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Socio-economic differentials in low birth weight. An analysis from the Andalusian demographic dataset.

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INTRODUCTION

In demography as well as in epidemiology, there is a growing concern over the persistence of health inequalities related to socio-economic differences. Socio-economic gradients have been systematically found in adult mortality and morbidity and infant health, linking poorer health indicators with lower socio-economic status (Preston y Taubman 1994; Kramer, Séguin et al. 2000; Wilkinson y Marmot 2003; Marmot 2005; Lasbeur, Kaminski et al. 2006). Independently of the approach we take over the long term evolution of these differentials, convergence, stability or divergence of the differentials, (Antonovsky 1967; Link y Phelan 1995), it is important to address them in contemporary societies. Showing their presence in different contexts and studying their composition will allow us to identify populations in greater risks and adapt public interventions to specific situations. (Rodríguez, Regidor et al. 1995).

Infant health, -particularly health at birth- is a key dimension to study these differentials as the factors influencing that moment can be restricted to only those related to maternal health and social class. Accordingly, some of the factors affecting adult differentials can be avoided (such as the debate over the health selection of social class vs. the causative effect of social health on health; fetal programming vs. insult accumulation theory, etc).

Children's health is generally studied in relationship with low birth weight as this indicator is generally taken as its predictor because of its close relationship with mortality around birth and morbidity across the life course (Barker 1995; Paneth 1995; Barker 1998;

Barker 2001). The important association between birth weight and maternal or family's socioeconomic status have already been described and studied in several contexts as well as the specific mechanism through which better socio-economic levels are translated in better indicators at birth. Accordingly, several risk factors and dangerous habits and behaviours have been described as associated with lower socio-economic status, that may be linked to an increased risk of low birth weight (Jansen, Tiemeier et al. 2009). However, there has been some ambiguity in the use of the concept socio-economic status in this type of research, particularly caused by the indistinct use of different variables to fit one concept of socio-economic status and the difficulty of capturing women's social class or socio-economic status. This has created a lack of clarity on the real implications of these differentials found in the literature and, consequently, on the possibility of designing efficient interventions to reduce them.

This article precisely aims to fill this gap, studying the implications of different operationalizations of socio-economic status on the study of low birth weight differentials. Firstly, we will study health differentials focusing on different measures (mother's occupation and education), exploring the possibility of interchange or complementary use. Secondly, we will consider the explanatory power offered by father's occupation and the effect that its introduction may have over mother's indicators of children's health.

BACKGROUND

Theoretically, income, education and occupation are considered to be closely related although they refer to different dimensions of social stratification (Kunst y Mackenbach 2000:17) that can account differently for the structural or contextual characteristics of the individuals responsible for those health differences. However, although it is clear that in no account they can be interchangeable, in practical terms they are becoming so as the practice of using one of them and refer to the models as "controlled by socio-economic status" grows.

This phenomenon has several implications for any research on health inequalities as it poses serious problems of comprehension and comparability in general but it is particularly important when studying perinatal outcomes related to women in reproductive ages for two reasons: the lack of identity between occupation and education in the population of young adults in general, and the specificity of female vital trajectories in that context.

On the one hand, for populations in reproductive ages education and income are not interchangeable at all. Establishing a direct correlation between income level and maximum level of education attained is very problematic in a population of young adults as an optimum economic situation may not have been reached yet while the educational level may have already been acquired. However, the lack of identity between income and education is not necessarily only restricted to that younger ages and it can appear also later in life. This lack of correspondence between education and income can be found in several contexts caused by intrinsic characteristics of the labour market.

On the other hand, women's life, work and reproductive trajectories have a set of particularities that differentiate them from men's (Borrell, Rohlf's et al. 2004) and that complicate further this lack of correspondence making occupation as a particularly defective measure to study their socio-economic status. As women's professional careers develop in parallel to their reproductive project, for some women the family project may determine the rhythms and sequences of the work trajectory while for others work opportunities may condition the access to maternity for others (Baizán 2006; Cordero 2009). This situation, direct or indirectly, affects contextual indicators as occupation and income but not necessarily affect her socio-economic status. For example, a newborn can provoke a temporary exit of the labour market conditions for a series of years with no decrease in living conditions or socio-economic status.

