5.14)**	-0.18 (3.97)**	-0.16 (3.83)**	-0.24 (3.27)**	-0.26 (2.83)**
housing/household	-0.04 (0.80)	-0.02 (0.27)	0.02 (0.32)	0.01 (0.09)	0.01 (0.10)
health	0.01 (0.11)	0.04 (0.77)	-0.01 (0.11)	-0.06 (0.86)	-0.10 (1.32)
personal care	0.09 (1.11)	0.04 (0.59)	0.19 (2.39)*	0.08 (1.22)	0.09 (0.85)
entertainment/leisure	-0.02 (0.28)	-0.01 (0.07)	0.00 (0.01)	0.00 (0.01)	-0.03 (0.41)
general business services	-0.04 (1.22)	-0.05 (1.58)	-0.03 (1.02)	0.02 (0.49)	-0.04 (0.92)
financial services	-0.02 (0.71)	-0.07 (1.72)	0.05 (1.31)	0.12 (2.69)**	0.12 (2.22)*
transport and logistics	-0.01 (0.27)	0.03 (0.65)	-0.00 (0.06)	-0.04 (0.83)	-0.05 (0.99)
telecommunications	0.00 (0.04)	-0.00 (0.06)	-0.01 (0.21)	-0.03 (0.38)	-0.12 (1.39)
office products	-0.05 (0.47)	-0.05 (0.44)	0.04 (0.86)	-0.03 (0.26)	0.03 (0.24)
defense	-0.17 (1.53)	-0.07 (0.88)	-0.13 (0.81)	-0.23 (1.57)	-0.24 (2.02)*
metals/materials	0.04 (1.00)	0.01 (0.39)	-0.01 (0.23)	0.01 (0.29)	-0.02 (0.31)
petroleum/chemicals	0.07 (1.81)	0.12 (3.29)**	0.15 (3.61)**	0.21 (4.45)**	0.18 (3.23)**
forest products	-0.01 (0.17)	-0.01 (0.25)	-0.04 (0.56)	0.07 (0.99)	0.03 (0.49)
semiconductors/computers	0.04 (0.65)	0.05 (0.71)	0.11 (1.69)	0.25 (3.85)**	0.21 (2.13)*
Country dummies	yes	yes	yes	yes	yes

Observations	1685	1670	1810	1811	1775
R-squared	0.92	0.91	0.89	0.85	0.82

Robust t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

"OECD" is not the official membership of the OECD but a shorthand for Austria, Australia, Belgium, Switzerland, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Sweden, United Kingdom, United States.

Appendix Table 1. Wage determination by type of company.

Regressions of log wages by occupation on dummy variables for the nature of the company, economic sectors and countries. Estimated by G.L.S. where the error variances are assumed to vary by country. The regressions cover 58 countries. The excluded category is a "domestically based firm that sells mainly in the domestic market" in the food and beverages sector in Argentina.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top Manager Salary
Dummy variable for domestic based firm that sells in both domestic and foreign markets.	0.03 (1.48)	0.04 (1.73)	0.04 (1.57)	0.09 (3.84)**	0.13 (4.87)**
Unit/subsidiary of Multinational operating in the country	0.10 (3.06)**	0.13 (4.38)**	0.24 (5.59)**	0.24 (5.37)**	0.27 (4.95)**
Unit/subsidiary of Multinational operating in the country Times "OECD" dummy variable	-0.09 (1.91)	-0.09 (2.48)*	-0.17 (3.38)**	-0.09 (1.41)	-0.12 (1.55)
Sum of previous two estimated coefficients (F-test for sum=0)	0.01 (0.09)	0.04 (1.52)	0.07 (4.62)**	0.13 (9.21)**	0.15 (5.78)**
Government or quasi-government enterprise	0.05 (0.99)	0.07 (1.82)	-0.02 (0.35)	-0.03 (0.51)	-0.08 (1.41)
Government Organization	-0.05 (1.26)	-0.08 (1.99)	-0.15 (2.66)*	-0.17 (2.79)**	-0.34 (4.80)**
Industry dummies	yes	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes	yes
Observations	2747	2726	2989	2993	2922
R-squared	0.91	0.91	0.89	0.86	0.83

Robust t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

"OECD" is not the official membership of the OECD but a shorthand for Austria, Australia, Belgium, Switzerland, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Sweden, United Kingdom, United States.

