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Returns to Education and Wage Equations

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ABSTRACT

Returns to Education and Wage Equations*

We show why considering a number of education-dependent covariates in the wage equation decreases coefficient of education in the wage equation. We use a meta-analysis of results for Portugal to show, empirically, that this is the case. The coefficient decreases when we use covariates that can be considered post education decisions; it is independent of the sample size, tenure and the fact of using hourly or monthly wages.
At this stage the use of the simple specification of the Mincer equation for the study of total returns to education continues to hold our support.

JEL Classification: C4, I2, J3

Keywords: Human capital, rate of return, educational economics

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1. Introduction

Although the debate over the causality of education in productivity is here to stay, politicians and the public in general have already started basing their decisions regarding amounts or percentages which families should pay for higher education on results derived from the Mincer equation. However, varying results are to be found, based upon differing specifications of the wage equation, and these have brought ever greater confusion to the issue. This paper sheds some light on the problem and addresses simple questions, such as, "why does the Mincer equation point to returns of around 10%, while other wage equations point to figures in the 3-4% range?" and, "why does the inclusion of sectors, for instance, as one of the covariates in the wage equation decrease the return to education so much?"

Education is one of the many investment decisions motivated by the fact that the investment yields a choice that one would not otherwise have. Part of the return to the investment is to be found in the set of options that emerges. An example would be the buying of shares in a firm which introduces the option of buying shares in another company.

When an individual (or his family) decides upon the amount of education to be pursued, it is understood that the education is going to bring a better paid job. The education will introduce options in other matters, as well, such as the sector and/or specific firm where the employment will ultimately be secured. Part of the individual's return to education will be the return to subsequent choices – choices which are made in response to the options stemming from the education, itself.

An examination of the literature reveals two distinct main lines of research: the "economics of education", which focuses on the total return to education, and "labour economics", which seeks to explain wage differentials among individuals.

We see these two lines of research as complements and give a simple example to illustrate their differences, explain the relationship which we expect to exist between them, present the theoretical "state of the art", and test our findings by means of a meta-analysis using data for Portugal. As our empirical analysis utilizes Portuguese data, we obtain estimates for returns to education in that country, along with a glimpse of the evolution of those estimates over time.

We proceed in the following way: in Section 2 we give a simple example to illustrate how the two lines of research differ; in Section 3 we briefly outline the numerous specification possibilities which have been used by "labour economists"; in Section 4 we show what to expect from the comparison of the results from the "labour economists" and "economics of education"; in Section 5 we present the empirical implementation (describing the characteristics of the data set used in the estimations, the estimation results, the specifications of the 86 regressions which we drew together, and the results of the meta-analysis); and in Section 6 we conclude and outline some directions for further research.

2. The paradigm of the two islands

Let us imagine that there are two islands, one (I1) with a productivity per capita of P and the other (I2) with a productivity per capita of Q, with P<Q. The inhabitants of the islands live an eternal life (all are born at the same moment) and maximize the present value of their production.

The inhabitants of I1 can swim to I2 if they spend one period learning to do so. The only cost is the product they forgo during that period. The discount rate is uniformly distributed between (r1, r2); f(r)= 1/(r2-r1).

The decision of learning to swim is made by comparing

$$\sum_{i=0}^{\infty} \frac{P}{(1+r)^i} \qquad \text{(E1)}$$

and

$$\sum_{i=1}^{\infty} \frac{Q}{(1+r)^i} \qquad \text{(E2)}$$

There is a value of r, rc, such that E1=E2. Let us assume that r1 < rc < r2.

If r < rc then E1 < E2 and the individual decides to learn to swim and thereafter swims from I1 to I2.

If r > rc then E1 > E2 and the individual does not learn to swim and stays on I1.

Therefore, there will be S1 proportion of swimmers, where

$$S! = \int_{r1}^{rc} f(r)dr$$

We end up with three groups of individuals: 1) living on island one, 2) living on island two and born there, and 3) living on island two and born on island one.

If we want to explain the differences in productivity we can do so by examining the place where the person is living (the wage equation approach). This is what the "labour economists" do.

But suppose that we are interested in studying the "returns" to education (learning to swim). We must then look at the persons borno on island one and see the differentials in their productivities as the return we are looking for. This is what "economics of education" looks for. We could never find this return if we considered the place of residence as one of the explanatory variables of the productivity differential, the reason being that this covariate is a result of learning to swim for people born on island one.

