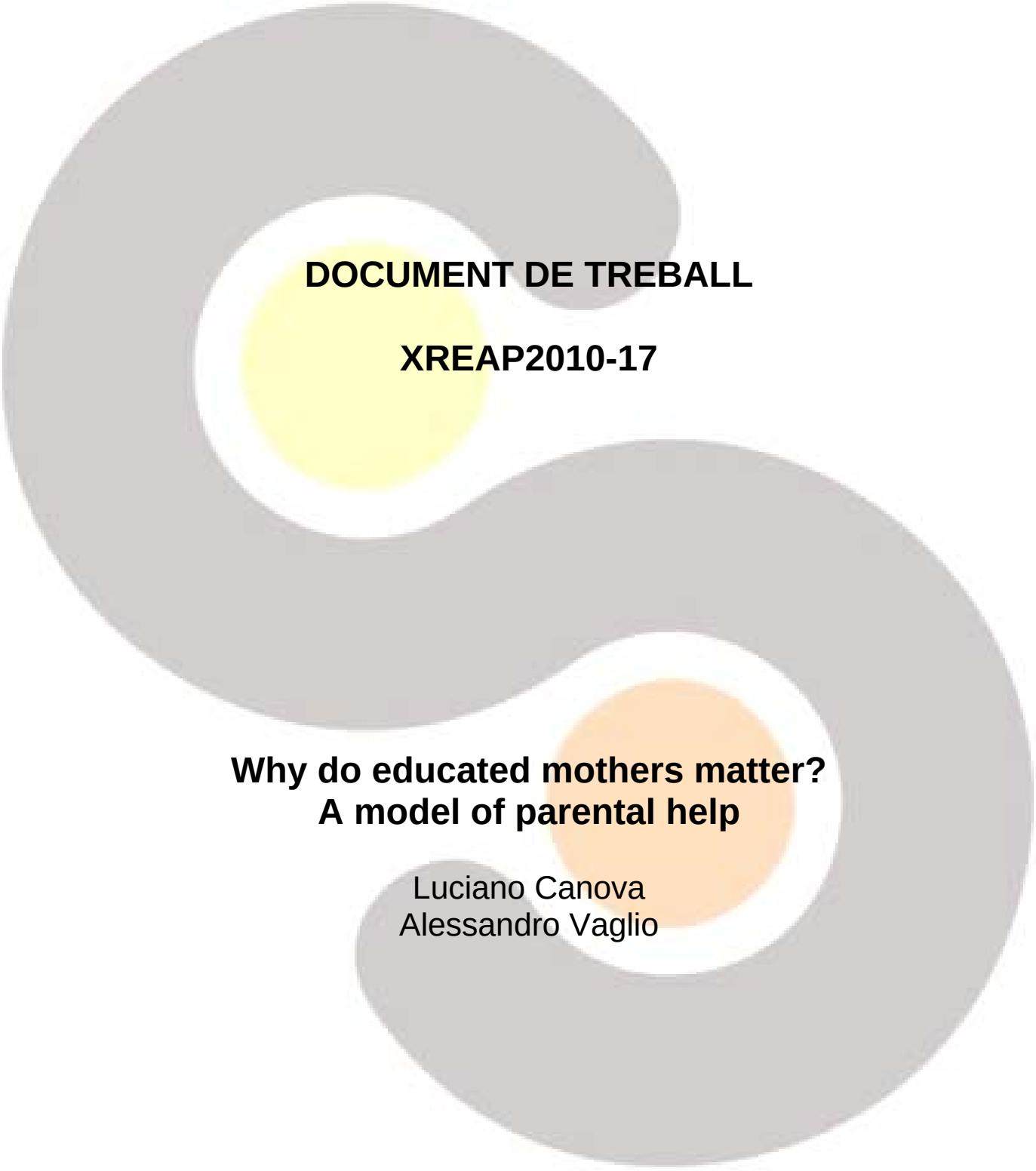

DOCUMENT DE TREBALL

XREAP2010-17

Why do educated mothers matter? A model of parental help

Luciano Canova
Alessandro Vaglio

Why do educated mothers matter? A model of parental help

Luciano Canova
(Enrico Mattei School)

Alessandro Vaglio
(University of Bergamo)

Abstract - The paper investigates the role of mothers in affecting childrens' performance at school. It develops a theoretical model in which household is treated as an individual, whose utility depends on the performance at school of the student and on consumption. The model focuses on the possibilities through which mother's help may affect pupil's performance in terms of time devoted to supervision and spillover effects. Empirical evidence, using Italian PISA 2006, shows that highly educated mothers have a positive impact on students' score only when they are highly qualified in the job market.

JEL J12, J24, I21
Keywords Education; PISA; quantile regressions; parental help

Correspondence:
Luciano Canova, Via S.Salvo 1, 20097 S.Donato Milanese (MI), Italy;
e-mail: luciano.canova@enicorporateuniversity.eni.it

Alessandro Vaglio, via dei Caniana 2 - 24127 Bergamo (BG);
e-mail: alessandro.vaglio@unibg.it

Introduction

Achievement is a multidimensional concept. An individual may remain poor but reach a respected position in the community he lives in, or he may earn a high income in an ill-famed profession, have a good school or army record, or again he simply may succeed in living up to his/her standards, whatever they are. In this paper we discuss a particularly important type of achievement, namely school achievement , and the relationship between children's achievement and their parents' education level As Haveman and Wolfe (1995) put it:
"(...) perhaps the most fundamental factor [among those influencing child's educational attainment] *is the human capital of parents, typically measured by the number of school years attained. This variable (...) is included in virtually every study described* [in their paper] *(...);it is statistically significant and quantitatively important, no matter how it is defined."*
In this paper we do not challenge this conclusion, but try to look in more depth into it. The question is, as the title of the paper says, *why* is parents' education so important in children performance. We begin by concisely reviewing two issues related to the influence of the family on children performance, while the third one lies at the core of the paper.
The first issue is the well known "nature or nurture ?" question. Parents pass on to their children their genetic endowment. To the extent that school achievement depends on genetic factors, there might be no genuine causal relationship running from parents' to children's school achievements, both being explained by the common genetic endowment. The idea that "genetics explains all", has far-reaching implications for the very conception of equality among human beings and for public policies pursuing such equality.This explains why this issue has been the subject of recurring harsh public debates (see for instance Jensen (1969), Kamin (1974), Herrnstein-Murray (1994)) . The typical methods of behavioural genetics (i.e. studies on twins and adoptees) have been used not only by genetists but also by scholars with a social and economic orientation (see Bound-Solon (1999), Holmlund, et al. (2008) and Pronzato (2008) for comparison among methods). As a whole, it seems that although genetic factors are non-negligible, they account for a partial share of the individual's performance (see for instance Thompson et al.(1991) and DeFries et al. (2001)).
Once the relative weights of nature and nurture are established, much remains to be said about what "nurture" is and how it works. The next important question regards the relative weights of family- versus non-family influences. Even in disciplines usually very keen on within-family effects, like developmental psychology, the issue of non-family effects emerges (see for instance the heathed debate stimulated in the psychologists' field by Harris(1998)). On the other hand, even if one is willing to stress the influences coming from the social environment at large, neverthless one would agree that such influences are possibly mediated by the family environment (see also Patacchini-Zenou (2004) for a choice-based approach to the issue). Almost all recent studies based on the OECD -PISA database (see in particular Fertig-Schmidt (2002) , Fertig (2003), Bratti et. al. (2007), Sprietsma (2006), Fuchs and Woessman (2004) , Ammermullaer (2004)) include and emphasize background variables like territorial factors or the immigrant condition as explanatory variables. In this paper too a wide array of these background variables is taken into account.
The third important question is the nature of within-family influences. As economists, we are particularly interested in distinguishing between influences which require a specific allocation of resources and those which do not (see Becker and Tomes (1986) for an early

contribution). Day-by-day interaction within the family influences *per se* the performance of children : just think of how transmission of ethical values, through moral suasion or personal example may induce or not children to put effort into studying; of how critical events such as death or divorce or long-term factors like the number of siblings can affect the school performance of children (Woessman (2003)). Notice also that, in these examples, the influence is in principle independent of the parents' human capital and, always in general, it may not require any specific allocation of time or other resources to the task. In other cases it is still true that no time/resource allocation is needed for the influence to take place, but human capital may instead be required. This happens with within-family knowledge spillovers: the simplest example is how children may learn a correct and sophisticated use of language by everyday exchanges with correctly speaking parents.