Appendix Table 2. Wage determination by size of company.

Regressions of log wages by occupation on dummy variables for the employment size of the company, both within the country and worldwide, and economic sectors and countries. Estimated by G.L.S. where the error variances are assumed to vary by country. The regressions cover 58 countries. The excluded category is a firm with 0-500 employees in the food and beverages sector in Argentina.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
500-1,000 employees In the country	-0.00 (0.18)	-0.01 (0.49)	-0.03 (0.92)	0.03 (0.90)	0.06 (1.46)
1,000-10,000 In the country	-0.02 (0.57)	0.00 (0.06)	-0.08 (2.57)*	-0.00 (0.12)	0.03 (0.83)
10,000-100,000 In the country	-0.02 (0.57)	-0.00 (0.10)	-0.16 (4.13)**	-0.03 (0.77)	0.01 (0.23)
100,000+ In the country	0.00 (0.00)	0.04 (0.44)	-0.14 (1.66)	-0.08 (0.86)	0.02 (0.18)
500-1,000 employees Worldwide	0.03 (1.03)	0.07 (2.05)*	0.08 (2.33)*	0.08 (1.70)	0.06 (1.16)
1,000-10,000 Worldwide	0.06 (1.78)	0.07 (2.30)*	0.13 (3.61)**	0.16 (4.19)**	0.18 (3.84)**
10,000-100,000 Worldwide	0.12 (2.97)**	0.14 (3.37)**	0.25 (5.51)**	0.26 (4.77)**	0.30 (4.71)**
100,000+ Worldwide	0.07 (1.27)	0.10 (1.84)	0.28 (4.63)**	0.37 (5.13)**	0.39 (4.43)**
Industry dummies	yes	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes	yes
Observations	2798	2777	3042	3046	2975
R-squared	0.91	0.91	0.89	0.86	0.83

Robust t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Appendix Table 3. Effect of recent company performance on wages and salaries.

Regression of log wages by occupation on variables measuring recent revenue growth, profitability and export growth, controlling for industry and country fixed effects. G.L.S. estimates where the error variances are assumed to correlated within but not across the 58 countries.

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Revenue growth in past three years (1=negative; 2=0%;3=1-10%;4=11-20%; 5=20+%)	0.00 (0.51)	0.00 (0.38)	0.02 (1.20)	0.04 (3.75)**	0.04 (3.23)**
Profitability in past three years (1=declining; 2=stable; 3=increasing)	-0.00 (0.04)	0.01 (0.45)	0.01 (0.55)	-0.01 (0.49)	-0.00 (0.23)
Export growth (1=decreasing; 2=steady;3=increasing)	0.01 (0.81)	0.01 (0.44)	0.02 (0.94)	0.02 (1.11)	0.07 (3.28)**
Industry dummies	yes	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes	yes
Observations	1742	1730	1870	1870	1832
R-squared	0.92	0.91	0.89	0.85	0.81

Robust t-statistics in parentheses
* significant at 5% level, ** significant at 1% level

Appendix Table 4. Wages and nature of competition.

Regressions of log wages by occupation on dummy variables for the nature of competition, controlling for industry and country fixed effects. The excluded category is a firm in the food and beverages sector in Argentina whose principal competition is "numerous domestic competitors".

	(1) Janitor's wage	(2) Driver's wage	(3) Secretary's wage	(4) Mid-Manager Salary	(5) Top-Manager Salary
Dummy =1 if principal competition is "a few large local competitors"	0.02	-0.01	0.01	0.05	0.07
	(0.73)	(0.67)	(0.33)	(1.62)	(1.82)
Dummy for "One dominant national competitor".	0.05	0.04	0.04	0.14	0.13
	(1.29)	(1.15)	(0.97)	(3.14)**	(2.29)*
Main competition Is "Imports"	0.01	-0.01	-0.05	0.06	0.03
	(0.52)	(0.44)	(1.65)	(1.38)	(0.70)
"Multinationals operating In the country"	0.06	0.02	0.10	0.15	0.17
	(2.30)*	(0.76)	(2.93)**	(3.87)**	(3.49)**
Industry dummies	yes	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes	yes
Observations	2593	2570	2816	2819	2754
R-squared	0.91	0.90	0.88	0.85	0.82

Robust t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

Appendix Table 5. Regressions with the full set of variables and the sector and country dummy variables.

