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Occupational Wages and Globalization

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ABSTRACT

Using a country's trade share as a measure of globalization, this paper employs cross country regression analysis on 161 occupations for the year 2000 to assess whether globalization has a negative effect on occupational wages. The results are consistent with the notion that greater integration of national economies with the rest of the world adversely affects occupational wages in many occupations within countries.

1. Introduction

The world is becoming more globalized. Unlike the period of globalization that occurred prior to the First World War, the present wave of globalization is being led by a new and powerful form of business organization—the multinational firm. This new form of business organization, recently evolved under capitalism, is expressly designed to do business in an international setting and has the potential ability to dominate not only national but international business. In the present world, it is the multinational corporations, not national economies composed of small independent traders, which are intimately connected with the flow of goods, services, and investment across borders.

Given that multinational firms are the major players in international business in this era of globalization, the effect of their operation on wages really matters. As with all firms, their primary goal is to maximize profits. For any firm, if it is at all possible, a very effective way to enhance profits is to exert downward pressure on wages to reduce labor costs. Multinationals are in a unique position to do this. Due to their enormous size (multinationals are often bigger than countries in which they operate) these multinational firms have substantial economic power in the labor market of countries in the form of monopsony power as well as potent legal and political power that can be employed to weaken labor. Furthermore, relative to labor, multinational strength is enhanced by globalization because, with increased globalization, while business organization becomes more globalized, labor, if organized at all, only stays organized at the local or national level.

The potent strength of multinationals manifests itself through the control of rhetoric even allowing them to define what it means to be a professional. To the surprise of no one, the definition has a distinct anti-union flavor. The multinational defined professional identity has not only static but dynamic consequences, as the upward educational and skill requirement shift of the structure of jobs accompanying globalization brings more and more workers in the workforce into the professional category.

This paper hypothesizes that in the new era of globalization, greater globalization, a globalization intricately tied up with multinational corporations, tends to lead to lower wages in many occupations. In general, it is expected that, regardless of the level of economic development, the more pronounced the integration of countries with the rest of the world, the lower the wages of a good many occupations within countries will tend to be. Overall, it is anticipated that globalization, in an imperfectly competitive environment dominated by mega international corporations, in a situation in which capital mobility exceeds labor mobility and in which labor strength is declining relative to capital, tends to promote conditions more and more favorable to business such as lower wages, reduced job benefits, and greater skill and human capital requirements for employment.

The paper is unique in a number of respects. First, it focuses on the multinational power effect of globalization on wages and not on the traditional relative wage effect of globalization working through the Stopher-Samuelson theory. Second, the empirics use a new comprehensive data set on wages by Freedman and Oostendorp that makes wages comparable across countries [1].

Third, the empirical analysis looks at a large number of occupations across countries-one hundred and sixty one occupations for the year 2000.

The paper is divided into six additional parts. The second part provides some background regarding the literature on multinational firms, globalization, and wages. The third part briefly outlines some of the effects of monopsony power. The fourth section presents a simple model relating the absolute level of wages to globalization. The data sources for all the variables used in the statistical analysis are given in the fifth section. The sixth section provides the empirical results from cross country regressions of occupational wages on globalization for the year 2000, and, the seventh section concludes.

2. Backround Literature

Misgivings that the perspective based on the standard factor endowments Hecksher-Ohlin theory is not really telling the entire story of the potential effects of trade and globalization on labor and wages is beginning to be aired by a number of economists.

Because there is high capital but little labor mobility in the current wave of globalization, Dani Rodrik believes that, as a result of globalization, the elasticity of demand for labor increases around the world for all countries, resulting in reduced labor bargaining power, lower wages, smaller benefits, greater earnings volatility, and increased insecurity for workers [2]. In his cross country panel regressions, Rodrik, after adjusting for a number of other variables, finds a negative relationship between manufacturing labor costs and openness.

In an era in which capital is more mobile than labor leading to reduced bargaining power for labor, Diwan proposes that financial crises are the major vehicles causing labor to lose its share in national income, and that times of financial crises are the very periods in which labor loses its share [3]. Looking at annual data for one hundred thirty five countries over the period from 1975 to the middle of the 1990, he finds, as a typical pattern, that labor's share in the economic pie falls during a financial crisis, and never fully recovers afterwards. From the results of his panel regression analysis over the same period, it also appears that labor's bargaining strength in a country weakens as the number of crisis in a country proliferates.