There are, finally, forms of influence of parents on the school achievement of children which require time . These include on the one hand supervision activities, which per se are independent of parents' human capital (like for instance controlling that children do their homework or regularly meeting teachers); on the other hand there are assistance activities which require both time and human capital (for instance, helping children when studying) .

Which of the influences described is more or less relevant to child's school performance is an issue of some policy import. Were supervision time the sole factor influencing school performance, increasing the level of education of parents would be not beneficial (on this particular respect) , since it would increase the opportunity cost of time for parents and reduce their propensity to spend time in supervising children. If instead knowledge spillovers were the key factor, the conclusion would be the reverse one. Then understanding why is parents' education important may help in designing long-term education policies. There is a rather sensitive point to be made here. In this paragraph and in the model of the next one, we speak of "parent" and "parents" without any specification of gender; all we say applies in principle to mothers and fathers alike. The economics of education literature is however rather keen on this kind of distinction . (some recent contributions are Holmlund et al. (2008), Pronzato (2008), Behrman et al. (1997), Andrabi et al. (2009)). There are good reasons for this interest. The main one is that any notion of development meaning more than GDP growth, includes improving women education levels as a critical goal; then the effects of women education vìs-a-vìs male education become crucial. The other one is that that women and men play different roles within family.The nature and the strength of social and cultural background determines what such roles are and how strict or interchangeable thay are; to the extent that different roles are systematically played, the same education level in mother and father might have differential impact on the children performance. As we shall see later, our data seem to confirm that the impact of mother's education is more complex than that of father's. However we do not offer explanations of this difference. We simply take it as given and discuss at some length the evdience concerning mother's education.

In this paper we model the parents' choice about the allocation of time between labour and children "guidance", which includes both supervision (guidance time whose effectiveness is independent of parents' education) and assistance (guidance time whose effectiveness might in principle be sensitive to parents' education). Parents are characterized by a level of education and by an occupational status, which are observable, and by an underlying unobserved characteristic (parents' quality) which is related to education and to the occupational status in a non-deterministic way. (Section 2). The model provides an interpretative framework for some of the results we obtain in Section 3. Section 4 concludes the paper.

A model of parental support

Let us consider the household (the parent-child pair) as an individual agent whose utility depends on s (the school achievement of the child,as measured by the test score), and on consumption c. Suppose that the household then maximizes the following utility function

$$\max\ u(c,s) = \frac{c^{1-\sigma}}{1-\sigma} + s^{\alpha}c^{\gamma} \qquad (1)$$

This functional form allows for a decreasing marginal utility of consumption and for some complementarity between consumption and child's performance. Parents are characterized by two parameters: one, discrete and observable e, the education attainment, which takes values $e_0 < e_1 < e_2$. The other, continuous and unobservable, q corresponds to the "quality" of the individual. This is related to education, in the sense that for $e = e_i$ ($i = 0,1,2$), the quality q of an individual with e_i is $q = e_i + \epsilon$, where ϵ is a random variable with mean 0. Then, if $e_i > e_j$:

$$prob\{q \geq \hat{q}; e_i\} = 1 - F(\hat{q} - e_i) > 1 - F(\hat{q} - e_j) = prob\{q \geq \hat{q}; e_j\}$$

where $F(.)$ is the distribution function of ϵ.

The parent owns a time endowment T which he/she can employ in the labour market, earning a wage $w(q)$, or in supervising the child in studying. $w(q)$ is a Mincer function with $w'(q) > 0$. If we denote as h the time devoted to supervision, the budget constraint is

$$c = w(q)(T - h)$$

School achievement s depends on h through the following education production function (Hanushek (2008))

$$s = kh + b(q) \tag{2}$$

$b(q)$ is a continuous increasing function of q, while k depends on q in the following way

$$k(q) = \begin{matrix} k_H \text{ if } q > q_0 \\ k_L \text{ if } q \leq q_0 \end{matrix}$$

for some threshold q_0, with $k_H > k_L$ We therefore assume that the ability of a parent in assisting the children changes with the parent's quality level, but in a discrete way and only at relatively low levels of education. Then the parent's quality affects children performance both directly ($b(q)$) and through a higher efficiency in the use of time devoted to children assistance.

Now let us consider an individual with a given quality level $q > q_0$. After suitable substitutions, the objective function becomes:

$$\varphi(h,q) = \frac{[w(q)(T-h)]^{1-\sigma}}{1-\sigma} + (kh + b(q))^{\alpha}[w(q)(T-h)]^{\gamma} \tag{3}$$

where $k = k_H$. The necessary condition for an internal solution is

$$\varphi_h(h,q) = -w(q)^{1-\sigma}(T-h)^{-\sigma} + (kh + b(q))^{\alpha} w(q)^{\gamma}(T-h)^{\gamma}\left\{\alpha k(kh + b(q))^{-1} - \gamma(T-h)^{-1}\right\} = 0 \tag{4}$$

Hence:

$$(kh + b(q))^{\alpha} = \frac{w(q)^{1-\sigma-\gamma}(T-h)^{-\sigma-\gamma}}{\alpha k(kh + b(q))^{-1} - \gamma(T-h)^{-1}} \tag{5}$$

For sufficiently small changes in q, the full impact on the test score s is given by:

$$\frac{ds}{dq} = k(q)\frac{dh}{dq} + b_q \tag{6}$$

The full expression for $\frac{dh}{dq}$ is $\frac{dh}{dq} = -\frac{\varphi_{hq}}{\varphi_{hh}}$, where $\varphi_{hh} < 0$; therefore, as q increases (by sufficiently small amounts), h changes according to the sign of the following expression

$$\varphi_{hq}(h,q) = (\sigma - 1 + \gamma)w(q)^{1-\sigma}(T-h)^{-\sigma}\frac{w_q}{w(q)} + \\ + \left[\frac{(\alpha-1)k(kh+b(q))^{-1} - \gamma(T-h)^{-1}}{\alpha k(kh+b(q))^{-1} - \gamma(T-h)^{-1}}\right]\alpha w(q)^{1-\sigma}(T-h)^{-\sigma}(kh + b(q))^{-1}b_q \tag{7}$$

Equation (keyeq)summarizes the two components of the impact of q on h. In the absence of a direct effect ($b_q = 0$), the sign of φ_{hq} depends on $(\sigma - 1 + \gamma)$. If there is no complementarity between consumption an school achievement ($\gamma = 0$) it is still possible that an increase in e increases the amount of family support (a rapidly declining marginal utility of consumption is required, i.e. $\sigma > 1$). The sign of the second term is also ambiguous. If $\alpha < 1$, it is certainly negative: a higher value of q increases the direct spillovers, so that the parent can reduce the time devoted to children assistance. By means of some tedious calculations, however, it can be shown that the term

$$\frac{1}{\varphi_{hh}}\left\{\varphi_{hh} - \left[\frac{(\alpha-1)k(kh+b(q))^{-1} - \gamma(T-h)^{-1}}{\alpha k(kh+b(q))^{-1} - \gamma(T-h)^{-1}}\right]\alpha w(q)^{1-\sigma}(T-h)^{-\sigma}(kh + b(q))^{-1}\right\}$$

which represents the overall contribution of the term b_q to the variation of s, is always positive.

