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levels during the early stages of industrialization.
Catalonia (1850-1925)**

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THE RISE AND DECLINE OF CHILDREN'S LABOUR PARTICIPATION LEVELS DURING THE EARLY STAGES OF INDUSTRIALIZATION. CATALONIA (1850-1925)¹.

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ABSTRACT

This article aims to analyse the reasons for the intensive use of child labour in the 19th century and its subsequent decline in the first third of the 20th century in the context of an economy with a highly flexible labour supply like that of Catalonia. During the second half of the 19th century, factors relating to family economies, such as numerous families and low wages for adults, along with the technologies of the time that required manual labour resources, would appear to explain the intensive use of child labour to the detriment of schooling. The technological changes that occurred during the first third of the 20th century, the demographic transition and adult wage increase (for both men and women) explain the schooling of children up to the age of 15 and the consequent practical abolition of child labour in that new era of economic modernisation.

Key Words: child labour market, human capital, family strategies

1. INTRODUCTION

¹ The author would like to express her gratitude to José M. Borrás-Llop and Xavier Sala-i-Martin for their advice and suggestions which helped to improve the final draft of this paper. Most of the empirical basis for the analysis set out here can be found in Camps i Cura (1996): "Family strategies and children's work patterns: Some insights from industrialising Catalonia" in Hugh Cunningham, Pier Paolo Viazzo, Child labour in historical perspective, 1800-1995, Unicef, Istituto degli Innocenti, Florence. Case studies from Europe, Japan and Colombia. Also Camps-Cura, Enriqueta (1998): "Transitions in women's and children's work patterns and implications for the study of the family income and the household structure", *The History of the Family. An International Quarterly*, (3:2).

The study of child labour in the past not only has historical ramifications, but also has a bearing on the study of labour markets in developing countries today. Thus, the analysis of the early stages of industrialisation in certain European countries and regions, although it has not yet been logically extrapolated, sheds light on various aspects of the early stages of economic development: the extensive use of child labour, extremely rapid urbanisation, rural-urban migration and overseas emigration, among others.

In addition, in both scenarios -to the extent that generalisation can be valid-, household life shows a variety of differentiating characteristics in comparison with developed societies. We aim to show that during the initial period of industrialisation and the during the interwar period, families made highly flexible use of their human resources, including their boys and girls,² and that the strategies applied by families to deal with the prevailing economic and demographic circumstances were logically adaptive.

In any analysis of labour markets focussing on a specific sector of the population, such as boys and girls, the first question that must be asked is whether the behaviour of those markets is determined primarily by factors of supply rather than demand. The first aspect of supply that we will attempt to explain is schooling or the lack of schooling. This is normally seen as the basic factor for explaining why children go from being employed to not being employed. A lack of family income or infrastructure for the schooling of children is also seen as one of the main causes of child labour. Literature on the formation of human capital states that the lack of schooling has medium and long-term effects, since it leads to slower future growth of per capita income. Therefore, the presence of boys and girls at school or in agricultural labour or factories appears, at first glance, to have consequences for later economic development.

² See Hareven, Tamara K, *Family Time and Industrial Time. Interdisciplinary Perspectives on Modern History*, Cambridge, Cambridge University Press, 1982. Horrell, Sara; Humphries, Jane, "Child labour in British industrialization" in Michael Lavalette, *Child labour in Britain in the 19th and 20th centuries*, Liverpool University Press, 1999; Wall, Richard, "Work, Welfare and the Family: An illustration of the Adaptive Family Economy" in Lloyd Blonfield, Richard Smith, Wrightson K, *The World we have*

In dealing with factors of demand, we must also differentiate between boys and girls, as they belong to different employment groups. Nevertheless, in general the most commonly recognised factors of demand are the low cost, obedience and dexterity of boys and girls in comparison with adult males. In the early stages of development, the availability of cheap labour appears to be a crucial factor in determining the demand for labour by enterprises. It is well known that cheap labour also includes women and we will attempt to show that from the standpoint of the family, women and children's contribution to income was largely interchangeable.