In spite of the specific and general problems outlined above, in general education, occupation and income are still loosely viewed as interchangeable. In that sense, information gathering tools do generally only collect one and it is generally occupation. For example, statistical bulletins designed for the general population only record occupational status. The generalized precedence awarded to occupation is not surprising due to the role that it has had in sociology as the cornerstone in all the efforts of social class categorizations. However, social class indicators, as those of Goldthorpe or Wright (Wright 1977; Goldthorpe 1983), have met with some criticism because of their to capture women's social class through occupation solely. (Salido Cortés 2001).

The same social stratification theories that support the use of occupation as the main variable support the use of father's as an indicator of the family's socio-economic situation to avoid some of the limitations related to using mother's occupation. However, this poses different problems from different the point of view of the measure itself, its interpretation and

its implications. In the one hand, father's occupation is not excluded from lack of general correspondence between occupation and education. In the other hand, father's occupation is a measure hard to interpret. Fathers are not always present and when they are present it is not totally clear what their information provides. Moreover, defining fathers as head of household is a tricky question nowadays. And, lastly, this preference of the father's information over the mother subordinates mother's information and rejects its specific contribution to family health.

Although some other health differentials have already been studied -occupational changes and income (Dooley y Prause 2005; Mortensen, Diderichsen et al. 2009)-, there is still an overarching preference for mother's educational level as the best variable to study health differences. In this sense, an important corpus of literature for developing countries has found a consistent association between infant health and mother's education. These findings have served not only to further research but to implement public intervention measures destined to improve maternal education in order to reduce infant mortality. (Caldwell 1979).

In practical terms the selection of the variable that will proxy socio-economic status always depends on the availability of the sources. In Spain, particularly, socio-economic differences in birth weight have only been addressed using occupation as the explanatory variable (Rodríguez, Regidor et al. 1995) as up to the year 2007 (when education was included) occupation was the only available variable in the statistical bulletins that provided information on birth weight.

For Spain in 1988 these authors found that staying-in mothers had a 13 to 16% higher risk of delivering children with lower birth risk when compared to those working outside (for both term and preterm babies, respectively although in the latter one the differences were not significant). Additionally, fathers engaged in manual work had a 21 to 26% higher probability of having low birth weight children than those devoted to non-manual occupations (Rodríguez, Regidor et al. 1995:39).

More recently in 2008, Castro found that women in the labour force (professional or not) had a lower probability of having a low birth weight child, 7 and 5%, respectively. Professional fathers also experienced an advantage of 8% compared to the rest of fathers (Castro 2010:818). And, in one of the first uses of the variable education of the new bulletin, she found a clearly significant socio-economic gradient using that variable.

Due to data limitation until recently, the availability of information on mother's education has not been properly incorporated to research in the Spanish setting. And when it has been included, however, its specific role has not been properly addressed because it has been used as a control variable. In this sense, this work attempts to open a space for discussion over the importance of the theoretical conceptualization, at the same time that we offer empirical results for the decision-making process making use of all available information regarding socio-economic status.

DATA AND METHODS

In order to address the effect of the different conceptualizations of socio-economic status on the detection and understanding of inequalities it is necessary to use a source that can complete the partial information offered by the published sources. For these reasons, this study has used the Population Registry of Andalusia (REPA), a source compiled from the nominative linkage of administrative records and vital statistics under development by the Institute of Statistics of Andalusia (IEA) to follow the vital trajectories of the population that at some point in time resided or experienced a vital event in the Autonomous Community of Andalusia (Spain). Andalusia, with almost 8 million inhabitants, represents around 20% of total population of Spain.

