# INVESTMENT SUBSIDIES AND WAGES IN CAPITAL GOODS INDUSTRIES: TO THE WORKERS GO THE SPOILS?

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**Abstract**

This paper looks at the impact of investment tax subsidies on the labor market for capital goods workers. Using data during a decade with considerable variation in the tax cost of capital (1979-1988), the results show that tax subsidies to investment drive up workers' wages. A 10% investment tax credit, for example, raises the relative wages of capital goods workers, on average, by 2.5%-3.0% relative to comparable manufacturing workers in other sectors and more for certain types of workers. Rising wages make up an important part of the rising supply curve for capital goods and reflects imperfect short-run mobility of production workers across sectors.

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## I. Introduction

This paper examines a neglected aspect of the short-run tax incidence of investment subsidies, namely their impact on wages of capital suppliers. A long standing literature has found that capital investment responds less to investment subsidies than basic models predict.[1] Some previous work has argued that an explanation for the small responses might be that the benefits of the subsidy are not ultimately had by the investing firms but rather are passed on to the capital suppliers through higher prices (as in the case where there is an upward sloping supply curve, for example).[2] This has generated discussion about who, ultimately, benefits from investment subsidies and the topic remains relevant whenever debate over investment subsidies arise such as in George Bush's recent tax change that accelerated depreciation allowances on certain types of capital investment.

This paper extends the issue of incidence and upward sloping supply to thinking about how subsidies to capital may also be shared with labor, in particular the workers that make the capital goods themselves. A key point is how mobile such labor is across sectors. If such workers are relatively immobile in the short-run, an increase in demand may lead to scarcity and drive up wages.[3] The paper uses wage data from the Merged Outgoing Rotation Group (MORG) of the Current Population Survey from the decade of 1979-1988, a period a substantial variation in investment tax policy. It shows that investment subsidies, nominally for the equipment buyers, lead to immediate increases in the wages of production workers in capital goods selling industries. A 10% investment tax credit (ITC) for example,

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1 See the discussions of the literature in Chirinko (1993), Chirinko et al. (1999) or Hassett and Hubbard (1997).

2 Theoretical discussion of the issue can be found in Mussa (1977) and Chirinko (1993). Empirical evidence using the prices of capital goods can be found in Goolsbee (1998a; 2000a; 2000b) or Boldrin et al. (2000).

3 In this sense it is similar to the results in Goolsbee (1998b) which document the impact that Federal R&D

raises the wage of capital goods workers by 2.5-3.0% relative to other manufacturing workers with the same observables. The results are even larger for younger less educated workers and union workers. Production workers are the largest beneficiaries.

The paper is divided into five sections. Section II lays out a brief summary of the CPS data, the identification strategy, and a model of incidence. Section III presents the basic results that wages rise for capital goods workers and at the magnitude of the responses. Section IV then explores the incidence among workers of different types. The paper concludes in Section V with suggestions for further research.

## II. Data, Estimation and Incidence Theory

### A. DATA

The basic wage data come from the Merged Outgoing Rotation Group of the CPS, a monthly survey of about 60,000 households. Each household is interviewed for four months, ignored for eight months and then interviewed again for four months. The CPS collects weekly earnings from respondents in months 4 and 8 and merges them into the Annual Earnings File. The data also include extensive demographic and socio-economic information about the respondent as well as information on their sector of work, geographic location and other information.[4] The advantage of the MORG for the purposes here is the large sample size (about 60,000 male workers per year with 20,000 in manufacturing), giving enough observations of capital goods workers to identify comparative effects on

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subsidies have on the wages of scientists and engineers in the short-run.

4 More details on the CPS can be found on the Bureau of Labor Statistics' website or in Feenberg (1995).

their wages.

The paper uses the standard demographic variables kept by the CPS including race, marital status, experience (defined as age minus education minus 6), highest grade attained, as well as variables for occupation, industry and union status. The CPS changed the industry and occupation categories in 1983 but comparisons are easily made using the tables in Feenberg (1995). The paper looks for wage increases in capital goods industries when investment tax subsidies drive up the demand for these sectors' output. As a comparison group the paper will use, for the most part, other basic and low-tech manufacturing workers as defined in Katz and Murphy (1992).[5] The basic results do not change when using all other workers as a comparison group.