Hayter sees the recent decline in labor's share of national income and greater earnings inequality as a result of both globalization and the policy that accompanies globalization, a policy that weakens collective bargaining and collective wage setting institutions, institutions that she sees as promoting greater equality [4]. In the wake of globalized markets, countries have stressed the need for competitive wages, free labor markets, and decentralized wage bargaining.

Among a whole host of other things, James Burke and Gerald Epstein maintain that there is harmful asymmetry between multinationals and the jurisdictions that look for their investment with a small number of multinationals controlling the bulk of investment and a large number of jurisdictions seeking their investment; that capital's desire, active search, and real ability to move production to lower wage countries depresses wages worldwide; that competition by governments for the location of mobile capital, and the ever present fear that production facilities may and can be readily relocated elsewhere, results in highly favorable taxes, subsidies, and policies for multinational firms [5].

Even in some of the standard Hecksher-Ohlin studies, there may be some evidence of potential overall wage problems from globalization. For instance, while Guscina finds, consistent with the expectations of the Heckscher-Olin model for developed countries, that openness is negatively related to labor's share in national income for OECD countries for the period 1960-2000 [6], Arbache, Dickerson, and Green find that globalization reduces wages in a trading sector for a major *developing* country, Brazil, a result, at least on the surface, counter to what is predicted by the Hecksher-Ohlin theory [7].

3. Monopsony Power and Its Consequences

Multinational firms are sure to exert some monopsony power. Not only do they have market power individually, but there is potential collective power operating through collusion as corporate executives and members of the corporate board of one multinational firm are often found on the corporate board of others.

A pure monopsony hires the amount of labor for which marginal value product (marginal revenue product if a firm has monopoly power in the product market) equals marginal cost [8]. However, for a monopsony, unlike a purely competitive buyer of labor, the marginal cost is not just equal the wage. For a monopsony, the marginal cost equals the wage for one more worker plus the increment in wages for all workers that are required to hire one more worker. In essence, the monopsony picks the combination of wages and labor from the labor supply curve that gives the monopsony the greatest profits.

When compared to a purely competitive buyer of labor in the labor market, there are four things of import to note about a monopsony. First, a monopsony hires fewer workers than would be hired in a purely competitive labor market. Second, a monopsony sets a lower wage for labor than would prevail under pure competition. Third, a monopsony exploits labor by setting a wage lower than the marginal value product of labor (for a pure competi-

tive buyer there is no exploitation as the wage equals the marginal value product). Fourth, the productivity of the workers that are employed is higher for the monopsony than under pure competition. The marginal value product for the last worker hired is greater for the monopsony than would be the case under pure competition. That is, those who are employed must have a higher productivity under monopsony than would be required under competitive labor market conditions.

4. The Model

There has been a lot of focus on the reduction of the relative wage of unskilled to skilled workers in developed countries as a result of globalization. Such an outcome is predicted on the basis of the Stolper-Samuelson theory since developed countries have a comparative advantage in skill intensive products. This study looks at a different, but hopefully just as important, potential negative effect of globalization on wages that operates regardless of the level of economic development and the locus of comparative advantage in countries. It looks at a potential negative effect on wages from globalization working through the power of multinational firms that is independent of the level of economic development.

The model attempting to capture the multinational power effect of globalization on occupational wages is just a simple single equation. The equation consists of occupational wage as the variable to be explained and the level of economic development and the extent of globalization as its two arguments. Formally, the equation in functional form accompanied by its partial derivatives is as follows.

$$W = f(D, G) \qquad \delta W / \delta D > 0, \delta W / \delta G < 0 \qquad (1)$$

In the equation, W represents the occupational wage of a country; D is the level of economic development, and G the extent of globalization of the country's economy.

A country's wages are anticipated to be positively related to the degree of economic development. Greater economic development is associated with increased productivity leading to higher wages. The partial derivative between occupational wages and globalization, on the other hand, is expected to be negative. This is because greater globalization is associated with greater multinational penetration into a country leading to greater monopsony power in the country's labor market and lower wages.

5. Data Sources

The data is composed of annual cross country data for the year 2000. The three variables used in the analysis are occupational wages, per capita GDP in real 2000 U.S. dollars, and the percentage of trade (exports plus imports) to GDP. Real per capita GDP is used as a measure of development and the trade share is used as a measure of the extent of globalization.