Besides the determining factors related to the market, child labour has given rise to other controversies since the publication of the first studies linking its rationale to the logic of family strategies. According to this view, which we share, family demography and kinship along with the wages of family members provide abundant evidence as to the reasons for a greater or lesser intensity of child labour and its subsequent elimination. The strategies and demographic characteristics of families, the child labour market and technological change would appear, as we will see, to be the three basic factors for the analysis of patterns of occupation by boys and girls. In addition,³ school truancy and the disregard for laws on the employment of women and children were often the most usual response to government regulation when families required the income of family members. Likewise, Spain's Social Reform Commission proved ineffective in its efforts to inspect the employment of women and children, particularly in the Barcelona area.⁴ Of course, we are not trying to justify child labour, as Catalan employers would in their references to the insufficiency of wages of the heads of families to cover the household needs. Nevertheless, it should be stressed that the employment decisions of children must be placed in the context of the nature of the labour market in the Catalan textiles industry

Gained, Oxford: Blackwell, 1986. Reher, David S; Camps, Enriqueta "Las economías familiares dentro de un contexto histórico comparado", *Reis*, 55 (1991).

³ Borrás Llop, José María, "El trabajo infantil en el mundo rural español, 1849-1936. Género, edades y ocupaciones" in José Miguel Martínez Carrión, *El Nivel de Vida en la España Rural*, Publicaciones de la Universidad de Alicante, 2002.

of the 19th century.⁵ The textiles industry in Catalonia ran a labour market with highly elastic labour supplies and therefore low wages. In this context, the main objective of this manuscript is to show how family economies adapted in terms of mobilisation of their own resources to the situation of economic hardship.

Below, we will attempt to outline the logic of child labour in the 19th century on the basis of the characteristics of the labour market of that time, family strategies and demographics, and the technologies in use. The third part of this study will analyse the initial decline of child labour in the period between the wars, by means of the aforementioned analytical framework.

2. CHILD LABOUR AND FAMILY ECONOMY DURING THE INITIAL STAGE OF INDUSTRIALISATION

The data available on the age at which children began work in the first Catalan factories varies widely, depending the documentary sources consulted. The censuses of workers from the middle of the 19th century (1858–1863) in Catalan municipal archives generally give an age of approximately 10 for commencement of employment in factories. On the other hand, in the context of the city of Barcelona in 1856, Ildefons Cerdà⁶ gives 8 as the age at which children entered active employment. Felipe Monlau and Joaquim Salarich⁷ state that in inland Catalonia, employment began at the age of 6. In other words, children started working between the age of 6 and 10. Given the unanimity of censuses on workers that establish 10 as being the age at which children started work in factories, we will use this hypothetical minimum age to calculate the family income of factory workers. Nevertheless, and in spite of the government's

⁴ Borrás Llop, José María, “El trabajo infantil en la industria barcelonesa según el censo obrero de 1905”, *Historia Social*, 33 (1999).

⁵ Camps, Enriqueta, *La formación del mercado de trabajo industrial en la Cataluña del siglo XIX*, Ministerio de Trabajo y Seguridad Social, Colección de Historia Social, Madrid, 1995.

⁶ Cerdà, Ildefons, “Monografía estadística de la clase obrera de Barcelona en 1856” in *Teoría general de la urbanización. Reforma y Ensanche de Barcelona*. Madrid, 1987.

⁷ Monlau, Felipe; Salarich, Joaquim, “Higiene pública” in José María Lopez Piñeiros, *El testimonio de los médicos españoles del siglo XIX acerca la sociedad de su tiempo. El proletariado industrial*. Madrid, 1960.

recommendation for children between the ages of 6 and 9 to go to school, there is evidence to prove that in Sabadell, boys and girls received one and a half years of schooling, often between the ages of 5 and 6.⁸ We can assume, then, that before starting work at the factory at the age of 10, children would have been helping their parents with auxiliary piecework or other tasks, in small family enterprises that do not figure in the censuses of workers,⁹ or with work carried out in teams for which the company payrolls only name the supervising adult. Nevertheless, the fact that children left school at such an early age shows the unquestionable need on the part of families for supplementary income to support them by mobilising their very young offspring.

According to the same censuses of workers, the duration of the active working life in factories was from the age of 10 to 60 for men and 10 to 30 for women. In other words, men remained in the paid employment market throughout their lives, while women did so as children, adolescents and young mothers.

On the basis of the definition of age to which we refer as child labour, the second question that we must ask is the quantitative importance of child labour in the textiles industry. Most of the quantitative information used in this article concerns the town of Sabadell.¹⁰ This is not merely coincidental. Sabadell is a representative example in Spain of a town with a higher, sustained population growth throughout the 19th and 20th centuries, due to immigration. The labour census for 1858 shows that children made up approximately 21 per cent of the workforce in the wool and cotton textiles industries. To this end, let us recall our earlier mention of the fact that censuses of workers do not record auxiliary work done by children and therefore underestimate labour by children aged 6 to 9. We believe that the occupation rate for children must have been

⁸ See Borrás Llop, José María in this issue.