The paper examines wages during the period 1979-1988. It starts with 1979 since it is the first full year of the NBER's MORG database and ends in 1988 because after the Tax Reform Act of 1986, investment tax policy was largely dormant for the next decade so I did not want too many years without any tax variation. In this sample period, there were several important changes to investment tax policy. At the start of the sample, the investment tax credit was in place. Upon taking office, Reagan increased depreciation allowances substantially under the Accelerated Cost Recovery System of 1981. ACRS was seen as too expensive so it was replaced with the Modified Accelerated Cost Recovery System of 1982. The Investment Tax Credit was in effect until 1986 when it was fully repealed. The corporate rate was .46 until the Tax Reform Act of 1986 when it phased down to .40 in 1987 and .35 in 1988.

5 The capital goods industries include engines and turbines, farm machinery, construction machinery, metalworking machinery, machinery not specified and n.e.c., aircraft, ships and boats, and railroad equipment. The industries in basic and low-tech manufacturing include primary metals, fabricated metals, automobiles, tobacco, paper, printing, rubber, miscellaneous manufacturing, lumber, furniture, stone, clay, glass, food, textiles, apparel, and leather.

Figure 1 presents a graph of the average tax term for equipment over the sample (using the data in Goolsbee 2000a). The Jorgensonian tax cost of capital is (1-itc-tz)/(1-t), where itc is the investment tax credit, z is the present value of depreciation allowances and t is the corporate income tax.[6]

B. ESTIMATION

The paper estimates variants on the following equation for men aged 24-65 working full time (30+ hours per week):

$$\ln(w_{it}) = a + b_1 CAPITAL_i * CE_{it} + b_2 CAPITAL_i + \Gamma' Z + \Delta' T + e_{it}$$

where $w_{it}$ is the real wage of individual i in year t, Z is a vector of individual demographic variables, T is a vector of year dummies, CAPITAL is a dummy equal to one if the individual works in a capital goods producing industry and CAPITAL*CE is the interaction of the capital goods dummy with the average tax term of the cost of capital for equipment in year t. Summary statistics for the data in the paper are presented in table 1 and they are split between capital and non-capital goods workers. Overall the two look fairly similar.

This specification controls for demographics and aggregate year effects and then, through the interaction term, asks whether when capital subsidies rise the capital goods workers see their real wages rise relative to other manufacturing workers with the same observables. A negative coefficient on the CAPITAL*CE term implies that lowering the tax cost of equipment (e.g., through an increase in depreciation allowances or the investment tax credit) raises real wages of capital goods workers. Note,

6 I thank Dale Jorgenson for providing me the data.

however, that investment tax policy is notoriously short-lived—changing, on average, every three years during the three decades before the TRA86. In such a world, the impact of subsidies on wages and hours worked may be quite different than if there were to be to a permanent shock. There may be much more emphasis on wage and price changes if it is just a three year boom, for example (see the work of Carrington, 1996 on the impact of the short demand boom in Alaska caused by the building of the oil pipeline).

Since a scarcity of production labor might reasonably affect wages differently for various types of workers, the paper also explores interactions of the CAPITAL*CE term (abbreviated CAPCE) with variables like education and union status. If production workers are, in the short-run, less mobile across sectors, there could be differential effects of investment subsidies on wages by occupation.

## C. INCIDENCE THEORY

The basic model for considering the likely impact of a subsidy for capital goods is the basic two-sector model of McLure (1974) with immobile labor across sectors. Abstracting away from non-manufacturing industries, I consider the two sectors to be capital goods manufacturing and non-capital goods manufacturing. In this model, an investment tax subsidy is a subsidy to the output of the capital goods sector.[7] McLure (1974) shows that with immobile labor between sectors, a subsidy to the output of one of the sectors (here capital goods) leads to an increase in the price relative to the other sectors and an increase in the wages of workers in that sector relative to other workers (though wages

7 Of course, changes to the tax cost of capital also reduce the price of capital relative to labor in both sectors and the ultimate effects will depend on the capital intensity of the two sectors and the like. In the short-run, though, which is the focus here, the first order impact of the subsidy is on output in the one sector.

should rise by less than relative prices).