We hope that this simple example illustrates the difference between wage equations where education is one of the explanatory variables and returns to education where all the indirect effects should be accounted for.

3. Theoretical background

Becker (1962) and Mincer (1974), in their breakthrough contributions for the economics of education,[3] advanced a very appealing equation specification, given that it harmoniously matches inductive and deductive evidence. Drawing on moderately weak assumptions, they prove that running the following specification, $\log y = \alpha + \beta\ educ + \delta_1\ exp + \delta_2\ exp^2$, with cross-section data,[4] β will represent the rate of return to education.[5]

The precise definition of the variables to be used remains unclear, however. Income, for instance, might be either net or gross, hourly, weekly, monthly or yearly. Furthermore, the above-mentioned equation specification has been extended on a number of occasions by the addition of several different controls seeking to explain wages differences. The efficiency wages hypothesis (see Dickens and Katz (1987), Krueger and Summers (1987,1988), Murphy and Topel (1987), Groshen (1991, 1996), Gibbons and Katz (1991), Allen (1996), Davis and Haltiwanger (1996) among others) justify the inclusion of sectors of activity, firm size and firm age. The existence of "rents" and trade unions – quasi-rent splitting – or agency models (see Freeman and Medoff (1986), Addison and Hirsch (1989), Pencavel (1991), Hart and Holmstrom (1987) and Sappington (1991) among others) justify the inclusion of the bargaining regimes. Internal wage structures (see Krueger (1993), and Lazear (1998) among others) justify the inclusion of seniority (tenure). Wage equations have been estimated using all or some of these variables in different combination.

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[3] See also Willis (1986) and Card (1999) for thorough surveys of the returns to education literature and Bjorklund and Kjelstrom (2000) for criticism of the Mincer specification.

[4] *y* represents income, *educ* stands for the total years of education and *exp* represents labour-market experience.

[5] The endogeneity of education in the equation has been questioned. Ashenfelter et al. (1999) "find that differences due to estimation method are much smaller than what is sometimes reported " (abstract).

From Econometric textbooks we know that model mis-specification causes bias in the coefficients estimated (for a detailed analysis in the case of wage equations see Abowd, Kramarz, Margolis (1999)). However, if we want to see the full impact of education on wages, we have to consider the impact of education in other explanatory variables (covariates) and their effects on wages.

Some researchers have stood by the Mincer specification as a way to obtain the full effect of education on wages. But is this the correct procedure? In the next section we discuss this question.

4. Econometric discussion

Let us assume that wages depend on education (S) and other covariates, represented by an indicator (C). To make it as simple as possible, and following the Mincer specification, we have

$$\ln(wage) = b_0 + b_1 S + b_2 C$$

where $b_1 > 0$ and $b_2 > 0$ or $b_2 < 0$

Let us assume that C depends on schooling, meaning that persons with more schooling can choose the value of the other covariates and in this way choose C.

If $b_2 > 0$, people with more education will choose the largest C, and therefore there is a positive relationship between S and C.

If $b_2 < 0$, people with more education will choose the smallest C and therefore there is a negative relationship between S and C.

If we assume this relationship to be linear, we have

$C = g_0 + g_1 S$ and we can then substitute in the expression above, obtaining

$ln(wage) = b_0 + b_1 S + b_2 (g_0 + g_1 S) = b_0 + b_2 g_0 + (b_1 + b_2 g_1) S$

and

$ln(wage(S+1)) - ln(wage(S)) = b_1 + b_2 g_1$

where

$b_1 + b_2 g_1 > b_1$ under both cases, as b_2 and g_1 both have the same sign.

$b_1 + b_2 g_1$ is an approximate value for the return (r) to each additional year of education (rate of return), or to be more correct

$r = exp(b_1 + b_2 g_1)$ and this is the value that we want to "discover"

To estimate the model above we assume

$ln(wage) = b_0 + b_1 S + b_2 C + v$

and

$C = g_0 + g_1 S + u = [1 \ \ S]\begin{bmatrix} g_0 \\ g_1 \end{bmatrix} + u = Xg + u$ where $X = [1 \ \ S]$

where v and u are independently distributed random errors with zero mean.