⁹ In spite of the rapid shift to factories in the textiles industry, many other trades maintained their handicraft status until the end of the century, including tinsmithing, boilermaking, ironworking, carpentry, sewing and tailoring, etc. The workers census of 1858 only records factory employees and not those of small businesses. We believe that a part of child occupation between the ages of 6 and 9 must have been in this sector and in auxiliary work for their parents. For the underestimation of child labour in domestic production, see Camps, *op. cit.*, 1996.

higher, since the local rates for adults in the textiles industry were 31 per cent for men and 28 per cent for women. In any event, it is impossible at present to accurately specify the rate of child labour in the textiles industry, which must have been in the region of 25 per cent. Nonetheless, the rates of child labour participation in 1858 compared to those in 1849-50 suggest that during these years the industrial sector began to make increasing use of children's labour¹¹. Since in this period Sabadell's industry witnessed a quick process of mechanisation we could infer that this fact was the cause of the intensive use of children's labour. Previous handicraft technologies usually conceive children's work as a byemployment and this is the reason why it was rarely registered. Nonetheless, and in the absence of statistical evidence in the manual era, we can only guess that the intensity of children's labour increased with the initial technological change leading to industrialisation.

On a different level, it is interesting to note that, during the initial stage of industrialisation in Catalonia, the work of mothers and children was interchangeable, at a time when the demographic transition was still at its earliest stages.¹² On the one hand, it is important to stress that the number of children born and living with their parents was high and therefore constituted a substantial contribution to the amount of work that the family could do. In connection with the work of mothers, this meant that they could not dedicate themselves exclusively to paid employment. In fact, as already mentioned, women worked in factories in the 19th century up until they were 30–35. This appears to be a universal pattern in female labour as seen in Catalonia in 1858, in England and Wales in 1851, in Japan in 1879 and in the US at the end of the 19th century.¹³ There is abundant evidence that this did not mean the underuse of women's potential for work. In the context of large families and given the technologies in use at the time in domestic tasks, social and demographic reproduction required huge amounts of work. Thus,

¹⁰ Our results on family strategies apply in fact to the general framework held by Hugh Cunningham (2000): "The decline of child labour. Labour markets and family economies in Europe and North America since 1830", *Economic History Review*, LIII, 3.

¹¹ Se Camps (1996).

¹² See Cabré Anna, *El sistema català de reproducció*, Barcelona, 1999; Nicolau, Roser, *Trajectoires regionales dans la transition demographique espagnole*, doctoral thesis, Paris, 1990.

¹³ Goldin, Claudia, *Understanding the Gender Gap*, OUP, 1990; Hareven, Tamara K, *Family Time and Industrial Time. Interdisciplinary Perspectives on Modern History*, CUP, 1982.

some approaches suggest that domestic tasks led women to work more hours than men¹⁴ in the lower strata of society where families had no domestic help or wet nurses. The work requirements stemming from demographic patterns and the remunerated and unremunerated economic needs of families would both appear to be crucial factors in explaining the greater intensity of work by women.

Having many children did not only mean an increase in mothers' workloads. In fact, children constituted an important source of income for families. Taking 10 as being the hypothetical minimum age at which children began, when they began receiving an individual wage, they became the financial basis of the family economy when the head of the family reached the age of 50, prior to commencement of their inactivity. The precariousness of levels of welfare in the Catalan context provides a convincing explanation as to why families would prefer remunerated work for their children rather than their schooling. The lack of supplementary income, mothers' devotion to the demographic reproduction of families and its high cost are all factors that explain the motivation of working families in their choice of child labour over schooling.