The key assumption in this model is the immobility of labor. This shouldn't be surprising. If labor is fully mobile across sectors, there is no reason to find a relative wage effect at all. Workers would switch sectors whenever wages were higher in the other sector. A different way to think of the incidence once there is immobility of labor in the short-run is that the paper falls in the tradition of the asset market incidence work of Feldstein (1977) or Poterba (1984) or the implicit tax framework of Scholes et al. (2002).

Previous work in labor economics has analyzed the importance of sectoral shocks and sectoral immobility in explaining wages and unemployment (see, for example, Lilien, 1982; Brainard and Cutler, 1993). Other work has found that production workers specifically, are part of more localized labor markets than white collar workers (see the early work of Sjaastad, 1962 or the more recent discussion in Topel, 1995). All of these point to the notion of short-run immobility of labor. It is not necessary to justify the assumption, on *a priori* grounds, however, since it is directly testable. If labor is fully mobile, there should be no effects of capital goods subsidies on the wages of capital goods workers relative to other workers and it should not play a part in the upward sloping supply curve for capital.

## III. Basic Results: Subsidies and Workers' Wages

### A. The Basic Wage Evidence

Column (1) of Table II lays out the basic specification to test whether the relative wage of capital goods workers rises when tax policy subsidizes capital goods. It includes year dummies, experience, experience squared, marital status, a race dummy, and years of schooling as control

variables.[8] The key variable of interest is CAPCE—the interaction term of the capital goods dummy and the tax term of the cost of capital. A negative coefficient on this term implies that increases in the tax price of investment goods lower the wage of capital goods workers relative to non-capital goods workers with the same observables. The regression also includes a capital goods sector dummy, allowing a wage premium for being in the capital goods sector generally.

As hypothesized, the CAPCE term is significant and negative. The t-statistic on the interaction term is almost 5 and the magnitude indicates that a change in the cost of capital of the size of say a 10% ITC at the mean corporate tax rate would increase the wage of capital goods workers relative to other manufacturing workers by 2.4%.[9] The other coefficients in the specification indicate that capital goods workers in general have a 19% wage premium over other manufacturing workers with the same observables and that the demographic variables enter with the expected signs and magnitudes.

Column (2) expands the comparison group from other basic and low-skill manufacturing workers to all full time working males. The coefficient shows that the relative wage impact of tax subsidies is basically identical whether it is relative to manufacturing or to other workers. There is still a significant effect of sizable magnitude.

Given the estimated impact on wages, it is possible to compute the approximate division of gains arising from an investment subsidy, given information about how other prices respond. I take these from Goolsbee (1998a) where a change in the cost of capital arising from a 10 percent ITC with the mean corporate tax rate is estimated to raise prices by 3.5 percent. Using columns (1) or (2), this same

8 I also tried adding other controls such as state fixed effects but this had no impact on the results so I exclude them.

9 The standard errors are corrected for the fact that there is clustering at the sector-year level.

change raises wages 2.3-2.6 percent. Assuming a labor share of 25 percent, the results suggest that about 20 percent of the gains passed through to capital goods suppliers winds up with the workers in those industries. The total incidence of an investment subsidy, then, becomes 65 percent to the capital buyers, 7 percent to the capital goods manufacturing workers and 28 percent to the capital goods supplying industries (or, perhaps, to their other inputs whose prices are not observed here).