The occupational wage data comes from Freedman and Oostendorp's on-line data set [1]. Using International Labor Organization's data as a basis, Freedman and Oostendorp standardize the wage data on 161 occupations for more than 150 countries. They use several different ways to calibrate the occupational wage data, but the occupational wages from the different approaches are highly correlated. The present study employs their occupation wages in U.S. dollars with country-specific and uniform calibration, type 3, lexicographic weighting (x3wlus in their data set).

The data on real per capita GDP and the trade share comes from the World Bank [9].

6. Overview of Empirical Results

A semi-log regression of wages on the log of real per capita GDP in U.S. dollars and the log of the trade share expressed in percentage terms was regressed across countries using ordinary least squares on each of the one hundred sixty-one occupations. Specifically, for each occupation, the following specification was employed and a separate regression was run across countries for each occupation for the countries available for that occupation.

Occupational wages in dollars on a constant, the log of real per capita GDP in 2000 U.S. dollar, and the log of the percentage of trade to GDP.

The countries entering the cross country occupational regression equations differ for different occupations due to missing values. The number of countries available for each occupation ranged from a low value of eight for occupation code number 301, permanent way laborers, to a high value of forty for occupation number 85, bricklayer (construction). The mean number of observations per occupation was 23.57.

A look at a list of the countries for the occupation with the greatest number of countries entering the equation can give a flavor of the countries entering the 161 equations. The occupation with the largest number of countries entering its regression equation is bricklayer (occupation number 85) with forty countries. The countries are Australia, Austria, Belarus, Belgium, Burkina Faso, Cambodia, Canada, China, Costa Rica, Cote D'Ivoire, Czech Republic, Germany, Hong Kong (China), Hungary, India, Italy, Japan, Republic of Korea, Latvia, Lithuania, Macao (China), Madagascar, Malawi, Mauritius, Mexico, Moldova, New Zealand, Northern Mariana Islands, Paraguay, Poland, Portugal, Qatar, Romania, Singapore, Slovak Republic, Sri Lanka, Tonga, United Arab Emirates, United Kingdom, and Vanuatu. The countries

for this occupation include a mix of developed and developing countries.

   Table 1 shows the results of the occupational wage regressions on the first ten of the one hundred sixty-one occupations (the regressions for all 161 occupations are given in the appendix). Each row in table contains the information on a single occupational regression. The first column of **Table 1** contain the Freedman and Oostendorp code number for the occupation. The second column identifies the occupation by the Freedman and Oostendorp name. The third column in **Table 1** shows the estimated coefficient for the constant followed in column four by its associated t-statistic. Similarly columns five and six give the estimated coefficient and the associated *t*-statistic for the log of real GDP per capita, the measure of economic development, and columns seven and eight give the estimated coefficient and the associated *t*-statistic for the log of the percentage of the trade share to GDP, the measure of the extent of globalization or trade openness. The last two columns, columns nine and

ten give the number of observations (countries) entering an equation and the *r*-squared value respectively.

   Isolating on a single occupational equation can give some feel for the magnitude of the effect of globalization on occupational wages. Looking at the coefficient on the log of the trade share for loggers, occupation code number seven, the first occupation in the table for which the index of globalization, the percentage of trade to GDP, is significant at the ten percent level, and assuming a starting value for the trade share of ten percent, the estimated coefficient indicates that a one point increase in the trade share (from ten to eleven percent) reduces the wage in the occupation by around six hundred fifty seven dollars.

   Table 2 gives a summary of the results for all 161 occupational regressions[1], allowing for a meta-analysis of the finding.

   Looking at **Table 2**, the results are quite impressive in terms of the number of occupations in which globalization has a statistically significant effect on wages across countries. They lend support to the contention that eco-