Suppose on the other hand that q changes from some initial level $\underline{q} < q_0$ to $\underline{q} + \Delta q > q_0$, where Δq is finite. Then we have the following change in the test score

$$\frac{\Delta s}{\Delta q} = k_L \frac{h(\underline{q} + \Delta q) - h(\underline{q})}{\Delta q} + \frac{b(\underline{q} + \Delta q) - b(\underline{q})}{\Delta q} + (k_H - k_L)\frac{h(\underline{q} + \Delta q)}{\Delta q} \qquad (8)$$

While the first and the second term in (discrete) are the discrete counterparts of the two terms of (total effect), the term $(k_H - k_L)\frac{h(\underline{q}+\Delta q)}{\Delta q}$, unambiguously positive, appears only in this discrete case. Now, if we compare two parents, A and B with education levels respectively e_0 and e_2, the probability that $q_A < q_0$ and $q_B > q_0$ is: $F(q_0 - e_0)[1 - F(q_0 - e_2)]$, while if we compare parents C and B, where the education level of C is e_1, the probability that $q_C < q_0$ and $q_B > q_0$ is $F(q_0 - e_1)[1 - F(q_0 - e_2)]$. This means that we are more likely to observe the effect described by the term $(k_H - k_L)\frac{h(\underline{q}+\Delta q)}{\Delta q}$ when we compare a low level of education with higher levels, rather than when comparing levels both relatively high.

Unfortunately, we do not observe h nor q, but only e and y, the occupational status of the parent. The occupational status (y_{bl} =blue collar-low qualified, y_{bh} =blue collar-high qualified, y_{wl} =white collar-low qualified, y_{wh} =white collar-high qualified, u = unemployed) is assumed to signal, however imperfectly, both the quality of the parent and the use of time he/she makes.More precisely we assume:

$$prob\{y_{wh}; e, q \geq \hat{q}\} = \frac{prob\{e, q \geq \hat{q}; y_{wh}\} prob\{y_{wh}\}}{prob\{e, q \geq \hat{q}\}} > \quad prob\{y_{wh}; e\} = \frac{prob\{e; y_{wh}\} prob\{y_{wh}\}}{prob\{e\}},$$

i.e.

$$\frac{prob\{e, q \geq \hat{q}; y_{wh}\}}{prob\{e, q \geq \hat{q}\}} > \frac{prob\{e; y_{wh}\}}{prob\{e\}} \qquad (9)$$

This assumption simply means that the probability of an individual getting a high qualified, white collar job is higher if he/she has a given level of education *and* he/she is of high

quality, than in the case he/she simply has that level of education. Notice that since by definition:

$$prob\{e, q \geq \hat{q}; y_{wh}\} = \frac{prob\{e, q \geq \hat{q}, y_{wh}\}}{prob\{y_{wh}\}} \quad \text{and} \quad prob\{e, y_{wh}; q \geq \hat{q}\} = \frac{prob\{e, q \geq \hat{q}, y_{wh}\}}{prob\{q \geq \hat{q}\}}$$

we have

$$prob\{e, q \geq \hat{q}; y_{wh}\} \frac{prob\{y_{wh}\}}{prob\{q \geq \hat{q}\}} = prob\{e, y_{wh}; q \geq \hat{q}\} \tag{10}$$

We can easily prove the following lemma

Lemma *Under assumption (assumption) :* $prob\{q \geq \hat{q}; e, y_{wh}\} > prob\{q \geq \hat{q}; e\}$

$$prob\{q \geq \hat{q}; e, y_{wh}\} = \frac{prob\{e, y_{wh}; q \geq \hat{q}\} prob\{q \geq \hat{q}\}}{prob\{e, y_{wh}\}} > prob\{q \geq \hat{q}; e\} = \frac{prob\{e; q \geq \hat{q}\} prob\{q \geq \hat{q}\}}{prob\{e\}}$$

that is:

$$\frac{prob\{e, y_{wh}; q \geq \hat{q}\}}{prob\{e, y_{wh}\}} > \frac{prob\{e; q \geq \hat{q}\}}{prob\{e\}}$$

Proof By assumption: $\frac{prob\{e, q \geq \hat{q}; y_{wh}\}}{prob\{e, q \geq \hat{q}\}} > \frac{prob\{e; y_{wh}\}}{prob\{e\}}$. Substituting (10) we get:

$$\frac{prob\{e, y_{wh}; q \geq \hat{q}\}}{prob\{e, q \geq \hat{q}\}} \frac{prob\{q \geq \hat{q}\}}{prob\{y_{wh}\}} > \frac{prob\{e; y_{wh}\}}{prob\{e\}}$$

that is:

$$prob\{e, y_{wh}; q \geq \hat{q}\} > \frac{prob\{e, y_{wh}\}}{prob\{e\}} prob\{e; q \geq \hat{q}\}$$

or:

$$\frac{prob\{e, y_{wh}; q \geq \hat{q}\}}{prob\{e, y_{wh}\}} > \frac{prob\{e; q \geq \hat{q}\}}{prob\{e\}}$$

According to our assumption, we should then expect that a high level of education associated with a high qualified, white collar job is also associated to a high quality level of the parent.

Assuming that being unemployed signals quality, i.e. that the probability of being unemployed is larger for low-quality individuals, is certainly too rash; on the contrary, it seems reasonable to assume that being unemployed signals that the opportunity cost of parent's time is rather low, and therefore it should, ceteris paribus, lead to more assistance to children.

Data and method

The Programme for International Student Assessment (PISA) is an OECD survey for educational attainment which tests 15 year-old students in the subjects of mathematics, science and reading proficiency. We use the 2006 cross-section, which includes data about the 24 OECD countries plus other 33 countries.

Along with test scores in reading, math and science, information is collected about many characteristics in a students' and in a school questionnaire[1].

The students' questionnaire contains information about family background, socio-economic status in terms of ownership of durable goods, a specific focus on science[2] issues.

The school's questionnaire contains information about number of students enrolled, number of teachers part-time and full-time employed, quality of infrastructure, type of funds which the school receives (public or private).

For a detailed description of PISA dataset, see OECD (2006).

Looking at data used for this analysis, the Italian sample consists of 21773 students and 799 schools.

Italy is one of the worst achievers among industrialised countries in terms of PISA scores. OECD 2006 is no exception. In this paragraph, the distributions of test scores for Italy is presented. Non-parametric kernel density estimates describe the score distribution of the country.

Figure 1 displays the test score distributions for reading and math tests in the case of Italy (ITA). In the next few sections we proceed to econometric analysis. The average reading score is 486 points, while for math the average score is 482 points.

1A parents' questionnaire is available for some of the countries containing information about parents' perception of students' achievement, but we do not use this data