B. Further Wage Evidence

Specifications (3)-(6) control for possible problems and counter-explanations with the basic specification. First, column (3) takes up the cost of capital itself. I have spoken about the impact of an investment tax credit because this is a way of changing the cost of capital that is easy to understand. In this sample, though, the ITC itself changed only once. So a lot of the variation in the cost of capital is coming from more general changes in corporate taxation. There is little way to get around this (since corporate taxation is part of the tax cost of capital) but to confirm that investment tax policy changes do have direct effects on wages on their own, column (3) repeats the regression using only the investment tax portion (ITC + tz). Although this introduces measurement error, the coefficient is positive and significant (positive here because it is not being subtracted from one as in the general formula). The coefficient is .09, smaller than the coefficient in the general model but the same order of magnitude.

Next, I take up the possibility of spurious correlation problems such as tax policy being endogenous. First it is worth noting that the results cannot be explained by the standard endogeneity critique that tax subsidies are passed only when the economy is doing badly. This argument works the wrong way—high subsidies should be correlated with *lower* wages in such circumstances. Further, all

these results include year dummies to account for the business cycle. An alternative explanation requires something correlated with both tax subsidies and with the wages of capital goods workers but *not* with the wages of other comparable manufacturing workers.

Since capital goods and other durables may be more cyclical industries their wages might also be more cyclical. If policy makers set tax subsidies counter-cyclically, though, it will still generate a spurious relationship between tax subsidies and the relative wage of capital goods workers but in the wrong direction. To generate the observed pattern, investment subsidies would either need to be pro-cyclical or else capital goods be *less* cyclical than non-capital goods.

Capital goods industries may be more sensitive to interest rate changes, too, and the observed real interest rate (here taken to be the Aaa bond rate minus the CPI inflation rate) did fluctuate throughout the sample and might be spuriously correlated with tax changes.

To deal with these macroeconomic variables, column (4) repeats the basic specification but allows the GDP growth rate and the real interest rate to have a differential effects on the wages of capital goods workers. The results with these controls, if anything, show a downward bias of the basic specification.[10] In (4), an increase in the cost of capital the size of a 10% ITC increases the relative wage slightly less but not significantly differently than in the earlier regressions (1.8 percent versus 2.4 percent).

In columns (5a) and (5b) I divide the sample into two periods 1979-82 and 1983-88, a natural break point in the survey because in 1983 the MORG began collecting several new variables and changed the benchmark occupation and industry codes. This break also gives a clean way to show that

a spurious trend in relative prices for capital goods, say, has not caused the results. The variation in the tax variable is exactly the opposite in the two samples. In the first, the tax cost is high early on and then falls toward the end with Reagan's election and the introduction of accelerated depreciation. In the second, TRA86 significantly increased the cost of capital late in the sample. If the previous results are caused by some spurious trend, the tax term coefficient should have opposite signs in these two sub-samples. In fact, in both (5a) and (5b), the coefficient is negative and significant. The earlier sample has a larger coefficient but is not significantly different.

Finally, column (6) repeats the specification of (1) but includes lagged interaction terms in order to look at the time pattern of wage increases. The model predicts this wage effect should take place immediately and be relatively short lived. The evidence indicates that the entire wage increase does take place in the period of the tax change and the sum of the coefficients indicates that by two years later, one cannot reject the hypothesis that prices have fallen back to their original level albeit only because the standard errors become large. So the evidence agrees with one part of the prediction and is indeterminate on the second. Previous work (Goolsbee, 2000a) has shown the same pattern for capital goods prices. The pattern may simply reflect an inability to estimate long-run impacts precisely when policy makers never actually leave the tax policies in place for long periods of time.

C. Hours Worked and the Composition Bias

The results point to a wage effect of investment tax policy but compositional issues may, in fact, bias the estimated wage effect toward zero, similar to the composition bias estimated in the real wage

10 Including the interactions with GDP in all the specifications below did not affect the results.

cyclicality literature.[11] In booms, marginal and lower-paid workers tend to have disproportionate increases in hours. Here, if capital goods industries hire more marginal workers during subsidy periods to expand output, the composition shift will tend to push down the average wage per worker even if every worker's wage rises.

The most effective way around this problem is to use panel data. Unfortunately, most existing panel data sets are not large enough to identify the relative wage effects of tax subsidies on this small subset of manufacturing workers. The data used here on a cross-section of individuals are clearly preferable to aggregate data since they contain observable characteristics of the workers, but insofar as unobservables for the workers vary with the tax subsidy, the results will be biased toward zero.