Table 1. Occupational regressions for ten occupations of occupational wages on the log of real per capita GDP and the log of the percentage of trade to GDP.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Code #	Occupation Name	C	*t*-stat C	LOG PC GPP	*t*-stat PC GDP	LOG TRADE TO GDP	*t*-stat TRADE TO GDP	N	RSQ
1	Farm supervisor	–665.18	–0.26	379.83	3.05	–390.70	–0.80	16	0.441
2	Field crop farm worker	–1494.69	–1.06	338.23	4.15	–164.23	–0.56	20	0.504
3	Plantation supervisor	–1133.05	–0.35	454.83	2.35	–406.66	–0.71	14	0.373
4	Plantation worker	–2091.75	–1.13	386.04	3.25	–83.48	–0.24	16	0.455
5	Forest supervisor	2576.79	0.53	538.83	2.54	–1311.87	–1.38	17	0.390
6	Forestry worker	–269.73	–0.16	338.57	3.45	–411.61	–1.11	18	0.444
7	Logger	–677.52	–0.47	495.40	4.94	–631.20	–2.73	18	0.713
8	Tree feller and bucker	–94.70	–0.07	359.09	3.68	–526.73	–2.22	11	0.733
9	Deep-sea fisherman	–4001.79	–1.36	635.20	2.95	–148.48	–0.29	12	0.494
10	Inshore (coastal) maritime fisher	–2570.51	–2.06	375.01	4.12	–24.49	–0.12	12	0.655

Table 2. Summary information for all 161 occupations.

	number of occupations
estimated negative coefficient on global integration variable	161
estimated coefficient on global integration variable significant at 10% level or better	71
t-statistic on coefficient on global integration variable greater than one	136
estimated positive coefficient on level of economic developmentvariable	161
estimated coefficient on level of economic development variable significant at 1% level or better	151
average r-squared value for all occupational regressions	0.568
range of r-squared values for all occupational regressions	0.240 - 0.800

[1]The statistics in **Table 2** can diverge slightly from those based on the data presented in the appendix as the statistics generated in **Table 2** are based on the more precise original data containing more significant digits. The data in the appendix, for both space and visual considerations, is rounded upward (to two decimal places after the zero) from original numbers.

nomic integration has a negative effect on occupational wages in a number of occupations regardless of the level of economic development. In every one of the one hundred sixty-one occupational regressions the estimated sign on the coefficient of the log of the trade share, the measure of economic integration, or the measure of the degree of globalization, is negative. The coefficient on the economic integration variable is significant at the ten percent level of significance or better in seventy-one of the one hundred sixty-one occupations. This represents forty-four percent of total occupations. An individual t-statistic that is greater than one in absolute value terms is often taken as confirmation of the sign of the coefficient of a variable. The absolute value of individual t-statistic for the globalization variable is greater than one in one hundred and thirty-six of the equations (eighty-five percent of the equations).

The other explanatory variable in the regression, the log of real per capita GDP, the measure of the level of economic developed is well behaved. It has the expected positive sign in every one of the occupational equations and is significant at the one percent level of significance or better in one hundred fifty occupations (ninety three percent of the one hundred sixty one occupations).

The two combined variables have an r-squared value ranging from 0.240 to 0.800 with an average r-squared value of 0.568.

7. Conclusions

The results of the cross country regressions of the wages of 161 occupations clearly suggest that occupational wages are negatively associated with globalization in quite a number of occupations.

Magicians often use a diversion so that people will not see a slight of hand trick. There has been much focus on changes in the relative wage of skilled to unskilled labor due to globalization, but little consideration given to the real possibility of widespread overall wage dampening due to globalization. The increasing scope of multinational corporations accompanying globalization is apt to enhance capital's power and bargaining strength relative to labor. If wages are dampened across the board due to globalization, then workers may be forced to accept lower wages. If skill requirement for existing jobs rise due to globalization, then workers will need to acquire greater and greater skills and other forms of human capital just to maintain their same relative standing. With labor's weakened position, it is workers who will have to adjust more and more to the structure of jobs in the economy rather than the economy adjusting to the characteristics of the labor force.

Policy needs to be designed either to mitigate the power of multinational corporations internationally or to augment the power of labor internationally. If social and political policy were designed to curtail the power of corporations, then business might be more prone to provide more high paying jobs for low skilled workers. While it is certainly true that the enhanced productivity due to economic growth has a positive upward bias on wages, the increase might be even greater without the offsetting negative effects on wages due to globalization.