But other reasons must also have existed. The other main reason was that 19th-century factories, before the advent of white-collar jobs, did not demand formal education.¹⁵ In fact, one of the conditions imposed by employers when taking on new workers was that they had completed formal manual apprenticeship in trade workshops or in factories.¹⁶ To a large extent, then, the demands for human capital by employers in the 19th century were limited to learning how to use the equipment and subsequent continuance with the job, with workers adapting to technological change through the accumulation of knowledge from day-to-day experience of trial and error. In

¹⁴ Wall, Richard (1994): "La contribución de las mujeres casadas a la economía familiar bajo distintos sistemas familiares: algunos ejemplos de mediados de siglo XIX a partir del trabajo de Frederik Le Play", *Boletín de la Asociación de Demografía Histórica*, XII (2/3). This view is further detailed in Borderías, Cristina, "Suponiendo que ese trabajo lo hace la mujer. Organización y valoración de los tiempos de trabajo en la Barcelona de mediados del siglo XIX", in Cristina Carrasco, *Tiempos, trabajos y género*, Universitat de Barcelona, 2001.

¹⁵ Goldin, *op. cit.*, 1990., Hareven, *op.cit.* 1982.

¹⁶ Camps, *op. cit.*, 1995.

other words, if working families wished to ensure that their children had a future as employees in the textiles industry, they had to start at the factories at an early age.

This all helps to shed light on the imminence of child labour in the context of industrialised societies in the 19th century, regardless of whether we approach it in terms of labour supply or demand. In turn, the results set out clarify the validity of the use that has been made of such indicators as schooling in this context to measure the formation of human capital.¹⁷ The labour required by emerging industries is manual labour and hardly requires schooling. This would appear to indicate that both families and industrial employers were greatly interested in child labour. This is why literacy levels in Catalonia are mediocre and very possibly limited basically to the middle and upper classes. Given the living conditions of workers, learning must have been a very low priority for them.

In addition, we can show that families made assigned their human resources rationally, including children. We have seen that children started working in factories at the age of 10 and mothers left remunerated employment at the age of 30–35, coinciding roughly with the time when their oldest child was able to begin contributing very supplementary income. Furthermore, the growth of income with age was stagnant for women throughout their working life. On the other hand, from the outset of their employment in factories, the income of boys and male adolescents was higher than their mothers' and grew steadily throughout their working life.¹⁸ From these different wage paths on the basis of gender, it may be deduced that it was logical for families to replace women in employment with children. It was not only logical, but also absolutely necessary. The domestic responsibilities of mothers gradually reduced their availability for remunerated work. On the other hand, children's work offered, in the medium term, higher income for families than mothers' work. The highly pronounced segmentation of the labour market according to gender and the demands of demographic and social reproduction

¹⁷ Nuñez, Clara Eugenia, *La fuente de la riqueza. Educación y desarrollo económico en la España Contemporánea*, Madrid, Alianza, 1992.

referred to earlier would appear to explain the logic of these dynamics. Furthermore, if we look at the nature of family economies towards the end of the century, in 1890, it can be seen that in such a demographic and family situation, no family member could afford the luxury of inactivity, not even for going to school, since the family's capacity for saving was most fragile even in the best of cases, when none of its members were idle. In fact, in that context, children's financial contribution to the household was indispensable, since it represented over half of the family income after the head of the family reached the age of 50, and its full income when the head of the family reached the age of 60 and became inactive.¹⁹ In this context, where the contribution by children and adolescents to the family economy could be critical, it is easy to understand why families disregarded official regulations (while not enforced) on schooling.

By way of conclusion to this section, we should stress that the demographic aspects of the family itself and its impact on women's work, the low standards of living and the working careers that had to start at an early age, all together, would appear to have led manufacturing industry to make intensive use of child labour. To this end, and due to the consequences of child labour on schooling, it is important to note that, at first glance, the causal relationship between schooling and economic growth must be approached cautiously at the initial stages of industrialisation.²⁰ We have attempted to show how informal and formal manual apprenticeship of trades was crucial for access to employment, while schooling played a secondary role. We do not mean to insinuate that apprenticeship did not involve the training of human capital. Nevertheless, this type of human capital is far removed from the indicators used by conventional historiography, based solely on literacy rates. We have calculated that for the company España Industrial, S.A. between 1847 and 1887, apprenticeship lasted 3 years.²¹ In the working life of an industrial worker, the alternative of schooling during those 3 years had an enormous opportunity costs, consisting mainly of the need to look to a different area of

¹⁸ Camps, *op. cit.*, 1995.

¹⁹ Camps, *op. cit.*, 1996.

²⁰ Núñez, *op. cit.*, 1992.

²¹ Camps, *op. cit.*, 1995.

occupation with lower growth potential than industry. In reality, to discern the effects of education on economic growth, we must wait until the 20th century, particularly after World War II, and the technologies and business management methods of that time.