At least part of the composition problem clearly does exist for capital goods industries. The table below presents two simple regressions for capital goods industries using an aggregate panel data set for 85 separate capital goods industries from the NBER productivity database. The first column regresses the log of total production hours on the cost of capital and other control variables. It shows that production hours for capital good industries do rise significantly when an investment subsidy is passed. Indeed, the magnitude of the hours increase is very similar to the increase in output following the same subsidy as estimated in Goolsbee (1998a) or Chirinko et al. (1999). In the second column, though, the same regression but for log hours per worker shows that the average hours per worker go the opposite way.

**TABLE: AGGREGATE REGRESSIONS FOR CAPITAL GOODS INDUSTRIES**

11 See, for example, the results of Solon, Barsky & Parker (1994) or the results for manufacturing wages in Heckman and Sedlacek (1985).

| | (1)<br>Ln(Total Production Hours) | (2)<br>Ln (Hours Per Worker) |
|---|---|---|
| Cost of Capital | -.249 (.083) | .218 (.033) |
| Control Variables | unemployment rate, time, time squared | unemployment rate, time, time squared |
| n | 85 | 85 |
| $R^2$ | .94 | .97 |

Notes: The dependent variable in each regression is listed above each column. Each regression includes the control variables listed and fixed effects for the 85 different four digit SIC code industries. These are annual regressions from 1958-1988.

This same hours-per-worker pattern exists in the individual level CPS data, as well, where 5.4% of total hours among capital goods workers come from people working fewer than 40 hours per week during years with above average costs of capital and 7.1 percent in years with lower than average costs of capital. Table III illustrates this more formally. The first column gives a probit of whether an individual works 40 or more hours per week. The coefficient indicates that in periods of low capital taxation, the probability of working 40 or more hours per week falls. Column (2) repeats the probit but only for workers with more than 20 years of experience. This group should not suffer from nearly as much composition bias since it comprises fairly stable workers. The coefficient indicates that among these workers, there is no perverse tendency in hours. Though insignificant, the coefficient indicates that cutting investment taxes raises the probability of 40+ hour weeks for capital goods manufacturers. In total, then, the wage effects in this paper are likely to be biased downward.

## IV. Labor Mobility and Differential Incidence Among Workers

The results showing that subsidies affect wages imply that labor is at least somewhat immobile

across sectors in the short-run. It is natural to ask whether certain types of workers see relative wages rise more than others. Such wage increases should be related to the mobility of the labor. The discussion of the geographic mobility of production workers versus highly educated workers might suggest larger relative wage increases in the short-run for the low education and blue collar workers.

Columns (1) and (2) of Table IV divide the sample into workers paid by the hour and workers not paid by the hour (results were similar dividing according to blue collar and white collar occupations). The coefficient for hourly workers is over 50% larger than for non-hourly workers. Columns (3) looks at the impact of tax subsidies on workers of different education levels by interacting the CAPCE term with a dummy equal to one if the worker has 12 or less years of schooling (<=H.S.) to determine whether workers with high school educations or less in capital goods industries benefit more from a tax subsidy for investment than does a capital goods worker with more than 12 years of schooling. The results illustrate extreme differences for the two groups. Capital goods workers with high school or less see wages rise by more than 5% relative to other comparable workers after a 10% ITC. Capital goods workers with more than a high school degree see no significant increase in their wages at all.[12] This is what would be expected if the more advanced workers are more geographically and sectorally mobile than production workers are.

It might also be natural to think of unions as generating sectoral immobility in this context. Beginning in 1983, the MORG keeps track of union status for each survey respondent. The specification in column (4) of Table IV uses this union status and interacts it with the CAPCE tax term. Technically, of course, unions could still cause the wage increases presented in the results above without

showing a clear wage increase among unionized relative to non-unionized workers because unionization is endogenous and also because all capital goods workers' wages may rise in response to union bargaining.