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Appendix

Occupational regressions of occupational wages on the log of real per capita GDP and the log of the percentage of trade to GDP.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Code #	Occupation Name	C	*t*-Stat C	LOG PC GPP	*t*-stat PC GDP	LOG TRADE TO GDP	*t*-stat TRADE TO GDP	N	RSQ
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9	Deep-sea fisherman	–4001.79	–1.36	635.20	2.95	–148.48	–0.29	12	0.494
10	Inshore (coastal) maritime fisher	–2570.51	–2.06	375.01	4.12	–24.49	–0.12	12	0.655
11	Coalmining engineer	–4667.82	–0.54	1398.50	2.64	–1366.28	–1.15	11	0.653
12	Miner	–1400.89	–0.52	687.00	4.048	–804.03	–1.86	19	0.631
13	Underground helper, loader	72.36	0.03	590.41	4.10	–970.90	–2.14	14	0.652
14	Petroleum and natural gas engineer	–1275.35	–0.28	1349.58	5.00	–1906.09	–2.18	17	0.699
15	Petroleum and natural gas extraction technician	–2377.64	–0.60	888.04	4.18	–843.21	–1.10	16	0.618
16	Supervisor or general foreman	–203.62	–0.07	800.74	5.43	–1210.34	–2.08	17	0.735
17	Derrickman	–2440.22	–0.69	660.74	4.09	–449.30	–0.65	14	0.643
18	Miner	–474.78	–0.15	598.99	3.32	–819.35	–1.24	19	0.441
19	Quarryman	379.14	0.17	450.11	3.73	–736.49	–1.83	20	0.536
20	Butcher	–1285.72	–0.76	406.78	4.56	–320.78	–1.09	25	0.546
21	Packer	–1491.65	–0.95	384.60	4.40	–265.10	–1.99	24	0.545
22	Dairy product processor	–743.34	–0.57	410.90	5.22	–438.87	–1.69	29	0.534
23	Grain miller	–944.82	–0.54	437.98	4.31	–427.25	–1.29	23	0.517
24	Baker (ovenman)	–1055.99	–0.94	425.42	6.15	–396.76	–1.99	33	0.604
25	Thread and yarn spinner	–1576.62	–1.11	447.76	4.97	–345.15	–1.56	21	0.664
26	Loom fixer, tuner	–1241.90	–0.78	469.85	4.51	–437.92	–1.59	18	0.630
27	Cloth weaver (machine)	–1419.30	–1.24	388.22	5.39	–263.17	–1.35	25	0.615
28	Labourer	–1121.03	–0.98	362.64	4.77	–318.41	–1.64	25	0.552
29	Garment cutter	–409.62	–0.39	306.98	5.29	–350.89	–1.82	30	0.569
30	Sewing– machine operator	–791.27	–1.10	299.18	6.49	–257.61	–1.98	34	0.607
31	Tanner	–1265.99	–0.99	377.62	4.24	–296.37	–1.06	20	0.514
32	Leather goods maker	–738.22	–0.54	322.58	4.23	–318.28	–1.32	22	0.555
33	Clicker cutter (machine)	–1583.79	–1.01	389.72	4.14	–258.94	–1.02	20	0.576
34	Laster	–641.99	–0.39	356.34	3.52	–413.74	–1.52	16	0.587
35	Shoe sewer	–483.91	–0.33	302.24	3.83	–341.58	–1.32	23	0.497
36	Sawmill sawyer	–968.95	–0.73	380.31	4.87	–346.21	–1.57	27	0.594
37	Veneer cutter	–1353.34	–0.81	398.53	4.06	–299.84	–1.00	21	0.525
38	Plywood press operator	–892.46	–0.48	397.67	4.02	–367.15	–1.07	17	0.595