We regress ln(wage) on X

$$\ln(wage) = r_0 + r_1 S + w = [1 \ \ S]\begin{bmatrix} r_0 \\ r_1 \end{bmatrix} + w = Xr + w$$

The estimated value is

$rhat = (X'X)^{-1} X' \ln(wage)$

and the expected value is

$$E(rhat) = E\left[(X'X)^{-1} X' \ln(wage)\right] = E\left[(X'X)^{-1} X'(X\begin{bmatrix} r_0 \\ r_1 \end{bmatrix} + Cb_2 + v)\right] = \begin{bmatrix} b_0 + g_0 b_2 \\ b_1 + g_1 b_2 \end{bmatrix}$$

We therefore obtain an unbiased estimator of the rate of return.

If we regress the ln(wage) on X and C we obtain an unbiased estimator of b_1 , which is smaller than the rate of return.

Main conclusions:

1) To obtain the full effect of education on wages, one should be careful not to include in the wage equation covariates whose value can depend on the education. In the extreme case we should only regress the ln(wage) in education.
2) If we include covariates that depend on education in the regression the coefficient of education decreases (at least in the expected value of the estimators).

4. Applied discussion

Instead of doing some data mining, in the sense of using different wage equation specifications to see what happens to the coefficient of the schooling equation, we prefer to use a meta-analysis with the results from previous studies.

A meta-analysis is basically a regression that takes as dependent variable the outcomes from different studies that focus on the same topic and employ the same general methodology. The regressors describe the characteristics (in terms of equation specification, in sample size, in year of estimation, and so on) underlying those different results and/or studies. A meta-analysis is a useful tool then for summarizing several results on a given topic, [6] allowing a researcher to have a global and quantifiable view on the link between the setting-up stage of a research project and its results and in the present study to see the sign of the influence of covariates in the return to education (or better, the coefficient of the education in the wage equation).

We use data for Portugal not only because the authors are Portuguese, but also, because Portugal is arguably one of the countries in Europe where wage equations have been more thoroughly researched over the last two decades. From the first known paper published on the issue -Psacharoupoulos (1981)- until the recently finished ‘PuRE -Public funding and private returns to education’ project (Pereira and Martins (2001)),[7] many estimates have been produced focusing on the average pay rise which rewards an extra year of schooling.

We used a stepwise estimation to choose the variables to include in the meta-analysis regression. The use of an estimated value as the dependent variable makes the model heteroskedastic, so in the regressions we corrected the estimated standard errors.

As stated previously, we are not interested in discovering the particular effect of a certain covariate in the coefficient of education (a topic for future research), but rather in seeing if including covariates decreases the value of the coefficient.

We consider only coefficients obtained from the Ordinary Least Squares methods, as the evidence from other estimation methods (for instance, Instrumental Variables) is rather rare and unstable in Portugal. We use results for males as a way of avoiding sample selection issues.

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[6] For instance, Harmon and Walker (1995) – returns to education in the U.K., Ashenfelter et al. (1999) – estimates of the schooling/earnings relationship, Groot and Brink (2000) – overeducation in the labour market.

[7] This is a policy-focused project, tackling the relationship between education systems differentiation and labour-market outcomes. It draws together research teams from 15 European countries. The authors are members of the Portuguese team. More information at www.etla.fi/PURE.

4.a. Data description

A meta-analysis uses two kinds of data, which we label here as foreground and background data. The former is the directly-used information, which includes the coefficients of education that were obtained in different studies, and the presumably relevant characteristics of those studies. By such characteristics, we mean the regressors used, sample size, and so on. Background data, on the other hand, is simply the primary sources (data sets) used for computing the returns to education (or better, a coefficient to education). In this section, we describe both types of data.

Table 1 present the different papers/projects from which we extracted the information we used. These papers cover the main available results on returns to education in Portugal.[8] Here one realises the overwhelming amount of varied evidence that has resulted from the PuRE project, accounting for more than half of the estimates used – 68 out of a total of 86.

---Table 1 here –

Table 2 presents descriptive statistics of the data we gathered from the above-mentioned studies. Coefficient of education – coeff - (in percentage terms[9]) range between 3.2 and 11.5 and average 9. Bearing in mind that these estimates were obtained by OLS methods, and comparing them to similar results from other European countries, these are substantially high estimates.

[8] We restricted our attention to those results that use a single regressor for education. We disregarded those regressions that instead used dummies (each standing for a different educational level).
[9] We mean by this, that we have multiplied the regression coefficients by 100.

---Table 2 here –

The number of explanatory variables – explvar - in the background regressions - (see Table 3) corresponds to the number of regressors used besides education and a constant. Two is the most common number (66%) since in most occasions only experience and experience squared were added in the regression. The maximum was 37 in the sample used.