The estimates, though, show a clear and significant role for unions in the wage responsiveness for capital goods workers but not of an especially large magnitude. A 10% ITC raises the relative wage of capital goods workers by 2.1 percentage points but by 1/3 more, 2.8 percentage points, for unionized capital goods workers. In other words, for a union worker, 25% of his wage increase comes from union status. The union effect on wages becomes even clearer using only workers paid by the hour as in column (5). Here the 10% ITC raises wages for non-unionized blue collar workers by 2.2 percentage points relative to comparable workers while union member capital goods workers see relative wages rise by 4.2 percentage points.[13]

**V: Conclusion**

This paper has used data on the wages of capital goods workers during a period of substantial change to the tax cost of capital to show that at least some of the benefit of tax subsidies to investment actually accrue to capital goods producing workers through higher relative wages. A 10% ITC (or other reduction in the cost of capital) raises the relative wage of capital goods workers between 2 and 4%. Relative wages rise more for production workers, workers with low education and union workers,

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12 The same pattern held using total years of schooling rather than the high school dummy variable.

13 In a previous draft, Goolsbee (2001), I raised the further possibility that these highly concentrated industries might be subject to rent-sharing with their unions in the spirit of papers like Krueger and Summers (1988) or Katz and Summers (1989). King (1994), for example, shows that the unions from capital goods producing industries have been major proponents of capital subsidies. This is outside the traditional tax incidence framework so I will not

consistent with the view that these factors also influence mobility across sectors.

The idea that wages rise when the demand for an industry's output increases has important implications for the evaluation of investment tax subsidies. Policies intended to stimulate investment demand may, in fact, lead to large windfalls for capital suppliers and their production workers in the short-run. The propensity of policy makers to change investment tax policy every few years makes this especially relevant.

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pursue it further here.