39	Furniture upholsterer	204.10	0.15	349.50	4.52	−554.03	−2.14	27	0.523
40	Cabinetmaker	−1008.79	−0.85	392.75	5.64	−350.89	−1.66	31	0.584
41	Wooden furniture finisher	−821.11	−0.62	355.49	4.61	−333.61	−1.29	26	0.505
42	Wood grinder	20.54	0.10	449.36	4.19	−675.77	−1.81	20	0.601
43	Papermaking-machine operator (wet end)	−823.95	−0.46	437.08	4.35	−463.84	−1.52	22	0.605
44	Journalist	−983.57	−0.45	612.07	4.81	−656.92	−1.89	29	0.606
45	Stenographer-typist	−1891.90	−1.52	443.22	4.87	−214.66	−0.88	27	0.498
46	Office clerk	−1441.07	−1.10	430.42	4.64	−297.78	−1.16	29	0.458
47	Hand compositor	−967.25	−0.62	480.45	4.93	−495.11	−1.71	25	0.566
48	Machine compositor	−1086.43	−0.68	489.57	5.16	−448.36	−1.43	28	0.534
49	Printing pressman	−1463.75	−1.31	478.52	6.53	−365.06	−1.84	34	0.608
50	Bookbinder (machine)	−1915.40	−1.23	458.39	4.67	−253.90	−0.87	25	0.510
51	Labourer	−1122.75	−1.01	388.70	4.86	−329.28	−1.48	27	0.503
52	Chemical engineer	−2883.08	−0.68	976.95	4.04	−859.12	−1.21	23	0.537
53	Chemistry technician	−1889.80	−0.89	706.13	5.15	−657.95	−1.66	25	0.577
54	Supervisor or general foreman	112.68	0.04	700.94	4.27	−1089.91	−1.94	20	0.602
55	Mixing- and blening- machine operator	−1266.73	−0.93	500.36	5.97	−479.76	−2.01	27	0.658
56	Labourer	−976.02	−0.85	404.28	5.62	−398.85	−1.74	28	0.574
57	Mixing- and blening- machine operator	−590.80	−0.38	532.42	5.12	−696.86	−2.17	21	0.617
58	Packer	−203.06	−0.17	444.57	5.41	−648.83	−2.65	24	0.618
59	Labourer	−558.25	−0.40	423.75	4.47	−536.22	−1.90	21	0.552
60	Controlman	−1786.40	−0.56	868.69	4.39	−977.87	−1.68	19	0.590
61	Occupational health nurse	−155.84	−0.03	631.75	2.29	−935.72	−0.85	11	0.474
62	Blast furnaceman (ore smelting)	−1244.11	−0.71	555.91	5.47	−610.82	−1.89	20	0.690
63	Hot-roller (steel)	−515.41	−0.32	526.65	5.26	−723.03	−2.57	19	0.712
64	Metal melter	−2218.41	−1.09	619.81	4.69	−540.88	−1.91	20	0.715
65	Labourer	−701.19	−0.60	419.48	5.63	−506.97	−2.23	20	0.684
66	Metalworking machine setter	−487.89	−0.38	383.98	5.21	−443.04	−1.82	27	0.587
67	Welder	−571.49	−0.58	421.54	6.80	−505.86	−2.86	32	0.678
68	Bench moulder (metal)	663.77	0.33	388.99	3.64	−718.41	−2.26	20	0.666
69	Machinery fitter-assembler	−1566.41	−1.11	501.92	5.60	−436.00	−1.86	27	0.639
70	Labourer	−1185.06	−1.00	387.11	5.16	−322.24	−1.47	23	0.593
71	Electronics draughtsman	−1388.99	−0.70	649.58	4.77	−709.63	−1.89	17	0.647
72	Electronics engineering technician	−3012.53	−1.48	758.86	5.00	−542.01	−1.54	22	0.587
73	Electronics fitter	−2020.54	−0.83	585.61	3.98	−482.90	−1.24	18	0.608
74	Electronic equipment assembler	−1127.51	−0.62	510.36	4.15	−583.90	−1.78	21	0.535
75	Ship plater	−1346.01	−0.56	552.54	3.84	−563.41	−1.50	17	0.631
76	Power distribution and transmission engineer	−2576.78	−0.93	179.65	4.56	−620.32	−1.28	28	0.493
77	Office clerk	−476.41	−0.24	469.91	3.55	−557.14	−1.52	27	0.379
78	Electric power lineman	−611.78	−0.37	578.14	5.86	−707.76	−2.38	28	0.646
79	Power-generating machinery operator	−662.52	−0.25	615.31	4.07	−763.26	−1.73	26	0.533