2It's the reference theme for 2006

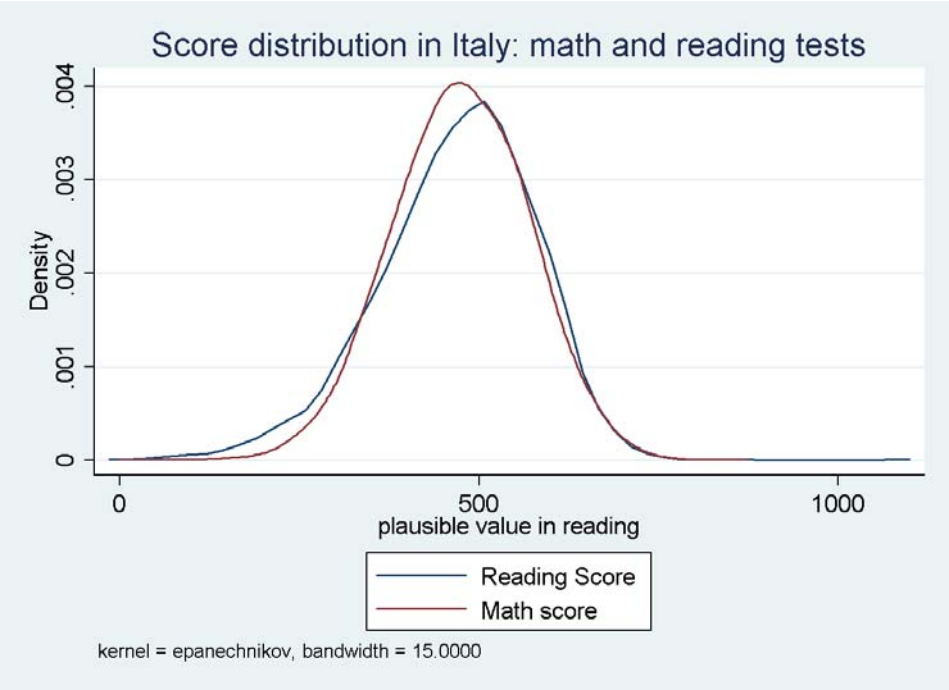

Figure 1

In order to perform our econometric analysis, we divide the scores into 3 quantiles, defined at 0.15, 0.50 and 0.85. The assumption behind this choice is that we can discriminate three levels of students: low performing, average students and high performing students.
We then run quantile regressions to catch the effects of a specified set of regressors on the performance of students in different parts of the distribution, testing different dependent variables: score in math; overall average score[3] ; the overall average score relative to school of attendance.
The set of controls does include: age and gender of student; his/her migration status[4] ; a variable saying if pupils speak a different language from that of the school's country; school's type[5], school's region[6], education of both mother and father[7] ; occupational status of both mother and father[8], a composite index for socio-economic status at family level ; the number of books owned at home[9], the lack of qualified math teachers; city size[10]; the presence of

[3]Aritmetic mean of math, reading and science tests.

[4]We consider as migrants the students who were born in a different country from that of the school they attend

[5]Lyceum or technical institute

[6]The variables says if the school is in the North or in the South of Italy

[7]Edum and Eduf in the results

[8]Msecateg and Fsecateg in the results

[9]The variable is a dummy with different categories, going from 0 to more than 500 books

[10]village with less than 3000 people; small town (between 3000 and 15000 people); town (15000 up to 100000 people); city (100000 up to 1milion people); large city (more than 1 milion people)

other school of the same type in the neighbourhood; availability of computers at school; a variable saying if the students studies at home; a variable saying if the students takes out of school lectures.
Education is treated as a set of dummy variables saying if the parent has low education, a high school diploma or a degree.
The database contains some information about employment status of parents, although not as detailed as we perhaps would like. Since we know if working parents are white or blue collars, high or low qualified, we assume that individuals who are not classified neither as blue- nor white collars but that are registered in the dataset are not working.
Finally, we introduce an interaction term containing the educational level variable and the indicator of the occupational status.

Estimation Results

If we look at variables other than parent related ones, we find a number of standard result, along with some less conventional suggestions. A general feature is that many coefficients become smaller in absolute value as we consider higher quantiles. The likely meaning of this feature is that adverse factors are compensated for by increasing student's talent, while favorable influences become less and less crucial to the final performance. Unsurprising results are obtained as regards the school's type, the region and the non-native condition: attending a technical school[11], living in the southern regions and being a non-native entail lower scores. More precisely, students of lyceums get on average 45 points more than student of technical schools. Students in the north of Italy get on average 30 points more than students in the south. Being a non native student determines a 20-25 lower scores than that of native students.
Two less conventional results are:
a) the coefficient for spoken language at home is positive, which means that *per se* speaking a foreign language constitutes an asset (while, as we have seen, being an immigrant is not).
b) Males perform on average better than females in math (which is a commonly found result): however, the coefficient is increasing with the quantile considered, a phenomenon for which an explanation is needed.
As regards parents' education, the coefficients referred to father's contribution are significant and positive on average. The weight of the coefficient is rather small in comparison to that of the mother, with the expected sign.
As regards mothers, three main results are obtained

1) While holding a high school degree has a positive and significant impact on child's performance, the coefficient associated to graduated mothers is negative and significant. In terms of the model, if we assume that there exists a threshold q_0 at which the mother's skill in assisting children when studying increases to a highel level (k_L to k_H), we might interpret this result by saying that the threshold is likely to be reached when the parent earns a high school degree. This explains the strong observed effect. When the

[11]Italian high school system is basically split into pre-university institutes, like classical and scientific lyceums, and more technical and professional schools

parent earns a university degree, k_H does not increase anymore.

2) The fact that the mother works has a positive impact on the performance of their child. If anything, this outcome signals that allocation of time to children assistance or supervision is not the key factor for a good child's performance.
3) When we control for the occupational status of mothers, the interaction between being graduated and holding a high qualified job has a positive impact on the performance of pupils, with higher impact for students with a lower score. This is all the more significant if we remind that holding a university degree per se has a negative impact of children's behaviour. The effect of being a high qualified white collar mother translates, on average, into a 20 points higher score of the student.

We check the robustness of results by trying different dependent variables, e.g. the math score and the relative score computed with respect to the school average score. We also ran regressions clustered for school. These estimates confirm the previously exposed results.
We also estimated the same models for different countries in PISA dataset: namely, Sweden and Portugal. We followed here the work by Ammermueller (2004) and Canova and Vaglio (2010). Sweden is a Scandinavian country which we choose according to traditional development of welfare state of countries within this area, while Portugal, besides very similar to Italy as regards the distribution of the PISA scores, may also be considered similar to Italy with respect of the general structure of the cultural context belonging to the Mediterrenean model of welfare state (Esping-Andersen, 1996) .
Portugal yields a set of results very close to those concerning Italy, which comforts us on the robustness of estimates. Swedish data instead produces remarkably different outcomes. Since the Swedish socio-economic and cultural context is commonly held to be completely different from the "Mediterranean" model common to Italy and Portugal, it is reasonable to conjecture that these social and economic context variables could be of some help in explaining the peculiar features of mother's education.
Results of these regressions are presented in Appendix A.

Table 1 -Quantile regressions: results for 0.15, 0.50, 0.85 quantiles: overall scores

VARIABLES	(1) q15	(2) q50	(3) q85
sex	2.341	10.52***	14.23***
	(1.904)	(1.346)	(2.315)
lyceum	59.83***	53.06***	42.80***
	(1.172)	(0.792)	(0.820)
employed	89.02*	70.18***	18.05
	(48.24)	(15.10)	(15.37)
_Ieduf_2	11.03***	8.567***	12.37***
	(1.712)	(1.914)	(1.930)
_Ieduf_3	-8.103***	-3.238	3.967**
	(2.778)	(2.470)	(1.727)
_Iedum_2	8.843***	13.23***	9.953***
	(1.594)	(1.002)	(2.447)
_Iedum_3	-25.01***	-17.99***	-12.48*
	(6.593)	(3.281)	(6.950)
_Imsecateg_1	2.911	5.358**	4.719
	(5.144)	(2.163)	(3.476)
_IeduXmse_2_1	-3.782	-5.562	-2.724
	(7.201)	(3.446)	(3.034)
_IeduXmse_3_1	26.21**	22.90***	19.20***
	(10.63)	(5.606)	(4.747)
fsecateg	5.742***	2.817	1.304
	(1.404)	(1.880)	(3.186)
migrant_student	-37.67***	-33.10***	-20.45***
	(4.172)	(3.897)	(5.989)
_Iforeign_l_1	20.81***	16.05***	12.21***
	(1.666)	(1.978)	(1.175)
escs	5.330***	3.954**	0.517
	(0.660)	(1.548)	(1.677)
_Inr_books_2	15.45***	12.98***	19.92***
	(1.845)	(3.244)	(5.128)
_Inr_books_3	30.71***	30.18***	38.48***
	(2.975)	(1.858)	(3.995)
_Inr_books_4	41.18***	42.46***	51.58***
	(4.277)	(3.009)	(4.231)
_Inr_books_5	53.08***	49.30***	60.40***
	(2.393)	(2.815)	(3.343)
_Inr_books_6	60.01***	61.18***	70.01***
	(6.718)	(4.173)	(1.731)
no_sch_available	-4.639*	-6.022**	0.118
	(2.558)	(2.971)	(2.645)
_Icity_size_2	15.92***	21.02***	18.13**
	(5.160)	(6.962)	(8.401)
_Icity_size_3	29.80***	34.42***	25.38***
	(4.677)	(6.144)	(7.698)
_Icity_size_4	35.01***	40.29***	33.66***
	(4.785)	(6.330)	(5.127)
_Icity_size_5	27.82***	36.05***	21.63***
	(9.669)	(6.826)	(7.209)
school_north	39.45***	37.46***	31.86***
	(1.190)	(1.783)	(1.800)
study_out	-45.58***	-47.23***	-50.61***
	(2.988)	(1.267)	(3.075)
selfstudy	10.44***	4.098*	-0.593
	(2.376)	(2.094)	(1.225)
Observations	15192	15192	15192