---Table 3 here –

In the remainder of this section, we present the variables that we think can influence the results obtained in the different regressions.

First we start by the year of estimation – year - (see Table 4). Regressions are distributed in a balanced way, 1985 being the year which was submitted to more regressions. Attention should be drawn to the long period (19 years) which was covered by the different papers surveyed. Portuguese research in returns to education is remarkable not only in terms of the number of estimations available, but also in terms of the spread of the years covered.[10]

---Table 4 here --

Sample size – ssize - (see Table 5) is the number of observations used in each regression. Even if the smallest number is 392, 98% of the samples had more than 1000 observations and more than 80% were larger than 10,000, the largest having more than 40,000.

---Table 5 here --

The remaining controls had a qualitative nature and appear in a dummy format equal to one if the control is accounted for in the wage equation; for instance, if there was control for sectors, the dummy sector appears with the value 1 and we can see in Table 2 that almost 6% of the regressions controlled for it.

The base of comparision is a regression of a Mincer equation with hourly wages as the dependent variable and education in years and computed experience (age minus years of education minus 6) and its squared as explanatory variables, for the year of 1995.

The characteristics include: 1) Public/Private - priv, public[11] - (whether samples are for the individual who works in a public or in a private firm); 2) Monthly wages with control for hours - hours; 3) Monthly wages withouth control for hours - monthly; 4) Age instead Computed Experience (the type of labour-market participation control used); 5) PURE (if the estimates where produced in our own research);[12] 6) Interact (if the regressions took into account the possibility of interaction between education and experience).

Other controls included in the studies are: regions (regs), bargaining regime (barg), firm age (fage), firm size (fsize), firm ownership (fowner), tenure (ten) and sector. We tried to use each of these variables independently but the results were very unstable due to the high correlation between then, as authors tend to maintain a certain specification in all the regressions they present.

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[10] We would also like to point out that this variable was recoded, so that the intercept could have a more interesting interpretation: 0 replaced 1995, -1 was used instead of 1994, and so on.

[11] As we did not reject that the coefficients of these two variables were different, we created a variable privpub as the sum of the two.

[12] This is due to the fact that we made a correction in the number of years of education of one of the grades. When following up the same worker in different years we noticed that for a certain technological degree the majority of people had nine years of education and not eleven as previously considered.

As a solution to the problem of correlation we created six variables, as there are studies where: 1) only one of them appears (regs1 - if regions and ten1 - if tenure), 2) three of them appear (sum3 - regs, ten and sector), 3) four of them appear (sum4 - regs, fsize, ten, sector); 4) five of them appear (sum5 - regs, barg, fsize, fowner and ten) and 5) (sum6 - regs, barg, fage, fsize, ten, sector). As mentioned above we are interested in the sign of the effect of the use of the covariates in the coefficient of education and not in the effect of a particular control.

We now direct our attention to the so-called background data. Studies of the returns to education in Portugal draw overwhelmingly on a comprehensive Portuguese dataset: *Quadros de Pessoal* (QP, hereinafter). Every year, Portuguese firms have to submit to the Ministry of Employment information on both firm characteristics and those of their employees. This information is very rich, providing well over 25 relevant regressors.

Another attractive feature of this data set is its very large size, which obviously ensures more precise estimates. Researchers work, in most cases, with 2.5% samples (some 50,000 workers) but this figure has risen to 25% or even 100% (approximately 500,000 or 2 million observations). The main drawbacks of this data set lie in the lack of household information and the non-representative nature of workers, given that public servants, self-employed and people outside the labour market are not represented.

4.b. Results

We used a stepwise procedure to select the model, as we were interested in seeing what variables significantly affected the coefficient of education. We tested for the equality of the coefficients of public and private ownership and could not reject H0. The forward and backward procedure gave the same result.

The fact of considering the interaction of education with experience, monthly wages with or without control for hours, sample size and tenure (as the only additional explanatory variable) do not seem to influence significantly the coeeficient of education. This is what we expected as the value of these variables are not dependent of choices due to education.

--- Table 6 here--

Interpretation of the results :

Constant. Our regression produced an intercept of 9.7%, which can be roughly interpreted as the value one would get with 1995 data considering all the other relevant variables which appear in the table equal to 0 and independent of the value of the variables which were dropped from the estimation. [13]

The 95% interval for the constant is from .0919 to .0102, more or less 0.006 around the mean. All the other coefficients are (in absolute terms) higher than this value with the exception of the coefficent of year95.