80	Labourer	−1099.40	−0.66	446.79	4.20	−406.28	−1.31	25	0.477
81	Building electrician	−1951.36	−1.68	578.73	7.09	−430.65	−2.06	32	0.652
82	Plumber	−1683.66	−1.55	550.06	7.76	−439.09	−2.11	39	0.641
83	Constructional steel erector	−2068.17	−2.04	520.30	7.59	−298.95	−1.53	38	0.628
84	Building painter	−1469.59	−1.26	471.58	6.28	−365.27	−1.66	38	0.548
85	Bricklayer (construction)	−1621.45	−1.33	547.76	6.46	−469.28	−1.95	40	0.541
86	Reinforced concreter	−938.71	−0.65	518.18	5.26	−569.66	−2.06	29	0.544
87	Cement finisher	−3240.26	−1.61	611.41	4.29	−166.29	−0.46	20	0.522
88	Construction carpenter	−2288.19	−1.79	552.91	6.50	−305.83	−1.26	39	0.546
89	Plasterer	−2501.48	−1.53	586.30	5.31	−336.64	−1.23	28	0.559
90	Labourer	−1323.12	−1.37	429.72	6.70	−340.82	−1.73	38	0.566
91	Stenographer-typist	−97.07	−0.08	382.32	5.33	−533.44	−2.19	25	0.589
92	Stock records clerk	−667.54	−0.65	378.84	6.01	−395.50	−1.88	31	0.576
93	Salesperson	−1107.03	−0.84	492.35	5.65	−485.30	−1.84	31	0.551
94	Book-keeper	−735.40	−0.55	412.97	5.22	−427.88	−1.51	28	0.531
95	Cash desk cashier	−873.01	−0.92	318.59	5.12	−257.03	−1.36	31	0.492
96	Salesperson	−1444.62	−1.58	347.78	5.53	−182.72	−1.00	36	0.482
97	Hotel receptionist	−1279.33	−1.14	341.37	4.29	−204.11	−0.91	31	0.400
98	Cook	−1025.55	−1.28	349.60	6.40	−282.15	−1.92	33	0.601
99	Waiter	−625.30	−0.91	306.96	6.73	−308.08	−2.40	34	0.626
100	Room attendant or chambermaid	−1031.74	−1.67	269.27	6.14	−155.24	−1.24	30	0.583
101	Ticket seller (cash desk cashier	980.68	0.49	420.93	3.84	−813.28	−2.39	19	0.672
102	Railway services supervisor	1990.41	0.32	751.02	2.18	−1575.00	−1.59	18	0.448
103	Railway passenger train guard	2030.09	0.77	446.00	3.24	−1082.72	−2.31	17	0.620
104	Railway vehicle loader	−196.68	−0.19	350.33	5.61	−466.33	−2.43	15	0.787
105	Railway engineer-driver	1630.81	0.72	515.60	4.46	−1103.26	−2.78	22	0.689
106	Railway steam-engine fireman	3074.55	0.98	463.87	2.81	−1380.23	−2.44	11	0.728
107	Railway signalman	422.37	0.20	504.30	4.28	−841.57	−2.05	21	0.575
108	Road transport services supervisor	271.10	0.18	480.42	5.22	−776.64	− 2.72	21	0.679
109	Bus conductor	−1702.84	−1.13	420.19	4.68	−231.60	−0.82	27	0.502
110	Automobile mechanic	28.85	0.02	459.50	5.25	−691.42	−2.23	28	0.578
111	Motor bus driver	−551.78	−0.41	438.20	5.61	−521.33	−2.14	33	0.590
112	Urban motor truck drive	−889.01	−0.67	385.23	5.32	−351.14	−1.45	27	0.584
113	Long-distance motor truck driver	−300.51	−0.15	424.19	3.79	−544.75	−1.56	23	0.509
114	Ship's chef engineer	−97.82	−0.02	860.77	2.75	−1231.05	−1.31	14	0.567
115	Ship's steward (passenger)	−773.87	−0.20	416.37	2.19	−391.59	−0.60	10	0.560
116	Able seaman	−1254.56	−0.52	524.10	3.89	−511.01	−1.27	16	0.649
117	Dock worker	2543.26	0.93	666.94	4.20	−1614.12	−3.68	17	0.800
118	Air transport pilot	−4754.68	−0.40	1416.99	2.28	−937.71	−0.37	20	0.240
119	Flight operations officer	2600.95	0.69	845.72	3.79	−1793.89	−2.56	19	0.623
120	Airline ground receptionist	−59.65	−0.03	485.36	3.79	−698.02	−1.64	23	0.461
121	Aircraft cabin attendant	2159.79	0.75	623.22	3.94	−1400.04	−2.57	23	0.581
122	Aircraft engine mechanic	285.176	0.10	561.38	3.69	−875.39	−1.66	22	0.502
123	Aircraft loader	−887.33	−0.38	451.81	3.59	−461.93	−0.97	20	0.462