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
* denote level of significance: * = 10%; ** = 5%; *** = 1%

Conclusions

Why is parents' education so important? The general finding of this paper is that parents' education influences children achievement through indirect channels rather than through

relatively time-intensive channels. Motivation, knowledge spillover, provision of a material and emotional environment enhancing school performance seem therefore to be the driving factor. This is particularly important if we think that these results refer to mother's education and use of time (e.g. women access to the job market), which are two key issues in the discussion over women role in the society: our results mean that an educated and high qualified mother benefits the school achievement of her children independently, at least to some extent, of the time she devotes to direct supervision and help. Were our conclusions confirmed by further research, then those institutional arrangements which enhance women education and participation to the job market (and to the most qualified segments thereof), would receive further support.

The policy relevance of such a conclusion is important in terms of design of social policies aiming at helping mothers through childcare allowances or other public transfer, which, at the same time, do not preclude job perspectives of beneficiaries. The relevance of the issue is striking for a country like Italy which is traditionally considered an example of the familistic welfare state model (Esping Andersen, 1990) and that experiences an overheated debate about the possibility of reforming radically education system.

The main evidence seems to be that quantity of time devoted to education of children is not a driving factor in having an impact on the performance of students. Parents who have invested in human capital have a strong positive impact on students' scores and the quality of their job is relevant.Spill-over effects or personal example provided by parents is probably playing a role here and must be take into consideration as an evidence that pupils' educational attainment is the multidimensional result of many factors, requiring therefore targeted public interventions for each of them.

References

1. Ammermullaer , A. (2004) "PISA: What Makes the Difference ? Explaining the Gap in PISA Test Scores Between Finland and Germany" *ZEW Discussion Papers*, n. 4
2. Andrabi, T. - Das, J. - Khwaja, A.I. (2009) "What Did You Do all Day ? Maternal Education and Child Outcomes" Mimeo
3. Becker,G.S.-Tomes, N. (1986) "Human Capital and the Rise and Fall of Families" Journal of Labour Economics, July, n. 4:S1-39
4. Bratti,M.-Checchi,D.-Filippin, A. (2007) "Territorial Differences in Italian Students' Mathematical Competencies: Evidence from PISA 2003", *IZA Discussion Papers*, n. 2603
5. Bound, J. -Solon,G. (1999): Double Trouble: On the Value of Twin-Based Estimation of the Return to Schooling. *Economics of Education Review*, 18, 169-182.
6. DeFries, J.C.- McClearn, G.E-McGuffin, P.- Plomin, R. (2001) *Behavioural Genetics* Worth Publications,New York
7. Esping Andersen G. (1990). The Three Worlds of Welfare Capitalism. Polity Press. Princeton University Press. 1990.
8. Fertig, M. -- Schmidt C.M. (2002) "The Role of Background Factors for Reading Literacy: Straight National Scores in the PISA 2000 Study", *IZA Discussion Papers*, n. 545
9. Fertig, M. (2003) "Who's to Blame? The Determinants of German Students' Achievement in the PISA 2000 Study", *RWI Discussion Papers*, n. 4
10. Fuchs, .-Woessman, L. (2004) "What Accounts for International Differences in Student Performance?A Re-examination Using PISA Data", I*ZA Discussion Papers*, n. 1287 (NO)
11. Hanushek, E.A (2008) "Education Production Function" The New Palgrave Dictionary of Economics, 2nd Edition, MacMillan.
12. Harris, J.R. (1998) *The Nurture Assumption* The Free Press, New York
13. Herrnstein, R.J. -Murray C. (1994) *The Bell Curve:Intelligence and Class Structure in America*, Free Press,NY
14. Holmlund, H., M. Lindahl and E. Plug (2008): Estimating Intergenerational Schooling Effect: A Comparison of Methods. IZA Discussion Paper, no 3630
15. Haveman, R. - Wolfe, B. (1995), The Determinants of Children Attainments: A Review of Methods and Findings, *Journal of Economic Literature* 33:4, pp. 1829-1878.
16. Jensen, A. (1969) "How Much Can we Boost I.Q.and Scholastic Achievement", *Harvard Educational Review* , February
17. Kamin, L.J. (1974) *The Science and Politics of IQ*,LEA, Potomac.
18. Patacchini, E - Zenou, Y. (2004) "Intergenerational Education Transmission:Neighborhood Quality and/or Parents' Involvement?" The Reserach Institute for Industrial Economics, Working Paper No. 631.
19. Chiara Pronzato,C. (2008) Why Educated Mothers don't make Educated Children? A Statistical Study in the Intergenerational Transmission of Schooling, Statistics Norway, Discussion Papers No. 563, October
20. Sprietsma, M. (2006) "Regional School Comparison and School Choice: How do They Relate to Student Performance" *Dèpartement de Sciences Economiques -- Louvain Discussion Papers*, n. 24
21. Thompson, L.A.-Detterman, D.K.-Plomin, R. (1991) Association between Cognitive

Abilities and Scholastic Achievement: Genetic Overlap but Environmental Differences, *Psychological Science* , 2: 158-165
22. Wolter S.C. (2003) "Sibling Rivalry: a Six Country Comparison" , *IZA Discussion Papers*, n. 734

Appendix A

Quantile regressions: results for 0.15, 0.50, 0.85 quantiles: overall relative scores

VARIABLES	(1) q15	(2) q50	(3) q85
sex	0.0236	0.0670***	0.0926***
	(0.0354)	(0.0224)	(0.00668)
lyceum	0.0759***	-0.0681***	-0.191***
	(0.0201)	(0.0158)	(0.0412)
employed	0.785***	0.338	0.554
	(0.279)	(0.912)	(0.458)
_Ieduf_2	0.0662***	0.0435*	0.0572*
	(0.00760)	(0.0230)	(0.0298)
_Ieduf_3	-0.0664	-0.0552	-0.0381
	(0.0575)	(0.0424)	(0.0667)
_Iedum_2	0.0358	0.0755***	0.0707*
	(0.0366)	(0.0161)	(0.0401)
_Iedum_3	-0.296***	-0.240***	-0.184***
	(0.0873)	(0.0486)	(0.0429)
_Imsecateg_1	0.00970	0.0156	-0.0149
	(0.0772)	(0.0262)	(0.0463)
_IeduXmse_2_1	0.00708	-0.0172	-0.00900
	(0.0960)	(0.0345)	(0.0310)
_IeduXmse_3_1	0.308**	0.335***	0.312***
	(0.131)	(0.0438)	(0.0621)
fsecateg	-0.00126	0.0405	0.0582***
	(0.0224)	(0.0281)	(0.0160)
migrant_student	-0.553***	-0.402***	-0.284***
	(0.0352)	(0.0454)	(0.0288)
_Iforeign_1_1	0.129***	0.0195	-0.0348
	(0.0207)	(0.0259)	(0.0356)
escs	0.0449	-0.0281	-0.0710***
	(0.0337)	(0.0216)	(0.0142)
_Inr_books_2	0.162***	0.155***	0.0853***
	(0.0463)	(0.0284)	(0.00937)
_Inr_books_3	0.311***	0.275***	0.247***
	(0.0535)	(0.0394)	(0.0155)
_Inr_books_4	0.444***	0.384***	0.338***
	(0.0677)	(0.0348)	(0.0215)
_Inr_books_5	0.523***	0.437***	0.445***
	(0.0820)	(0.0389)	(0.0410)
_Inr_books_6	0.610***	0.598***	0.608***
	(0.0746)	(0.0834)	(0.0872)
no_sch_available	-0.0183	0.00295	0.0354
	(0.0210)	(0.0172)	(0.0312)
_Icity_size_2	0.0376	-0.0998	-0.173*
	(0.137)	(0.0696)	(0.100)
_Icity_size_3	0.116	-0.0869	-0.192*
	(0.145)	(0.0878)	(0.110)