In order to obtain a dataset adequate for our purposes, we have vital statistics data (Movimiento Natural de la Población –MNP) nominally linked to the 2001 Census. The selection criteria for the vital statistics followed has been: a) vital events experienced only by mothers residing in Andalucía; b) births taking place in 2002 (in order to link them back to 2001 census and obtain information before childbirth; c) live and singleton births. Accordingly, taking all those criteria into consideration, we reduced the sample to 79.437 cases from the original 83.202 births that took place in the Autonomous Community of Andalucía in 2002.

From that total, 87% of cases were successfully linked with the census information, allowing a final sample of 69.280 births. There is a slight tendency for foreign, single and unemployed women and homemakers to be less likely to be linked with their census information. The assessment of the linkage, though, suggests that this slight bias is not a

serious problem for the analysis as perinatal indicators do not differ sensibly between linked and un-linked cases.

The use of census information allows us to include mother's education, information not recorded in MNP statistics until 2007, and to be able to have better information on the occupational situation. The variables related to mother's occupation from the census have been used to create a better occupational classification than that reported in the birth bulletin that do not differentiate situations of homemakers with those of unemployed and professions of difficult classification (up to 17%).

The dependent variable used in our analysis is birth weight and we have defined low birth weight using the common threshold adopted by the literature (below 2,500 grams - 5lb 8oz-). However, we have computed the optimal threshold following Wilcox's proposal (2001), that takes on the value 2.250 grams for the whole population. The models have been fitted for the two thresholds but, in this work, we have only included those estimated for 2,500 grams to be consistent with the literature as the effects that we have found do not vary significantly. Logistic regressions have been used.

As independent variables, we have used mother's education and occupation and father's occupation. Mother's variables have been extracted completely from the census while father's information has been extracted from the statistical bulletins.¹ Maximum level of attained education has been divided in three levels (Incomplete Primary School, Secondary and Vocational Training and University Studies), with a residual category of cases with missing information (15) that have been excluded from the final models. Occupation has been classified in four categories for mothers (those employed in professional and qualified positions; low level employed; homemakers; and unemployed and students) plus a residual category with missing information (237 cases).

In the case of fathers, due to the problems described in the registration occupation in the birth bulletin, we have classified it in slightly different categories, trying to keep a certain degree of homogeneity with mother's classification: high and medium level employed; low level employed; unemployed and devoted to homemaking (although it is likely that not all

¹ Despite the scant missing information for census variables, 16% of specific questionnaires (from which individual information is derived) were imputed. To control for this source of uncertainty, we have re-estimated all models for the non-imputed population with no significant changes.

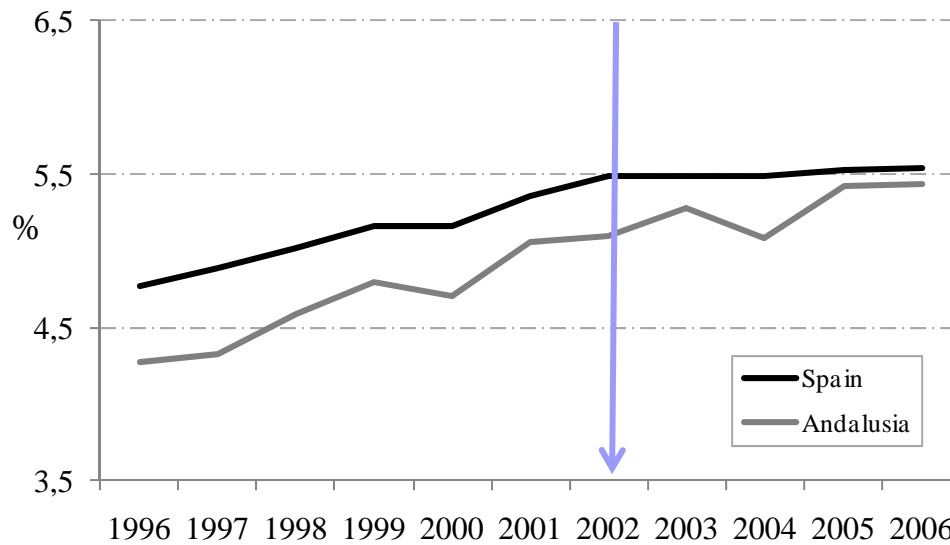
unemployed have been captured in that variable and some of them extend to the missing category); and a large residual category including “persons whose employment can not be classified” as cases actually missing.