	(1)	(2)	(3)	(4)	(5)
	ldwage1	ldwage2	ldwage3	ldwage4	ldwage5
domestic2	0.01	0.02	0.02	0.06	0.09
	(0.37)	(0.66)	(0.80)	(1.74)	(2.25)*
mnational	0.03	0.08	0.14	0.12	0.10
	(0.64)	(1.81)	(3.65)**	(2.49)*	(1.99)
mnoecd	-0.04	-0.06	-0.09	-0.04	-0.05
	(0.64)	(1.13)	(1.53)	(0.58)	(0.62)
gov1	-0.02	-0.05	-0.15	-0.09	-0.10
	(0.39)	(0.82)	(2.45)*	(1.57)	(1.57)
gov2	-0.13	-0.16	-0.58	-0.31	-0.55
	(3.46)**	(3.86)**	(16.62)**	(7.21)**	(10.81)**
size2b	0.04	0.07	0.06	0.10	0.08
	(1.37)	(2.06)*	(1.65)	(2.28)*	(1.48)
size2c	0.07	0.09	0.09	0.17	0.21
	(2.30)*	(3.06)**	(3.20)**	(4.65)**	(4.93)**
size2d	0.09	0.12	0.13	0.21	0.27
	(2.58)*	(3.41)**	(3.61)**	(4.71)**	(6.23)**
size2e	0.02	0.05	0.11	0.25	0.29
	(0.39)	(1.02)	(2.33)*	(4.04)**	(4.48)**
grow	0.00	-0.00	0.01	0.03	0.03
	(0.28)	(0.43)	(1.02)	(2.60)*	(2.98)**
prof	0.00	0.01	-0.00	-0.01	-0.00
	(0.04)	(0.58)	(0.04)	(0.76)	(0.25)
exportg	0.01	0.00	0.01	-0.00	0.04
	(0.49)	(0.20)	(0.49)	(0.08)	(1.89)
comp2	0.02	-0.04	-0.02	0.01	0.01
	(0.87)	(1.82)	(0.78)	(0.36)	(0.17)
comp3	0.08	0.02	-0.00	0.09	0.08
	(1.78)	(0.53)	(0.03)	(1.67)	(1.29)
comp4	-0.00	-0.08	-0.08	0.01	-0.03
	(0.04)	(2.19)*	(2.30)*	(0.11)	(0.51)
comp5	0.04	-0.05	-0.00	0.06	0.05
	(1.46)	(1.81)	(0.01)	(1.24)	(0.94)
E-mail	0.02	0.02	0.03	0.04	0.04
	(2.51)*	(3.28)**	(2.69)**	(2.70)**	(2.80)**
textiles/apparel	-0.13	-0.16	-0.16	-0.24	-0.26
	(4.32)**	(3.54)**	(3.40)**	(3.10)**	(2.81)**
housing/household	-0.03	-0.02	0.02	0.02	0.02
	(0.49)	(0.32)	(0.37)	(0.22)	(0.24)
health	-0.00	0.04	-0.02	-0.10	-0.12
	(0.07)	(0.80)	(0.44)	(1.38)	(1.66)
personal care	0.09	0.06	0.14	0.04	0.08
	(1.11)	(0.78)	(1.89)	(0.60)	(0.66)
entertainment/leisure	-0.02	-0.02	-0.02	-0.03	-0.06
	(0.22)	(0.23)	(0.27)	(0.33)	(0.79)
general business services	-0.03	-0.05	-0.03	0.02	-0.04
	(1.03)	(1.51)	(1.10)	(0.41)	(0.90)