3. INITIAL TRANSITION FROM CHILD LABOUR DURING THE FIRST THIRD OF THE 20TH CENTURY

In spite of mediocre rates of schooling in the 19th century, in the first third of the 20th century, Catalonia was one of the regions of Spain with that underwent fastest economic growth. It is well known that this coincided with the second energy transition, the birth of the first major firms and labour reforms. With regard to this last factor, it is worth noting that after World War I a substantial portion of the largest Catalan enterprises introduced standardised labour processes.

Another phenomenon associated with these decades is the rapid decline in the eventual number of descendants among the Catalan population. In 1930, Josep Vandellós wrote *Catalunya Poble Decadent* (Catalonia, A People in Decline) to express his concern for the very low fertility rate among Catalans. Anna Cabré²² calculates that in the Catalan reproductive system of the time (1920–1930) each woman of childbearing age did not succeed in reproducing a female to take her place and each man only barely succeeded in producing a male successor. If we look at the number of minor dependants in Sabadell in 1925, the results show that the average number was under two.²³ In other words, in the context of Catalonia, we can say that fertility dropped drastically, and was cause for alarm at the time. In addition, it would appear that one of the consequences of the serious decline in demographic reproduction was that the logic of families when deciding on alternative uses of children's time also underwent modification. It was undoubtedly a different situation for the family economy to have one or two children at home,

²² Cabré, *op. cit.*, 1999.

²³ Camps, *op. cit.*, 1998.

as was the case in 1925, in comparison with the moderately large families of the second half of the 19th century. During a substantial portion of the family cycle, one or two minor dependants did not represent an economic asset for the family compared with the number of children at the end of the 19th century.

If we follow the evidence provided by the case of Sabadell in 1925, another new consequence is the high degree of schooling of both boys and girls. The rate of schooling for children under the age of 15 was around 70 per cent. The age at which children entered employment in factories receiving individual wages rose from 10 in 19th century to 15. A number of the factors mentioned so far must have contributed to parents deciding to prolong their children's schooling.²⁴

On the one hand, we have already pointed out that contraception and the drastic decrease in the size of families meant that children's contribution to the family economy lost its traditional importance as a source of supplementary income. On the other hand, neither did it become less important as being the economic support for ageing parents and their critical situation in later life. As had been the case in the 19th century, in 1925 the children provided the largest portion of family income after their father reached the age of 50.²⁵ In spite of its small size, the family emerging through the demographic transition was flexible in the use of its economic resources. Thus, the absence of income resulting from the prolonged schooling of children was mitigated, as we will see, by remunerated work on the part of their mother and immigrant collateral relatives. Altogether, schooling up until the age of 15 is proof of the new concept implicit in procreation during this new phase and of the willingness of families to invest in the education of their children through the greater income obtained from the work of mothers and relatives.²⁶

²⁴ Camps, *op. cit.*, 1998.

²⁵ Camps, *op. cit.*, 1998.

²⁶ Camps, *op. cit.*, 1998.

Although it has not been conclusively shown, it would appear plausible that at this new stage, during the second technological revolution, industry in Sabadell demanded education. The view of local historians stresses, however, that during the first third of the 20th century the town's wool industry did not undergo much modernisation.²⁷ The extraordinary profits brought about by World War I were not reinvested in the manufacturing industry. Nevertheless, the structure of occupation in Sabadell during the 1920s suggests that the industrial framework was in fact transformed: new industries appeared, such as gas and electricity, and others, including metallurgy and metalworking, grew. From the standpoint of labour markets, there are other results that allow us to clarify the view that industry did not modernise. Although we have not followed up the business sources that would allow for linear tracking, a cross section of ages and income on the basis of occupation does provide evidence to the effect that company labour structure changed in comparison with the 19th century, even in the textiles industry (see *Tables 1 and 2* in the annexe).²⁸

On the one hand, adult labour supply increased notably with the incorporation of more married women and immigrants from the rest of Spain. With regard to women, a consequence of the demographic transition in Catalonia was that it freed them from a part of their domestic workload and prolonged their working life from the age of 30 to the age of 40. Mothers' increased availability also meant they were able to increase their income as they progressed in their active life, although that income was still considerably lower than men's. To a certain extent this was also due to factors of demand. *Table 1*, which gives a selection of significant occupations, shows the hypothetical movement of women by sequences of promotion within textiles enterprises. Women and girls would commence their employment with training and then

²⁷ Deu, Esteve, *La indústria tèxtil llanera de Sabadell, 1896-1925*, Nova Biblioteca Sabadellenca, Sabadell, 1987.