Sample Year. There is a positive relationship between the year of the data which was used and the size of the cofficient of education. In fact, all the studies that have undertaken an analysis of returns to education in different years in Portugal have come up with a clearly increasing trend. According to our results, returns increase by an average of .0009 each year, increasing almost 1% per decade. We have also tested for possible non-linearity in the evolution of returns by adding a squared year term to the equation. We did not reject the hypothesis that the coefficient is equal to zero at any reasonable significance level, so we retained the linear specification.

This result contrasts with the general idea that returns to education fall along with a country's development (on account of less-binding liquidity constraints or more generous public support schemes, for instance). In fact, this would increase the supply of skilled individuals, thus decreasing the reward of such qualification in the labour market. Of course, demand-side considerations must also be taken into account: as a country develops, one would expect that higher qualifications become more rewarded by businesses. Taking both explanations together, it would ensue that the price of labour skills would depend on the relative shifts of both the demand and the supply curves, and such a price could either fall or rise.

This scenario of having both the demand and the supply curves of skilled workers shifting outward fits the recent Portuguese economic history. On the one hand, we witness a somewhat pronounced movement of workers from labour-intensive industries to capital-intensive sectors. On the other hand, there has been a significant increase in the human capital endowments of the Portuguese workers, albeit the (still) very low average

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[13] This value is very similar to the one obtained in the sample used in the PURE study (9.6) for the 1995

educational attainment (less than seven years of schooling). It might thus be the case that the increase in demand for skilled workers whas been relatively more powerful than the corresponding increase in supply.

Age. As expected, this variable appears with a negative sign, as people do get older as they go on studying. The value of the coefficient is almost symmetric of the one obtained for experience in the Mincer equation (see Pereira and Lima 1999).[14]

Privpub. Usimg samples that use only public firms or only private firms has a negative effect in the coefficient of education in both cases. Further studies are needed, but a possible explanation is that the intercept (the constant) is different for both samples and compensating for different work conditions and risk of unemployment.

PURE. The positive coefficient comes as no surprise as we consider nine years of education for a group of workers for which the previous studies considered 11 years. This was only possible because we could construct panel data and after 1994 the technological degree was divided, so we could know who had 9 and 11 years of education. We saw that the large majority had only 9 years of education, so we considered 9 years for this type of education instead of the 11 years, as in other studies.

Regions. The positive coefficient of regions appears to be puzzling if we assume that the choice of the region is only based in terms of best paid jobs and people choose the region to live only after they finish their education. As there are costs of moving from region to

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estimates with the standard Mincer equation.

[14] It should equal if the specification was linear in experience instead of squared.

region and family ties, the sign of the coefficient can somehow explain this lack of flexibility as well as the fact that not only monetary factors influence people's decisions.

Other variables. All the other coefficients are negative, which supports the conclusion at we arrived in the previous section. They range in absolute value from 0.019 to 0.056. The highest value is obtained when the sector of activity is among the controls used in the wage equation and can reduce the coefficient of education to half of its size. This leads us to question if the choice of the sector should not be considered as part of the returns to education, and what the nature of this education/sector link is.

5. Conclusion

The use of the Mincer equation in its simpler form seems to give an approximate value for the total return to education and has been used on numerous occasions. If more covariates are used in this equation and these covariates are choice variables that depend on education, then it is shown that the coefficient of the education should go down.

This is what occurs in the meta-analysis we performed using data for Portugal. The coefficient decreases with all combinations of variables used and can drop to half of its size, especially when the sector of activity is one of the covariates used. The education-choice of sector link is an aspect that we shall investigate in the future and should reflect itself in over-education in the better paying sectors.

The increase of the return to education when regions is used as one of the covariates needs further research, as it seems to show that in the Portuguese case the mobility due to job opportunities is rare.

Sample size, the use of monthly wages instead of hourly wages, the interaction between education and experience and tenure do not seem to influence the coefficient, which shows its robustness to sample size, specification of the simple Mincer equation and variables that are independent of education.

We also find that the return to education in Portugal in 1995 is around 9.7% and increases 1% every 11 years. This increase in the returns has being going on at the same time that there is a large increase in the average education of the new workers in the labour market, perhaps indicating a large increase in the demand for skills.