financial services	-0.02	-0.07	0.04	0.12	0.13
	(0.60)	(1.66)	(1.04)	(2.74)**	(2.14)*
transport and logistics	-0.01	0.03	0.00	-0.03	-0.05
	(0.17)	(0.78)	(0.04)	(0.74)	(0.89)
telecommunications	0.02	0.02	-0.00	-0.02	-0.10
	(0.30)	(0.26)	(0.04)	(0.23)	(1.19)
office products	-0.05	-0.04	0.04	-0.03	0.03
	(0.38)	(0.39)	(0.90)	(0.28)	(0.23)
defense	-0.16	-0.03	-0.09	-0.23	-0.22
	(1.50)	(0.41)	(0.62)	(1.54)	(1.81)
metals/materials	0.04	0.01	-0.01	0.01	-0.01
	(0.90)	(0.45)	(0.33)	(0.23)	(0.12)
petroleum/chemicals	0.07	0.12	0.15	0.19	0.16
	(1.61)	(3.15)**	(3.57)**	(4.01)**	(2.97)**
forest products	-0.02	-0.02	-0.03	0.05	0.03
	(0.24)	(0.32)	(0.42)	(0.68)	(0.43)
semiconductors/computers	0.04	0.07	0.13	0.26	0.23
	(0.57)	(1.12)	(1.91)	(4.30)**	(2.49)*
cdAus	0.91	0.87	0.53	0.16	0.02
	(3.41)**	(2.94)**	(1.43)	(0.38)	(0.04)
cdAst	0.74	0.82	0.45	-0.04	-0.17
	(2.80)**	(2.78)**	(1.21)	(0.09)	(0.41)
cdBel	1.02	0.90	0.52	-0.06	-0.33
	(3.77)**	(2.97)**	(1.40)	(0.14)	(0.77)
cdBol	-1.18	-0.99	-0.88	-0.76	-0.62
	(4.37)**	(3.25)**	(2.38)*	(1.73)	(1.44)
cdBra	-1.02	-0.58	-0.40	-0.37	-0.33
	(3.87)**	(1.96)	(1.09)	(0.86)	(0.78)
cdBul	-1.76	-1.68	-2.00	-2.62	-2.67
	(6.59)**	(5.62)**	(5.41)**	(5.99)**	(6.30)**
cdSwi	1.64	1.54	1.20	0.60	0.50
	(6.14)**	(5.17)**	(3.26)**	(1.39)	(1.18)
cdCan	0.86	0.79	0.43	0.07	0.02
	(3.22)**	(2.67)**	(1.16)	(0.16)	(0.05)
cdChl	-0.31	0.18	-0.29	-0.12	0.06
	(1.14)	(0.60)	(0.78)	(0.27)	(0.15)
cdChi	-1.97	-1.80	-2.22	-2.84	-2.99
	(7.44)**	(6.10)**	(6.03)**	(6.61)**	(7.07)**
cdCol	-0.71	-0.77	-0.79	-0.29	-0.41
	(2.61)*	(2.53)*	(2.10)*	(0.66)	(0.97)
cdCos	-0.52	-0.64	-0.74	-0.68	-1.09
	(1.96)	(2.15)*	(2.02)*	(1.57)	(2.60)*
cdCze	-0.92	-0.69	-1.09	-1.34	-1.33
	(3.42)**	(2.32)*	(2.93)**	(3.09)**	(3.14)**
cdDen	1.52	1.31	1.00	0.39	0.31
	(5.68)**	(4.41)**	(2.72)**	(0.91)	(0.74)
cdEgy	-1.48	-1.32	-1.16	-1.43	-1.31
	(5.56)**	(4.44)**	(3.15)**	(3.31)**	(3.11)**
cdFI	-0.76	-0.78	-0.94	-0.81	-0.93
	(2.83)**	(2.61)*	(2.53)*	(1.85)	(2.18)*
cdFin	1.13	1.05	0.56	0.09	0.05
	(4.29)**	(3.55)**	(1.54)	(0.22)	(0.12)
cdFra	1.10	1.18	0.78	0.38	0.36
	(4.05)**	(3.92)**	(2.08)*	(0.86)	(0.82)
cdGer	1.00	1.12	0.72	0.32	0.27
	(3.72)**	(3.78)**	(1.96)	(0.73)	(0.64)