Due to the absence of income as an explanatory variable, we considered the possibility of using household tenancy system as a proxy for the income level (rent/property) but we have found no statistical differences. However, it has been included among the possible confounding variables. Besides this variable, we have included several independent control variables considered important by the literature and available in vital statistics (origin, gestational age, age and marital status of the mother, birth order and sex of the newborn).

RESULTS

The prevalence of low birth weight has increased in the last decade as a consequence of a combination of factors: the increase of the survival threshold, the increase in tobacco consumption among the female population and the delay of the first maternity experience, among others. In this context, the low birth weight prevalence rates of the Autonomous Community of Andalusia have been always below the total for Spain, as can be seen in graph 1 (only taking into account live births). In 2002 the proportion of low birth weight cases was 5,39%, slightly lower than the national rate.²

² Computed only for live and singleton births.

Graph 1. Prevalence of low birth weight. Spain and Andalusia (1996-2006)

Source: Own elaboration from data published by the Spanish National Statistical Institute (MNP 1996-2006).

Beside regional differences, several important socio-economic health differences have been also described in general for the whole of Spain. In the next pages, we will focus on quantifying the extent of those socio-economic differences in the Andalusian context in the probability of delivering low birth weight children using different proxies for socio-economic status. Firstly, we will show how the health differentials obtained using mother information differ (mother's education and occupation). Secondly, we will include father's information to study its effect on health differentials and the impact of the introduction of this variable on them when mother's information is also present.

Mother's education and occupation

First, it is important to determine the socio-economic differentials that can be roughly observed when the descriptive analysis is carried out, as it is shown in table 1. We can observe that prevalence appears as a function of education as there is a clear social gradient. The percentage of children with low birth weight decreases as the level of final education attained increases. The same picture is not obtained when using mother's occupation. A clear difference can be seen between mothers engaged in highly qualified employment and any other situation but no differences can be found among low qualified employment or non-qualified, unemployment or even homemaking. When we turn to father's occupation a similar

pattern emerges, with an advantage for those with highly qualified employment when compared with the rest of categories. However, contrary to what occurs for mother's education, slight differences can be found between higher and lower qualified employments with a 90% confidence level (4,28[IC-90:4,0-4,5] compared to 5,70 [IC-90:5,5-5,9])

Thus, this first table confirms preliminarily what we posited at the beginning: the use of education and occupation offer different information as they show two different inequality scenarios. The first one suggests a gradual effect (dosage effect) and the second one suggest polarization.

Table 1. Prevalence of low birth weight in relationship with mother's education and occupation and father's occupation

Occupation		
Mother information	N	<2,500
Low qualified employment	14193	5.64 [5.6-6.4]
High qualified employment	15294	4.56 [4.2-4.9]
Unemployed	17181	5.98 [5.6-6.3]
Home labor	17912	5.33 [5.0-5.6]
<i>Missing</i>	228	6.14 [3.4-10.1]
Father information		
	N	<2,500
Low qualified employment	40731	5.70 [4.5-6.4]
High qualified employment	14968	4.28 [3.9-4.6]
Unemployed	341	7.92 [5.3-11.3]
<i>Missing</i>	9616	5.76 [5.3-6.2]
Education		
Mother information	N	<2,500
Low	13389	6.81 [6.4-7.2]
Medium	39754	5.31 [5.1-5.5]
High	12499	4.12 [3.4-4.5]
<i>Missing</i>	14	14.29 [1.8-42.8]

This preliminary picture is confirmed by the adjusted OR shown in table 2, where we have included the variables in models on their own and along a set of confounding variables. The unadjusted OR are perfectly in line with the results showed for prevalence. Mother's education shows statistical differences among the three levels, confirming the gradient in the expected direction. Mothers with a lower educational level have a decreased probability of delivering a normal weight child (of 24%) when compared with mothers with High School

and Vocational Training Studies. And, in turn, University educated mothers had an increased probability of delivering a normal weight baby (30%). When the adjustment is made to account for other possible intervening factors, the effects do not vary.. The significance holds between the three categories but the differences are widened between lower educated and medium educated (21%) and narrowed between the latter and the University educated (30%).³

Table 2. Bivariate and Multivariate models including mother's education and occupation over the probability of delivering children with normal birth weight.