There are a number of future research directions. As pointed out above the influence of education in the choice of sectors and other decisions taken after school are a starting point when we want to study the full add-up education brings to the individual. As in the case of the two islands returns to education and changes in productivity can be very distinct realities. Both worth studying but we must be able to distinguish between then.

For the time being, the use of the coefficient of education in the simpler Mincer equation as an indicator of the return to education continues to have our support as an upper bound in public discussions.

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Tables and graphs to be inserted in the text

Table 1 – Summary of papers/projects for Portugal	
Author	**Year of data used**
Hartog et al. (1999)	1982,86,92
Kiker et al. (1997)	1991
Kiker and Santos (1991)	1985
Machado and Mata (1998)	1982, 94
Martins (1991)	1977
Psacharoupoulos (1981)	1977
PuRE project (1998-2000)	1982-1995
Vieira et al (1997)	1982,86,92
Vieira (1999)	1986, 92

Table 2 - Descriptive statistics					
Variable	Obs	Mean	Std. Dev.	Min.	Max.
coeff	86	0.090	0.014	0.032	0.115
explvar	86	4.023	7.754	0	35
ssize	86	20333.650	9847.250	392	42347
priv	86	0.163	0.371	0	1
public	86	0.163	0.371	0	1
privpub	86	0.326	0.471	0	1
interac	86	0.047	0.212	0	1
age	86	0.058	0.235	0	1
monthly	86	0.523	0.502	0	1
hours	86	0.105	0.308	0	1
pure	86	0.791	0.409	0	1
year95	86	-7.395	4.633	-18	0
barg	86	0.186	0.391	0	1
regs	86	0.233	0.425	0	1
fage	86	0.035	0.185	0	1
fsize	86	0.198	0.401	0	1
fowner	86	0.151	0.360	0	1
ten	86	0.302	0.462	0	1
sector	86	0.058	0.235	0	1
regs1	86	0.023	0.152	0	1
ten1	86	0.093	0.292	0	1
sum3	86	0.012	0.108	0	1
sum4	86	0.012	0.108	0	1
sum5	86	0.151	0.360	0	1
sum6	86	0.035	0.185	0	1

Table 3 - Distribution of explanatory variables

var	Freq.	Percent	Cum.
2	57	66.28	66.28
3	1	1.16	67.44
4	2	2.33	69.77
5	4	4.65	74.42
6	2	2.33	76.74
7	2	2.33	79.07
15	13	15.12	94.19
26	3	3.49	97.67
37	2	2.33	100.00

Table 4 - Distribution of years of estimates			
Year	Freq.	Percent	Cum.
1977	4	4.65	4.65
1982	6	6.98	11.63
1983	5	5.81	17.44
1984	5	5.81	23.26
1985	13	15.12	38.37
1986	8	9.30	47.67
1987	5	5.81	53.49
1988	5	5.81	59.30
1989	5	5.81	65.12
1991	7	8.14	73.26
1992	7	8.14	81.40
1993	5	5.81	87.21
1994	5	5.81	93.02
1995	6	6.98	100.00

Table 5 - Distribution of sample sizes			
Size	Freq	Percent	Cum.
0-9,999	16	18.60	18.60
10-19,999	10	11.63	30.23
20-29,999	53	61.63	91.86
30-39,999	4	4.65	96.51
>40,000	3	3.49	100.00
Total	86	100.00	

Table 6 – Regression results

Regression with robust standard errors

Number of obs	= 86
F(7, 76)	= 1096.92
Prob > F	= 0.0000
R-squared	= 0.8561
Root MSE	= .00547

coeff	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sum4	-.0565876	.0025434	-22.249	0.000	-.0616531	-.0515221
sum3	-.0298561	.0025596	-11.664	0.000	-.034954	-.0247583
sum6	-.0319844	.0025408	-12.588	0.000	-.0370448	-.026924
age	-.0213322	.0020636	-10.337	0.000	-.0254423	-.0172221
sum5	-.0190584	.0013552	-14.064	0.000	-.0217574	-.0163594
year95	.0008781	.0001484	5.917	0.000	.0005825	.0011737
privpub	-.0106821	.0014716	-7.259	0.000	-.013613	-.0077512
regs1	.0073823	.0031376	2.353	0.021	.0011332	.0136313
pure	.0105021	.0025631	4.097	0.000	.0053972	.0156069
_cons	.0973685	.0027364	35.583	0.000	.0919185	.1028186

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