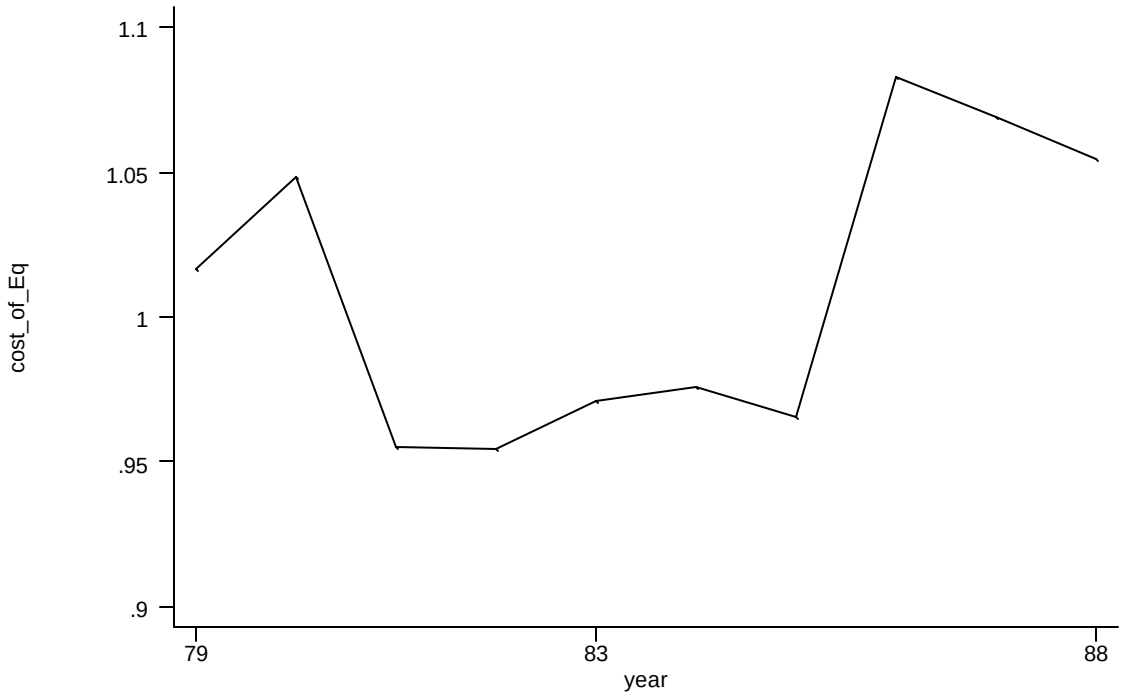


FIGURE 1

**TABLE I: SUMMARY STATISTICS**
**(Standard Deviations in Parentheses)**

| Variable | All Workers | Capital Goods | Non-Capital Goods |
|---|---|---|---|
| Number Obs. | 190751 | 35479 | 155272 |
| Capital Goods | .186 | 1.000 | 0.000 |
| | (.389) | --- | --- |
| Education | 12.365 | 12.611 | 12.309 |
| | (2.784) | (2.545) | (2.833) |
| Experience | 21.954 | 21.953 | 21.954 |
| | (11.947) | (11.984) | (11.938) |
| Ln (Real Wage) | 2.236 | 2.307 | 2.220 |
| | (.413) | (.371) | (.420) |
| Non-White | .180 | .135 | .191 |
| | (.385) | (.342) | (.393) |
| Married | .819 | .829 | .817 |
| | (.385) | (.377) | (.387) |
| Paid Hourly | .668 | .685 | .664 |
| | (.471) | (.465) | (.472) |
| Union Member | .330 | .304 | .335 |
| | (.470) | (.460) | (.472) |
| GDP Growth | 2.449 | 2.390 | 2.462 |
| | (2.312) | (2.324) | (2.308) |
| Cost of Capital | 1.009 | 1.009 | 1.009 |
| | (.048) | (.048) | (.048) |

Source: Current Population Survey. Variables are defined in the text.

## TABLE II: BASIC INCIDENCE REGRESSIONS

| | (1) | (2) | (3) | (4) | (5a) 1979-82 | (5b) 1983-88 | (7) |
|---|---|---|---|---|---|---|---|
| CAPCE | -.133 | -.121 | | -.100 | -.191 | -.105 | -.123 |
| | (.027) | (.050) | | (.022) | (.072) | (.035) | (.019) |
| (ITC+tz) | | | .089 | | | | |
| | | | (.025) | | | | |
| CAPCE (-1) | | | | | | | -.025 |
| | | | | | | | (.031) |
| CAPCE (-2) | | | | | | | .012 |
| | | | | | | | (.044) |
| CAP * GDP % | | | | -.001 | | | |
| | | | | (.001) | | | |
| CAP * r | | | | .132 | | | |
| | | | | (.044) | | | |
| CAP | .192 | .218 | .019 | .156 | .252 | .163 | .196 |
| | (.028) | (.050) | (.010) | (.022) | (.071) | (.037) | (.049) |
| SCHOOL | .071 | .067 | .071 | .071 | .064 | .077 | .071 |
| | (.002) | (.003) | (.002) | (.002) | (.002) | (.002) | (.002) |
| Exp | .022 | .027 | .022 | .022 | .021 | .022 | .022 |
| | (.0003) | (.001) | (.001) | (.001) | (.0004) | (.0004) | (.0003) |
| $Exp^2$ | -.0003 | -.0004 | -.0003 | -.0002 | -.0003 | -.0003 | -.0003 |
| | (.00001) | (.00001) | (.00001) | (.00001) | (.00001) | (.00001) | (.00001) |
| Married | .078 | .125 | .078 | .078 | .076 | .078 | .078 |
| | (.003) | (.002) | (.003) | (.004) | (.004) | (.004) | (.003) |
| Race | -.116 | -.137 | -.117 | -.117 | -.111 | -.122 | -.117 |
| | (.004) | (.003) | (.004) | (.004) | (.006) | (.005) | (.004) |
| Year Dums. | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| n | 190751 | 588580 | 190751 | 190751 | 81304 | 109447 | 190751 |
| $R^2$ | .26 | .20 | .26 | .26 | .25 | .28 | .26 |

Notes: The dependent variable in each regression is the log of the real wage of the worker. The sample in each is 1979-1988 except in (5a) and (5b) where the sample is listed. CAP is the capital goods industry dummy. CAPCE is the capital goods dummy interacted with the tax cost of capital. SCHOOL is the highest grade attended. EXP is experience. Race is a dummy equal to 1 if the individual is non-white. Married is equal to 1 if the individual is married. GDP% is the GDP growth rate and r is the real interest rate (Aaa bond rate minus CPI inflation). Standard errors are in parentheses and are corrected for clustering at the sector-year level.