	Mother education		Mother occupation		Mother education & occupation	
	Unadjusted OR/IC-95	Adjusted OR/IC-95	Unadjusted OR/IC-95	Adjusted OR/IC-95	Unadjusted OR/IC-95	Adjusted OR/IC-95
Ref (1) = >2,500 gr.						
Education						
(High school & proff training)						
Incompleted primary school	0.76*** [0.71-0.83]	0.79*** [0.72-0.86]			0.77*** [0.71-0.83]	0.80*** [0.73-0.88]
College	1.30*** [1.18-1.44]	1.25*** [1.12-1.40]			1.29*** [1.15-1.44]	1.21** [1.07-1.36]
Occupation						
(High employment)						
Home makers			0.85** [0.77-0.94]	0.79*** [0.70-0.88]	1.04 [0.93-1.63]	0.90 [0.80-1.02]
Unemployed & student			0.75*** [0.68-0.83]	0.79*** [0.71-0.89]	1.07 [0.98-1.19]	0.88* [0.78-1.00]
Low employment			0.80*** [0.72-0.89]	0.83** [0.74-0.93]	0.93 [0.84-1.02]	0.94 [0.83-1.06]

Reference group: above the threshold. Adjusted for: gestational age, marital status, maternal age, birth order, newborn gender.

* p value <0,05;

** p value <0,01;

*** p Value <0,001; else not significant.

If occupation is taken as the main explanatory variable instead of education, the situation changes dramatically. As we saw before in the prevalence rates, the total effect of the variable on the probability of having a child with normal weight shows statistical differences between those with a professional and qualified employment compared with the

³ Cases with missing information in educational level have been drop as they were only 15.

rest of occupational possibilities. Among the latter group there are not differences to be found but in the missing category. After controlling for the relevant confounding variables, the results do not vary, showing robustness in the analysis.⁴

As education and occupation imply complementary information of the mother's socio-economic status and, in turn, we see different effects on their children's health, we can assume that they can not be taken as interchangeable measure. Still, it is important to study the level of overlap between them and to see what can be gained by a joint introduction.

In the last column of table 2 we have introduced mother's education and occupation to test their joint effect and their relationship is not mediated by the control variables as the results do not change with their introduction. The explanatory power of education captures the differences found between highly qualified employed and the rest of occupations so the differential formerly found in occupation disappears. This effect is quite logical due to the requirement of a University degree for the occupations classified here as professional or highly qualified employed. It is quite interesting, though, that controlling for education eliminates the main differences in occupation as they were actually an educational effect but it also gives rise to the appearance of a different occupation effect. A difference appears between unemployed/students and the rest of the groups, with a probability of delivering a normal weight child 12% lower than them, indicating a true occupational effect independent from education.

It is important to underline that this finding is quite a novelty as the traditional classification of the statistical bulletin does not allow for this type of desegregation, including in the same category homemakers and unemployed women. That classification includes women voluntarily and involuntarily out of the labour force in the same groups when the risk factors and circumstances that affect them do not necessarily have to be similar. Thus, thanks to the use of this classification, we can see that the actual adverse risk was for those unemployed, underlining the lack of homogeneity between both categories.

⁴ An analysis of the different possibilities of coding has been performed and the results are consistent independently of the level of desegregation of the variable.

Father's occupation

In table 3 we show the results from the introduction of father's occupation in the models for whom we have used the information on occupation reported in the statistical bulletins as the lack of adequate census information for a large enough number of fathers.