Quantile regressions: results for 0.15, 0.50, 0.85 quantiles: math scores

VARIABLES	(1) q15	(2) q50	(3) q85
sex	25.60***	33.93***	37.27***
	(1.911)	(1.926)	(1.369)
lyceum	52.73***	46.54***	40.28***
	(1.488)	(1.119)	(1.473)
employed	106.5***	67.69*	17.75***
	(32.79)	(39.78)	(4.851)
_Ieduf_2	8.881***	8.397***	13.53***
	(2.217)	(2.870)	(1.996)
_Ieduf_3	-5.819*	0.816	9.119***
	(3.001)	(1.912)	(1.799)
_Iedum_2	10.06**	10.02***	8.787***
	(4.163)	(1.858)	(1.655)
_Iedum_3	-28.55***	-21.14***	-17.25***
	(2.927)	(3.165)	(6.031)
_Imsecateg_1	6.022	7.199	6.086
	(5.913)	(4.543)	(6.242)
_IeduXmse_2_1	-4.767	-3.939	0.559
	(8.057)	(4.840)	(6.857)
_IeduXmse_3_1	23.49***	17.08**	20.11***
	(3.111)	(6.713)	(3.010)
fsecateg	3.610**	4.135***	2.921
	(1.583)	(1.408)	(2.358)
migrant_student	-34.11***	-25.61***	-23.71***
	(5.652)	(2.796)	(6.746)
_Iforeign_1_1	20.68***	22.23***	21.12***
	(2.387)	(1.799)	(2.051)
escs	6.426**	3.426***	-1.354
	(2.752)	(0.481)	(2.709)
_Inr_books_2	7.143	9.068***	12.94**
	(5.287)	(3.140)	(6.572)
_Inr_books_3	26.45***	29.44***	33.68***
	(3.157)	(4.587)	(4.302)
_Inr_books_4	31.60***	39.52***	49.35***
	(1.689)	(4.361)	(5.457)
_Inr_books_5	49.10***	50.62***	61.50***
	(1.222)	(1.448)	(6.461)
_Inr_books_6	51.20***	58.20***	69.43***
	(2.825)	(5.744)	(3.884)
no_sch_available	-4.386**	-2.557	-0.0499
	(2.004)	(1.703)	(3.078)
_Icity_size_2	14.46***	22.39***	10.50*
	(3.758)	(3.680)	(5.636)
_Icity_size_3	25.48***	31.84***	19.62***
	(3.521)	(3.750)	(5.544)

Quantile regressions: results for 0.15, 0.50, 0.85 quantiles: math score for Portugal

VARIABLES	(1) q15	(2) q50	(3) q85
sex	22.83***	24.45***	25.49***
	(4.647)	(2.754)	(1.839)
employed	-86.26**	-23.09*	41.47*
	(41.40)	(12.71)	(21.84)
lyceum	-73.01***	-79.11***	-77.54***
	(4.619)	(1.001)	(1.759)
_Ieduf_2	-6.534	-6.575	-1.862
	(8.012)	(4.704)	(3.431)
_Ieduf_3	-20.57*	-12.19***	-2.972
	(11.74)	(3.829)	(10.45)
_Iedum_2	9.328*	4.413*	-1.980
	(4.989)	(2.516)	(6.005)
_Iedum_3	-19.86	-15.34	-13.11***
	(20.39)	(10.05)	(4.189)
_Imsecateg_1	8.248	22.14***	8.850
	(9.389)	(7.412)	(8.417)
_IeduXmse_2_1	-5.330	-16.18	-9.488
	(21.25)	(12.97)	(8.303)
_IeduXmse_3_1	30.07**	6.825	19.79
	(14.47)	(9.285)	(12.42)
fsecateg	13.47**	18.00***	13.03***
	(6.395)	(4.036)	(3.428)
migrant_student	-13.25**	-9.175	5.551
	(6.550)	(5.848)	(10.95)
_Iforeign_1_1	16.08	20.64	21.66*
	(20.52)	(15.81)	(11.55)
escs	11.06***	6.509***	1.830
	(2.798)	(1.099)	(3.782)
_Inr_books_2	3.031	-0.842	3.538
	(5.600)	(5.329)	(6.181)
_Inr_books_3	31.70***	19.39***	24.73***
	(6.094)	(4.055)	(4.979)
_Inr_books_4	29.97***	20.49***	35.63***
	(8.970)	(4.388)	(3.588)
_Inr_books_5	33.69***	32.27***	53.31***
	(10.16)	(10.23)	(11.42)
_Inr_books_6	41.62***	34.66***	48.80***
	(12.63)	(6.060)	(10.46)
no_sch_available	-14.92***	-13.71***	-16.98***
	(5.065)	(2.432)	(0.856)
study_out	-27.60***	-27.02***	-27.77***
	(8.190)	(4.394)	(4.118)
selfstudy	-5.855***	-5.258**	-10.67***
	(1.739)	(2.547)	(2.962)

Quantile regressions: results for 0.15, 0.50, 0.85 quantiles: math score for Sweden

VARIABLES	(1) q15	(2) q50	(3) q85
sex	4.492	8.391**	17.14***
	(4.453)	(3.815)	(5.027)
employed	47.05***	44.44***	40.61
	(9.164)	(6.797)	(40.37)
lyceum	-72.35***	-61.71***	-39.73***
	(10.83)	(7.189)	(9.643)
_Ieduf_2	6.989	10.51*	18.27***
	(5.957)	(6.377)	(4.095)
_Ieduf_3	-2.848	-1.182	14.54***
	(2.747)	(4.632)	(5.256)
_Iedum_2	12.21	11.87	12.81
	(11.36)	(9.375)	(10.02)
_Iedum_3	5.733	7.278	8.283
	(9.161)	(5.723)	(11.21)
_Imsecateg_1	0.795	-8.733	-8.088
	(18.22)	(12.17)	(18.16)
_IeduXmse_2_1	13.40	24.39	6.802
	(24.76)	(15.05)	(16.48)
_IeduXmse_3_1	13.69	33.68***	30.37*
	(12.33)	(9.872)	(17.25)
fsecateg	20.42***	22.66***	21.50***
	(3.684)	(2.628)	(5.071)
migrant_student	-24.83***	-13.27***	-8.562
	(8.866)	(4.935)	(14.77)
_Iforeign_1_1	-11.28	-20.74***	-7.811
	(14.33)	(7.388)	(7.637)
escs	13.63***	9.055***	-2.372
	(3.966)	(1.106)	(3.710)
_Inr_books_2	20.37*	28.83***	16.70*
	(12.20)	(7.650)	(8.943)
_Inr_books_3	36.12***	46.20***	49.75***
	(11.04)	(10.61)	(13.16)
_Inr_books_4	52.16***	65.33***	72.88***
	(9.489)	(15.04)	(14.32)
_Inr_books_5	61.61***	81.92***	88.42***
	(9.731)	(10.12)	(12.82)
_Inr_books_6	80.62***	97.12***	112.7***
	(13.80)	(14.90)	(10.03)
no_sch_available	-7.340**	-3.323	-7.141*
	(3.225)	(2.493)	(4.013)
study_out	-38.38***	-37.23***	-34.06***
	(11.41)	(4.363)	(5.112)
selfstudy	-6.001	-8.278	-18.77***
	(5.713)	(6.907)	(4.199)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