**Table III: Probit for Working 40+ Hours per Week**

| | (1)<br>all | (2)<br>exp>20 |
|---|---|---|
| CAPCE | .616 | -.074 |
| | (.227) | (.327) |
| CAP | -.511 | .192 |
| | (.229) | (.330) |
| SCHOOL | .027 | .023 |
| | (.002) | (.002) |
| Exp | .006 | -.005 |
| | (.001) | (.006) |
| $Exp^2$ | -.0001 | .00005 |
| | (.0002) | (.00010) |
| Married | .101 | .089 |
| | (.010) | (.018) |
| Race | -.049 | -.029 |
| | (.010) | (.002) |
| Year Dums. | Yes | Yes |
| n | 190751 | 93676 |
| Log Likelihood | -58313 | -28119 |

Notes: Each column is a probit on whether the individual worked 40 or more hours per week. The sample in each is 1979-1988. Column (2) includes only workers with more than 20 years of experience. CAP is the capital goods industry dummy. CAPCE is the capital goods dummy interacted with the tax cost of capital. SCHOOL is the highest grade attended. EXP is experience. Race is a dummy equal to 1 if the individual is non-white. Married is equal to 1 if the individual is married. Standard errors are in parentheses.

**TABLE IV: INCIDENCE AMONG WORKERS**

| | (1) Hourly | (2) Non-hourly | (3) | (4) | (5) Hourly |
|---|---|---|---|---|---|
| CAPCE | -.148 | -.090 | .105 | -.116 | -.108 |
| | (.049) | (.054) | (.110) | (.038) | (.039) |
| CAPCE * (<=H.S.) | | | -.383 | | |
| | | | (.170) | | |
| CAP * (<=H.S.) | | | .420 | | |
| | | | (.166) | | |
| CAPCE * UNION | | | | -.041 | -.092 |
| | | | | (.007) | (.007) |
| CAP | .222 | .148 | -.068 | .190 | .309 |
| | (.049) | (.053) | (.109) | (.041) | (.012) |
| UNION | | | | .581 | -.006 |
| | | | | (.026) | (.001) |
| UNION * SCHOOL | | | | -.040 | .237 |
| | | | | (.002) | (.042) |
| SCHOOL | .043 | .076 | .062 | .088 | .043 |
| | (.001) | (.003) | (.002) | (.002) | (.001) |
| EXP | .020 | .026 | .023 | .022 | .016 |
| | (.0008) | (.001) | (.0004) | (.0005) | (.001) |
| $EXP^2$ | -.0003 | -.0003 | -.0003 | -.0003 | -.0002 |
| | (.00001) | (.00002) | (.00001) | (.00001) | (.00001) |
| Married | .072 | .050 | .077 | .076 | .064 |
| | (.003) | (.005) | (.003) | (.004) | (.004) |
| Race | -.115 | -.109 | -.121 | -.121 | -.110 |
| | (.003) | (.058) | (.004) | (.004) | (.004) |
| Year Dums. | Yes | Yes | Yes | Yes | Yes |
| n | 126547 | 62892 | 190751 | 109447 | 72923 |
| $R^2$ | .32 | .39 | .27 | .30 | .23 |

Notes: The dependent variable in each regression is the log of the real wage of the worker. The sample in each is 1979-1988. (<=H.S.) Is a dummy variable equal to 1 if the worker has 12 or fewer years of education. The other variables are defined in the notes to Table 1. The * symbol represents an interaction between the two listed variables. Standard errors are in parentheses and are corrected for clustering at the sector-year level..

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