These results show that, similarly to what happened with mother's occupation, the differences lie between highly qualified employments and the rest of the occupational situations, which are not significantly different from the lower qualified employed. The advantage for them is a 19% of increased probabilities of having a child with normal weight. Although we expected that there should be a clear difference between unemployed fathers and the rest of categories, the number of father's occupation reported as such is very small and it is likely that some of them could actually be included in the missing category. However, neither unemployed nor missing values show substantial differences with lower qualification employment so the reason for this situation has to be found elsewhere.

These results are quite robust as, when including the rest of control variables, there is barely any variation in the estimated OR, still pointing to an advantage to those fathers with higher qualified employment. The effects also hold when mother's variables are included so we can see that father's occupation offers information that can only be captured by the use of that variable.

However, to emphasize the meaning of the introduction of the different variables, it is necessary to comment briefly the effect of the joint introduction of father's and mother's information. Mother's education and father's occupation clearly offer complementary information as neither the estimations nor the significance levels are affected in the joint introduction. However, the introduction of father's occupation completely eliminates mother's occupation effect (independently of whether education is present or absent in the model).

Table 3. Effect of father's occupation in the probability of having a baby with normal birth weight (OR). Unadjusted and adjusted models.

	Complete model		Adjusted complete models		
	Unadjusted OR/IC-95	Adjusted OR/IC-95	OR/IC-95	OR/IC-95	OR/IC-95
Ref (1)= >2,500 gr.					
Father occupation					
(Low employment)					
High employment	1.35*** [1.23-1.47]	1.31*** [1.19-1.45]	1.20** [1.078-1.34]	1.26*** [1.13-1.40]	1.19** [1.07-1.33]
Unemployed & home-markers	0.70* [0.47-1.04]	0.73 [0.48-1.13]	0.74 [0.48-1.15]	0.74 [0.48-1.14]	0.74 [0.48-1.15]
Mother education					
(High school & proff training)					
Incompleted primary school			0.81*** [0.74-0.88]		0.81*** [0.74-0.89]
College			1.18** [1.05-1.32]		1.15* [1.01-1.30]
Mather occupation					
(High employment)					
Home makers				0.84** [0.75-0.94]	0.92 [0.82-1.05]
Unmeployed & student				0.84** [0.75-0.94]	0.90 [0.80-1.02]
Low employment				0.88* [0.78-0.99]	0.96 [0.85-1.09]

Reference group: above the threshold. Adjusted for: gestational age, marital status, maternal age, birth order, newborn gender.

* p value <0,05;

** p value <0,01;

*** p Value <0,001; else not significant.

DISCUSSION

Our results show that mother's education has a significant and robust effect on perinatal health while mother's occupation is affected by other variables included in the model. Father's occupation seems to contribute with information not contained in mother's variables but it can not replace them. Additionally, the available variables available to us do not exhaust the space of the socio-economic context that could be further accounted for with variables such as income.

These findings have highlighted key issues for this type of studies. First, mother's education and occupation are not interchangeable variables when we are assessing socio-

economic differences in young women's reproductive health. Secondly, and related to the previous one, mother's education is linked to wider and maybe more stable dimensions of health that can not be captured by occupation.

The significant effect of education and the weak effect of occupation are maybe due to the specific structure of society such as the Spanish one, that shows an important imbalance between educational level attained and occupation and between occupation and disposable income (Marcu 2008:152-161). This lack of correlation between occupation and education seems to be at work in countries with segmented labour markets self-sustained by this feature. This type of situation can be also found in societies with important increases in ascending social mobility in a couple of generations unaccompanied by a similar increases in adequate employment opportunities. This produces the existence of a much higher number of University educated individuals than the absorption capability of the labour market, leading to an over-qualification of workers (Serracant Melendres 2005:200), who are forced to work in employments below their academic qualifications. This education-occupation imbalance extends to individual disposable income as it is linked to occupation. Although income could not be included in our models, it is quite possible that the differentials obtained when using it could be very similar to those obtained by using occupation.