2006

CREAP2006-01
Matas, A. (GEAP)**; Raymond, J.Ll.** (GEAP)
"Economic development and changes in car ownership patterns"
(Juny 2006)

CREAP2006-02
Trillas, F. (IEB)**; Montolio, D.** (IEB)**; Duch, N.** (IEB)
"Productive efficiency and regulatory reform: The case of Vehicle Inspection Services"
(Setembre 2006)

CREAP2006-03
Bel, G. (PPRE-IREA)**; Fageda, X.** (PPRE-IREA)
"Factors explaining local privatization: A meta-regression analysis"
(Octubre 2006)

CREAP2006-04
Fernàndez-Villadangos, L. (PPRE-IREA)
"Are two-part tariffs efficient when consumers plan ahead?: An empirical study"
(Octubre 2006)

CREAP2006-05
Artís, M. (AQR-IREA)**; Ramos, R.** (AQR-IREA)**; Suriñach, J.** (AQR-IREA)
"Job losses, outsourcing and relocation: Empirical evidence using microdata"
(Octubre 2006)

CREAP2006-06
Alcañiz, M. (RISC-IREA)**; Costa, A.; Guillén, M.** (RISC-IREA)**; Luna, C.; Rovira, C.**
"Calculation of the variance in surveys of the economic climate"
(Novembre 2006)

CREAP2006-07
Albalate, D. (PPRE-IREA)
"Lowering blood alcohol content levels to save lives: The European Experience"
(Desembre 2006)

CREAP2006-08
Garrido, A. (IEB)**; Arqué, P.** (IEB)
"The choice of banking firm: Are the interest rate a significant criteria?"
(Desembre 2006)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

CREAP2006-09
Segarra, A. (GRIT)**; Teruel-Carrizosa, M.** (GRIT)
"Productivity growth and competition in spanish manufacturing firms:
What has happened in recent years?"
(Desembre 2006)

CREAP2006-10
Andonova, V.; Díaz-Serrano, Luis. (CREB)
"Political institutions and the development of telecommunications"
(Desembre 2006)

CREAP2006-11
Raymond, J.L.(GEAP)**; Roig, J.L..** (GEAP)
"Capital humano: un análisis comparativo Catalunya-España"
(Desembre 2006)

CREAP2006-12
Rodríguez, M.(CREB)**; Stoyanova, A.** (CREB)
"Changes in the demand for private medical insurance following a shift in tax incentives"
(Desembre 2006)

CREAP2006-13
Royuela, V. (AQR-IREA)**; Lambiri, D.**; **Biagi**, **B.**
"Economía urbana y calidad de vida. Una revisión del estado del conocimiento en España"
(Desembre 2006)

CREAP2006-14
Camarero, M.; Carrion-i-Silvestre, J.LL. (AQR-IREA)**.**;**Tamarit**, **C.**
"New evidence of the real interest rate parity for OECD countries using panel unit root tests with breaks"
(Desembre 2006)

CREAP2006-15
Karanassou, M.; Sala, H. (GEAP)**.**;**Snower** , **D. J.**
"The macroeconomics of the labor market: Three fundamental views"
(Desembre 2006)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

2007

XREAP2007-01
Castany, L (AQR-IREA)**; López-Bazo, E.** (AQR-IREA).;**Moreno** , **R.** (AQR-IREA)
"Decomposing differences in total factor productivity across firm size"
(Març 2007)

XREAP2007-02
Raymond, J. Ll. (GEAP)**; Roig, J. Ll.** (GEAP)
"Una propuesta de evaluación de las externalidades de capital humano en la empresa"
(Abril 2007)

XREAP2007-03
Durán, J. M. (IEB)**; Esteller, A.** (IEB)
"An empirical analysis of wealth taxation: Equity vs. Tax compliance"
(Juny 2007)

XREAP2007-04
Matas, A. (GEAP)**; Raymond, J.Ll.** (GEAP)
"Cross-section data, disequilibrium situations and estimated coefficients: evidence from car ownership demand"
(Juny 2007)

XREAP2007-05
Jofre-Montseny, J. (IEB)**; Solé-Ollé, A.** (IEB)
"Tax differentials and agglomeration economies in intraregional firm location"
(Juny 2007)

XREAP2007-06
Álvarez-Albelo, C. (CREB)**; Hernández-Martín, R.**
"Explaining high economic growth in small tourism countries with a dynamic general equilibrium model"
(Juliol 2007)

XREAP2007-07
Duch, N. (IEB)**; Montolio, D.** (IEB); **Mediavilla, M.**
"Evaluating the impact of public subsidies on a firm's performance: a quasi-experimental approach"
(Juliol 2007)

XREAP2007-08
Segarra-Blasco, A. (GRIT)
"Innovation sources and productivity: a quantile regression analysis"
(Octubre 2007)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

XREAP2007-09
Albalate, D. (PPRE-IREA)
"Shifting death to their Alternatives: The case of Toll Motorways"
(Octubre 2007)

XREAP2007-10
Segarra-Blasco, A. (GRIT); **Garcia-Quevedo, J.** (IEB); **Teruel-Carrizosa, M.** (GRIT)
"Barriers to innovation and public policy in catalonia"
(Novembre 2007)

XREAP2007-11
Bel, G. (PPRE-IREA); **Foote, J.**
"Comparison of recent toll road concession transactions in the United States and France"
(Novembre 2007)

XREAP2007-12
Segarra-Blasco, A. (GRIT);
"Innovation, R&D spillovers and productivity: the role of knowledge-intensive services"
(Novembre 2007)

XREAP2007-13
Bermúdez Morata, Ll. (RFA-IREA); **Guillén Estany, M.** (RFA-IREA), **Solé Auró, A**. (RFA-IREA)
"Impacto de la inmigración sobre la esperanza de vida en salud y en discapacidad de la población española"
(Novembre 2007)

XREAP2007-14
Calaeys, P. (AQR-IREA); **Ramos, R.** (AQR-IREA), **Suriñach, J**. (AQR-IREA)
"Fiscal sustainability across government tiers"
(Desembre 2007)

XREAP2007-15
Sánchez Hugalbe, A. (IEB)
"Influencia de la inmigración en la elección escolar"
(Desembre 2007)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

2008

XREAP2008-01
Durán Weitkamp, C. (GRIT)**; Martín Bofarull, M.** (GRIT) ; **Pablo Martí, F.**
"Economic effects of road accessibility in the Pyrenees: User perspective"
(Gener 2008)

XREAP2008-02
Díaz-Serrano, L.; Stoyanova, A. P. (CREB)
"The Causal Relationship between Individual's Choice Behavior and Self-Reported Satisfaction: the Case of Residential Mobility in the EU"
(Març 2008)

XREAP2008-03
Matas, A. (GEAP)**; Raymond, J. L.** (GEAP)**; Roig, J. L.** (GEAP)
"Car ownership and access to jobs in Spain"
(Abril 2008)

XREAP2008-04
Bel, G. (PPRE-IREA) **; Fageda, X.** (PPRE-IREA)
"Privatization and competition in the delivery of local services: An empirical examination of the dual market hypothesis"
(Abril 2008)

XREAP2008-05
Matas, A. (GEAP); **Raymond, J. L.** (GEAP); **Roig, J. L.** (GEAP)
"**Job accessibility and employment probability**"
(Maig 2008)

XREAP2008-06
Basher, S. A.; Carrión, J. Ll. (AQR-IREA)
Deconstructing Shocks and Persistence in OECD Real Exchange Rates
(Juny 2008)

XREAP2008-07
Sanromá, E. (IEB)**; Ramos, R.** (AQR-IREA); Simón, H.
Portabilidad del capital humano y asimilación de los inmigrantes. Evidencia para España
(Juliol 2008)

XREAP2008-08
Basher, S. A.; Carrión, J. Ll. (AQR-IREA)
Price level convergence, purchasing power parity and multiple structural breaks: An application to US cities
(Juliol 2008)