cdGrc	0.40	0.34	-0.12	-0.49	-0.40
	(1.48)	(1.16)	(0.32)	(1.13)	(0.94)
cdHon	0.78	0.77	0.63	0.49	0.47
	(2.89)**	(2.57)*	(1.71)	(1.13)	(1.14)
cdHun	-1.14	-0.86	-1.26	-1.38	-1.25
	(4.25)**	(2.91)**	(3.42)**	(3.21)**	(3.00)**
cdIce	1.13	1.02	0.65	0.21	0.04
	(4.13)**	(3.33)**	(1.73)	(0.48)	(0.09)
cdInd	-1.80	-1.76	-1.69	-1.93	-1.73
	(6.76)**	(5.87)**	(4.57)**	(4.44)**	(4.08)**
cdIdn	-2.66	-2.38	-1.87	-2.08	-1.90
	(10.00)**	(8.04)**	(5.09)**	(4.83)**	(4.49)**
cdIre	0.52	0.72	0.21	-0.15	-0.21
	(1.91)	(2.38)*	(0.57)	(0.35)	(0.48)
cdIsr	0.43	0.54	0.09	-0.23	-0.33
	(1.62)	(1.79)	(0.24)	(0.53)	(0.78)
cdIta	0.72	0.68	0.21	-0.17	-0.17
	(2.70)**	(2.29)*	(0.56)	(0.39)	(0.40)
cdJap	1.23	1.56	0.80	0.44	0.21
	(4.62)**	(5.28)**	(2.16)*	(1.01)	(0.50)
cdJor	-0.95	-0.94	-1.13	-1.39	-1.24
	(3.56)**	(3.11)**	(3.04)**	(3.19)**	(2.91)**
cdKor	0.42	0.65	0.33	-0.31	-0.65
	(1.65)	(2.20)*	(0.91)	(0.73)	(1.54)
cdLux	1.19	1.23	0.96	0.41	0.54
	(4.37)**	(4.08)**	(2.56)*	(0.93)	(1.26)
cdMal	-1.05	-0.95	-0.78	-0.92	-0.88
	(3.96)**	(3.21)**	(2.12)*	(2.14)*	(2.09)*
cdMau	-1.04	-1.01	-1.06	-1.14	-1.09
	(3.86)**	(3.36)**	(2.86)**	(2.63)*	(2.58)*
cdMex	-0.89	-0.62	-0.65	-0.21	-0.16
	(3.36)**	(2.11)*	(1.75)	(0.49)	(0.38)
cdNet	0.96	0.98	0.60	0.06	-0.13
	(3.61)**	(3.31)**	(1.63)	(0.14)	(0.30)
cdNew	0.70	0.67	0.31	-0.10	-0.13
	(2.62)*	(2.25)*	(0.84)	(0.23)	(0.30)
cdNor	1.41	1.23	0.79	0.13	-0.12
	(5.25)**	(4.09)**	(2.12)*	(0.30)	(0.28)
cdPer	-0.94	-0.83	-0.85	-0.64	-0.62
	(3.48)**	(2.74)**	(2.26)*	(1.45)	(1.44)
cdPhi	-0.93	-1.02	-1.00	-1.11	-0.92
	(3.46)**	(3.40)**	(2.70)**	(2.56)*	(2.20)*
cdPol	-0.80	-0.62	-0.81	-1.04	-0.84
	(3.01)**	(2.10)*	(2.23)*	(2.45)*	(2.02)*
cdPor	-0.03	0.06	-0.17	-0.46	-0.40
	(0.10)	(0.19)	(0.46)	(1.07)	(0.95)
cdRus	-3.07	-2.60	-3.30	-3.63	-3.60
	(11.61)**	(8.76)**	(8.99)**	(8.38)**	(8.50)**
cdSin	0.04	0.16	0.09	-0.13	-0.09
	(0.17)	(0.54)	(0.24)	(0.31)	(0.22)
cdSou	-0.53	-0.43	-0.44	-0.54	-0.63
	(2.00)*	(1.47)	(1.21)	(1.25)	(1.51)
cdSpa	0.71	0.68	0.28	-0.12	-0.26
	(2.67)**	(2.31)*	(0.77)	(0.27)	(0.62)
cdSwe	1.15	0.93	0.51	-0.04	-0.10
	(4.34)**	(3.16)**	(1.39)	(0.10)	(0.23)