Secondly, there is a certain complementarity between father's and mother's information when explaining differences in birth weigh. The predominance of father's occupation over mother's when included together implies a much stronger relationship between father's occupation and risk of low birth weight that absorbs mother's situation.

This finding could give rise to the hypothesis that there is a stronger relationship between father's occupation and contextual material conditions of the family (where mother's occupational situation is subsumed) while mother's education captures more structural elements of the newborn's health. This finding also underlines, in a more general perspective, the differential position of men and women in the labour market and their contribution to children's health.

In this sense, if the weakness shown by mother's occupation is related to her vulnerable situation in the labour market, it is possible that father's occupation may work as a way of representing mother's education in the occupational stratification. Father's occupation represents mother's education but, contrary to classic approximations to social structure, it operates complementing it. Mother's education is a fundamental socio-economic measure of

the child's health, directly or indirectly. In this sense, our results are in line with the mechanisms suggested by the literature (for developed countries) that relate improvements in mother's education with better perinatal outcomes (less probability of low birth weight) through a better placement in the marriage market (Currie y Moretti 2003:1498), by allowing more educated mothers to choose partners with similar socio-economic status. In this sense, several studies for the Spanish context suggest the existence of educational homogamy as the preferred option (Esteve y Cortina 2005).

In summary, our results fully support Bloomberg et al results that found that education was the socio-economic dimension that most strongly predicts health, particularly mother and child's health (Kramer, Séguin et al. 2000:196).

The role of mother's education on reproductive outcomes has already been described by demographic literature and its importance has even been underlined as part of the factors leading to the decline on mortality during the demographic transitions. However, the mechanisms through which mother's education operated as a protective factor for children's health not necessarily have to be the same in developing and developed countries.

For the former, mother's education has been shown to operate through access to health programs and information, domestic child care and rising of living standards (Caldwell 1979; Cleland 1989) while for countries in the Second Demographic Transition the discourse has been focused on socio-economic dependent lifestyles and infant health. Accordingly, numerous studies have addressed risk factors responsible for the relationship between education and low birth weight. Among them, two of the most important factors are smoking and overweight, whose variable prevalence in the different educational levels explains most of the educational differences. In fact, the explicit introduction of these factors in the models decreases in a 77% the explanatory power of education on birth weight. (Jansen et al 2009)

Undoubtedly, the effect of mother's education on birth weight is mediated by its capacity to engage in healthy behaviour during their lives in general and during pregnancy in particular. However, using Bongaart (1978) terms, these "proximate determinants", the specific mechanism through which education works, should not diminish the importance awarded to the "ultimate health determinants", in this case education, where social inequalities are located and where public policies should be directed. In this sense, this work helps this cause underlining the role of mother's education as part of these ultimate health

determinants and insisting on the causal mechanisms through which education operates in newborn's health.

The advantages of a higher level education are so important that they can counteract other risk factors of social origin, such as being born outside of marriage. In Spain the classic married-unmarried differences still persistent for the population in general completely disappear for those women with University education (Castro 2010).

Without rejecting the advantages offered by socio-economic status composite indicators in health inequalities, this study reminds us that it is still necessary to keep the debate open over the theoretical considerations justifying the use of each of the different available measures. Although education is considered as a key variable that operates in different levels according to the context there are also some evidences that challenge this role and show that the debate is not completely closed. Recently, some authors have downplayed the contribution of mother's education, at least for developing countries, by underlining the association between mother's education and the specific socio-economic context, of which it acts as a proxy and that would be the actual responsible of the decline of mortality. (Desai y Alva 1998). In this line, it is extremely important to include more aspects and variables in the analysis to account for possible confounding effects.

Finally, we believe that it is really necessary to continue improving the tools for gathering information to properly record occupational situation of women in reproductive ages. It is essential to ask about occupational situation before pregnancy and future aspirations once the reproductive project has already started. Along with a good recording of occupation, education has to be a key part of the socio-economic analysis and be properly taken into account or even reflected upon when it is not present.

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