XREAP2008-09
Bermúdez, Ll. (RFA-IREA)
A priori ratemaking using bivariate poisson regression models
(Juliol 2008)

XREAP2008-10
Solé-Ollé, A. (IEB), **Hortas Rico, M.** (IEB)
Does urban sprawl increase the costs of providing local public services? Evidence from Spanish municipalities
(Novembre 2008)

XREAP2008-11
Teruel-Carrizosa, M. (GRIT), **Segarra-Blasco, A.** (GRIT)
Immigration and Firm Growth: Evidence from Spanish cities
(Novembre 2008)

XREAP2008-12
Duch-Brown, N. (IEB), **García-Quevedo, J.** (IEB), **Montolio, D.** (IEB)
Assessing the assignation of public subsidies: Do the experts choose the most efficient R&D projects?
(Novembre 2008)

XREAP2008-13
Bilotkach, V., **Fageda, X.** (PPRE-IREA), **Flores-Fillol, R.**
Scheduled service versus personal transportation: the role of distance
(Desembre 2008)

XREAP2008-14
Albalate, D. (PPRE-IREA), **Gel, G.** (PPRE-IREA)
Tourism and urban transport: Holding demand pressure under supply constraints
(Desembre 2008)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

2009

XREAP2009-01
Calonge, S. (CREB)**; Tejada, O.**
"A theoretical and practical study on linear reforms of dual taxes"
(Febrer 2009)

XREAP2009-02
Albalate, D. (PPRE-IREA)**; Fernández-Villadangos, L.** (PPRE-IREA)
"Exploring Determinants of Urban Motorcycle Accident Severity: The Case of Barcelona"
(Març 2009)

XREAP2009-03
Borrell, J. R. (PPRE-IREA)**; Fernández-Villadangos, L.** (PPRE-IREA)
"Assessing excess profits from different entry regulations"
(Abril 2009)

XREAP2009-04
Sanromá, E. (IEB)**; Ramos, R.** (AQR-IREA), **Simon, H.**
"Los salarios de los inmigrantes en el mercado de trabajo español. ¿Importa el origen del capital humano?"
(Abril 2009)

XREAP2009-05
Jiménez, J. L.; Perdiguero, J. (PPRE-IREA)
"(No)competition in the Spanish retailing gasoline market: a variance filter approach"
(Maig 2009)

XREAP2009-06
Álvarez-Albelo,C. D. (CREB)**, Manresa, A.** (CREB)**, Pigem-Vigo, M.** (CREB)
"International trade as the sole engine of growth for an economy"
(Juny 2009)

XREAP2009-07
Callejón, M. (PPRE-IREA)**, Ortún V, M.**
"The Black Box of Business Dynamics"
(Setembre 2009)

XREAP2009-08
Lucena, A. (CREB)
"The antecedents and innovation consequences of organizational search: empirical evidence for Spain"
(Octubre 2009)

XREAP2009-09
Domènech Campmajó, L. (PPRE-IREA)
"Competition between TV Platforms"
(Octubre 2009)

XREAP2009-10
Solé-Auró, A. (RFA-IREA)**,Guillén, M.** (RFA-IREA)**, Crimmins, E. M.**
"Health care utilization among immigrants and native-born populations in 11 European countries. Results from the Survey of Health, Ageing and Retirement in Europe"
(Octubre 2009)

XREAP2009-11
Segarra, A. (GRIT)**, Teruel, M.** (GRIT)
"Small firms, growth and financial constraints"
(Octubre 2009)

XREAP2009-12
Matas, A. (GEAP)**, Raymond, J.Ll.** (GEAP), **Ruiz, A.** (GEAP)
"Traffic forecasts under uncertainty and capacity constraints"
(Novembre 2009)

XREAP2009-13
Sole-Ollé, A. (IEB)
"Inter-regional redistribution through infrastructure investment: tactical or programmatic?"
(Novembre 2009)

XREAP2009-14
Del Barrio-Castro, T., **García-Quevedo, J.** (IEB)
"The determinants of university patenting: Do incentives matter?"
(Novembre 2009)

XREAP2009-15
Ramos, R. (AQR-IREA), **Suriñach, J.** (AQR-IREA)**, Artís, M.** (AQR-IREA)
"Human capital spillovers, productivity and regional convergence in Spain"
(Novembre 2009)

XREAP2009-16
Álvarez-Albelo, C. D. (CREB), **Hernández-Martín, R.**
"The commons and anti-commons problems in the tourism economy"
(Desembre 2009)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

2010

XREAP2010-01
García-López, M. A. (GEAP)
"The Accessibility City. When Transport Infrastructure Matters in Urban Spatial Structure"
(Febrer 2010)

XREAP2010-02
García-Quevedo, J. (IEB), **Mas-Verdú, F.** (IEB), **Polo-Otero, J.** (IEB)
"Which firms want PhDs? The effect of the university-industry relationship on the PhD labour market"
(Març 2010)

XREAP2010-03
Pitt, D., **Guillén, M.** (RFA-IREA)
"An introduction to parametric and non-parametric models for bivariate positive insurance claim severity distributions"
(Març 2010)

XREAP2010-04
Bermúdez, Ll. (RFA-IREA), **Karlis, D.**
"Modelling dependence in a ratemaking procedure with multivariate Poisson regression models"
(Abril 2010)

XREAP2010-05
Di Paolo, A. (IEB)
"Parental education and family characteristics: educational opportunities across cohorts in Italy and Spain"
(Maig 2010)

XREAP2010-06
Simón, H. (IEB), **Ramos, R.** (AQR-IREA), **Sanromá, E.** (IEB)
"Movilidad ocupacional de los inmigrantes en una economía de bajas cualificaciones. El caso de España"
(Juny 2010)

XREAP2010-07
Di Paolo, A. (GEAP & IEB), **Raymond, J. Ll.** (GEAP & IEB)
"Language knowledge and earnings in Catalonia"
(Juliol 2010)

XREAP2010-08
Bolancé, C. (RFA-IREA), **Alemany, R.** (RFA-IREA), **Guillén, M.** (RFA-IREA)
"Prediction of the economic cost of individual long-term care in the Spanish population"
(Setembre 2010)

XREAP2010-09
Di Paolo, A. (GEAP & IEB)
"Knowledge of catalan, public/private sector choice and earnings: Evidence from a double sample selection model"
(Setembre 2010)

SÈRIE DE DOCUMENTS DE TREBALL DE LA XREAP

XREAP2010-10
Coad, A., **Segarra, A.** (GRIT), **Teruel, M.** (GRIT)
"Like milk or wine: Does firm performance improve with age?"
(Setembre 2010)

XREAP2010-11
Di Paolo, A. (GEAP & IEB), **Raymond, J. Ll.** (GEAP & IEB), **Calero, J.** (IEB)
"Exploring educational mobility in Europe"
(Octubre 2010)

XREAP2010-12
Borrell, A. (GiM-IREA), **Fernández-Villadangos, L.** (GiM-IREA)
"Clustering or scattering: the underlying reason for regulating distance among retail outlets"
(Desembre 2010)

XREAP2010-13
Di Paolo, A. (GEAP & IEB)
"School composition effects in Spain"
(Desembre 2010)

XREAP2010-14
Fageda, X. (GiM-IREA), **Flores-Fillol, R.**
"Technology, Business Models and Network Structure in the Airline Industry"
(Desembre 2010)

XREAP2010-15
Albalate, D. (GiM-IREA), **Bel, G.** (GiM-IREA), **Fageda, X.** (GiM-IREA)
"Is it Redistribution or Centralization? On the Determinants of Government Investment in Infrastructure"
(Desembre 2010)

XREAP2010-16
Oppedisano, V., **Turati, G.**
"What are the causes of educational inequalities and of their evolution over time in Europe? Evidence from PISA"
(Desembre 2010)

XREAP2010-17
Canova, L., **Vaglio, A.**
"Why do educated mothers matter? A model of parental help"
(Desembre 2010)

xreap@pcb.ub.es