cdTai	0.53	0.65	0.25	-0.26	-0.52
	(1.99)	(2.19)*	(0.67)	(0.60)	(1.23)
cdTha	-1.11	-1.15	-0.94	-1.06	-0.88
	(4.17)**	(3.85)**	(2.55)*	(2.45)*	(2.10)*
cdTur	-0.55	-0.44	-0.51	-0.71	-0.62
	(2.06)*	(1.48)	(1.40)	(1.67)	(1.49)
cdUK	0.85	1.18	0.74	0.44	0.44
	(3.14)**	(3.96)**	(1.98)	(1.01)	(1.03)
cdUS	1.03	0.96	0.69	0.52	0.70
	(3.89)**	(3.28)**	(1.89)	(1.21)	(1.66)
cdUkr	-2.72	-2.34	-2.80	-3.31	-3.30
	(10.25)**	(7.84)**	(7.56)**	(7.62)**	(7.81)**
cdVen	-0.50	-0.44	-0.53	-0.51	-0.55
	(1.87)	(1.47)	(1.45)	(1.20)	(1.33)
cdVie	-2.53	-2.38	-2.78	-3.41	-3.66
	(9.41)**	(7.95)**	(7.53)**	(7.84)**	(8.61)**
cdZim	-2.29	-2.12	-1.40	-1.56	-1.58
	(8.52)**	(7.03)**	(3.83)**	(3.61)**	(3.77)**
Constant	8.28	8.69	9.09	9.95	10.44
	(30.31)**	(27.71)**	(24.17)**	(22.68)**	(24.21)**
Observations	1619	1606	1737	1739	1704
R-squared	0.92	0.91	0.89	0.85	0.82

Robust t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

Appendix Table 6. Annual wage data from the Bureau of Labor Statistics. Note the BLS reports hourly wages for production workers in manufacturing. The were converted to an annual basis assuming a 40 hour week, 4.3 weeks in a month and 12 months in a year. (Wa=w*40*4.3*12

	country	w	Wa
1.	Germany	28.3	58370
2.	Switzerland	24.2	49928
3.	Norway	23.7	48958
4.	Belgium	22.8	47100
5.	Sweden	22.2	45903
6.	Denmark	22.0	45449
7.	Austria	21.9	45243
8.	Finland	21.4	44252
9.	Netherlands	20.6	42539
10.	Japan	19.4	39980
11.	United States	18.2	37647
12.	France	18.0	37090
13.	Italy	16.7	34551
14.	Canada	16.5	34159
15.	Australia	16.0	33024
16.	United Kingdom	15.5	31930
17.	Ireland	13.6	28008
18.	Spain	12.2	25098
19.	Israel	12.1	24871
20.	New Zealand	11.0	22745
21.	Singapore	8.2	17007
22.	Korea	7.2	14902
23.	Taiwan	5.9	12157
24.	Hong Kong	5.4	11187
25.	Portugal	5.3	10919
26.	Mexico	1.8	3612

Appendix Table 7. Real After-Tax Median Annual Wages for Managers.

rmanw1=medw5*(1-(taxw98to/100))*(1-taxsse97)/(ppp*(1+(vat98/100)));

Where medw5 = Median wage in dollars for top-managers.
Taxw98to = Top marginal income tax rate in 1998.
Taxsse97 = average payroll tax rate for employees.
Ppp = purchasing power parity price index (US=1.0)
Vat98 = average value-added tax rate.

	country	rmanw1
1.	Hong Kong	96062
2.	Mexico	92153
3.	Philippines	76335
4.	Chile	72991
5.	United States	69174
6.	Brazil	65460
7.	Colombia	62158
8.	Canada	60250
9.	Switzerland	57867
10.	Singapore	54672
11.	Indonesia	54596
12.	Argentina	54056
13.	Bolivia	53734
14.	Thailand	52909
15.	Costa Rica	51120
16.	Malaysia	48314
17.	Venezuela	46678
18.	United Kingdom	45787
19.	Mauritius	45413
20.	Luxembourg	43118
21.	Peru	42668
22.	Korea	41387
23.	Finland	38414
24.	Taiwan	36571
25.	Japan	34490
26.	Egypt	33908
27.	Poland	33387
28.	France	32010
29.	Turkey	31481
30.	India	30528
31.	Germany	29689
32.	Zimbabwe	29129
33.	Spain	27549
34.	Portugal	25608
35.	El Salvador	25052
36.	Israel	24541
37.	Norway	23476
38.	Ireland	22860
39.	Italy	22711
40.	Greece	21206
41.	Sweden	19719
42.	Belgium	19041
43.	Austria	18363
44.	Iceland	17196
45.	Czech Republic	16429
46.	Slovak Republic	14908

47.	Netherlands	14488
48.	Hungary	11930
49.	China	5086
50.	Bulgaria	4642
51.	Vietnam	1993
52.	Ukraine	1985
53.	Russia	1938