124	Air traffic controller	8394.22	1.74	792.74	3.55	−2977.94	−3.38	20	0.681
125	Aircraft accident fire-fighter	215.49	0.07	500.95	3.57	−797.13	−1.27	18	0.502
126	Post office counter clerk	−240.01	−0.12	491.10	4.49	−701.68	−1.99	27	0.545
127	Postman	59.13	0.04	481.36	5.10	−769.61	−2.58	29	0.618
128	Telephone switchboard operator	−693.74	−0.49	401.41	5.14	−435.01	−1.60	32	0.517
129	Accountant	−1650.54	−0.84	669.53	5.39	−531.91	−1.40	30	0.538
130	Stenographer-typist	−2119.35	−1.59	496.79	5.30	−218.34	−0.81	25	0.561
131	Bank teller	−1407.49	−1.20	441.79	5.58	−308.99	−1.31	34	0.504
132	Book-keeping machine operator	−1134.41	−0.82	444.80	4.81	−359.19	−1.31	23	0.550
133	Computer programmer	−226.05	−0.10	736.41	4.76	−1038.08	−2.19	22	0.576
134	Stenographer-typist	−1895.03	−1.28	487.34	4.45	−281.71	−0.93	20	0.539
135	Card- and tape-punching-machine operator	−283.18	−0.12	478.11	3.74	−644.14	−1.49	16	0.584
136	Insurance agent	−1233.03	−0.95	536.98	6.04	−506.70	−2.20	24	0.670
137	Clerk of works	−1996.54	−0.68	699.47	3.51	−603.30	−1.03	18	0.463
138	Computer programmer	1606.96	0.55	650.85	4.47	−1283.08	−2.36	23	0.611
139	Government executive official:	N/A	N/A	N/A	N/A	N/A	N/A	n/a	n/a
140	Stenographer-typist	20.58	0.01	430.05	4.26	−628.85	−2.02	23	0.556
141	Car-and tape-punching-machine operator	486.85	0.25	529.90	4.71	−920.92	−2.43	18	0.657
142	Office clerk	−249.25	−0.14	445.03	4.08	−596.77	−1.78	25	0.494
143	Fire-fighter	545.58	0.35	550.01	6.08	−945.71	−3.23	24	0.707
144	Refuse collector	−784.33	−0.54	403.31	4.65	−442.57	−1.68	27	0.532
145	Mathematics teacher (third level)	−1711.57	−0.31	931.31	3.24	−1024.47	−1.07	22	0.441
146	Teacher in language and literature (third level)	−2101.21	−0.36	957.70	3.00	−974.27	−0.97	20	.431
147	Teacher in language and literature (second level)	−3501.35	−0.84	900.10	3.95	−654.70	−0.87	24	0.469
148	Mathematics teacher (second level)	−3379.41	−0.72	866.17	3.09	−620.84	−0.76	21	0.393
149	Technical education teacher (second level)	−2912.70	−0.82	737.83	3.98	−486.35	−0.77	23	0.496
150	First-level education teacher	−886.44	−0.27	625.52	3.94	−726.88	−1.12	26	0.440
151	Kindergarten teacher	−1757.96	−0.78	550.24	4.71	−431.63	−1.10	24	0.586
152	General physician	−1380.63	−0.38	1134.26	5.54	−1403.34	−2.20	29	0.629
153	Dentist (general)	−2085.62	−0.44	901.14	3.99	−854.82	−0.92	23	0.472
154	Professional nurse (general)	−881.02	0.53	600.21	6.42	−691.61	−2.42	35	0.663
155	Auxiliary nurse	−1210.90	−0.67	532.89	5.33	−526.97	−1.70	34	0.570
156	Physiotherapist	−569.15	−0.24	666.21	5.08	−860.22	−2.15	27	0.631
157	Medical X-ray technician	92.67	0.05	526.64	5.16	−784.87	−2.56	30	0.638
158	Ambulance driver	−682.81	−0.39	438.66	4.68	−489.32	−1.56	30	0.520
159	Automobile mechanic	−1790.29	−1.49	439.33	5.54	−237.46	−1.08	33	0.519
300	Pattern makers (wood)	2813.80	0.35	826.34	2.31	−1799.45	−1.29	19	0.455
301	Permanent way labourers	−6625.23	−0.34	1194.35	1.49	−138.32	−0.04	8	0.501
302	Labourers (unskilled, public parks and gardeners)	7374.32	0.82	619.35	1.69	−2424.19	−1.53	12	0.547