²⁸ *Tables 1 and 2* do not show all occupations in the textiles industry. The documentary source for the information given here is the Municipal Register of Inhabitants for 1925, which, in addition to all demographic variables, gives the income of all family members. In the first place, we worked with a random sample of 6,500 inhabitants and almost 2,000 families, whose occupations are the only ones at our disposal. To draw up the tables, we took only those who were born in the town. It is our opinion that for immigrants, the average age for entering an occupation was not representative of their active working life.

be promoted to trades with the corresponding wage increases. It should also be noted that of all the occupations shown in *Table I*, the best paid is that of *knotted*, a job which started at the age of 16 on average. In fact, this occupation required a high degree of precision, concentration, dexterity and energy, and it seems logical that it should be carried out by younger women, while other tasks such as seamstress or launderer would be embarked upon towards the end of their working lives when their strength diminished. At the same average age as *knotted*, we find a new female occupation, that of typist, which required studies and was certainly still in its early stages. Note that, in spite of the fact that it was a non-manual job, wages were lower than for that of *knotted*, which, as we have mentioned, was highly complex. In fact, until the more widespread advance of technology, many manual occupations continued to be more complex and better paid than non-manual ones. Tables 1 and 2 also show that in 1925, the town's industry was still in its transitional state between tradition and innovation, as seen in the still pronounced predominance in the textiles industry of manual over non-manual trades. Nevertheless, the change in the pattern of the evolution of women's income in comparison with the 19th century is clear both in the succession of occupation and in wages spanning their working life. In other words, the labour market had become less segmented in so far as gender was concerned.

Although only incipiently, it can be said that the patterns of employment for women show that the labour market in enterprises was somewhat modernised, giving rise to new sequences of internal promotion in enterprises. Therefore, it also appears logical that the modernisation of labour and employment associated with the new technologies and management systems required formally educated employees, as in the rest of the industrialised world. So families wanted schooling for their children not only due to greater physical and financial availability, but also because it was an investment for the future in the industrial environment. In fact, youth education (ages 15–19) still only reached levels of under 10 per cent in 1925.²⁹ In addition, although our source (the Municipal Register) is not overly reliable as to the extent of education,

our results show only 3 secondary school graduates and no university studies among the juvenile population. Note that at the age of 15, when adolescents entered employment in 1925, they had normally completed lower secondary education, and this was the principal improvement on the 19th century. Very few young people continued their education to the upper secondary school level, which was the prerequisite for entering university. In fact, the case of Sabadell presents the paradox that its active population included a large number of workers from neighbouring cities, including Barcelona, which we suppose was the source of the people filling the top positions in industry.

By way of conclusion to this section, we can once again state that factors of both supply of and demand for manpower contributed to the decline of child labour in the context of Catalonia during the first third of the 20th century. On the supply side and in a context of rapid decrease in eventual offspring, child labour ceased to be indispensable for family economies except for supporting the elderly. However, in this case, we must speak of juvenile rather than child labour. The new availability of mothers for remunerated employment and the economic support of collateral relatives brought income to families that had previously been provided by child labour. In addition, we have seen that families were smaller, with only one or two dependant minors and with an average size of under four individuals. In turn, the growth of mothers' incomes over the course of their working life and the support of income earned by collateral relatives provided the economic basis needed to pay for children's schooling. All of these factors indicate, in fact, that in the short space of these decades, the very notion of childhood and reproduction was radically transformed, at least in Catalonia. It would appear that in view of this evidence, an indispensable point of reference is the work of Eduard Masjoan,³⁰ whose central working hypothesis is that the deep-rooted anarchist movement among the Catalan workers and thinkers of the time and with it the dissemination of neo-Malthusian reproductive

²⁹ Camps, *op. cit.*, 1998.

³⁰ Masjoan, Eduard, *Neomalthusianismo y anarquismo ibérico*. Icaria, 1997.

practices are factors that explain the aforementioned process of transformation of working families.

4. CONCLUSIONS. CHILD LABOUR, ECONOMIC DEVELOPMENT AND ADAPTIVE STRATEGIES BY FAMILIES

In the preceding pages we have attempted to show the rationality of the economic players involved, i.e. the members of working families, in the assignment of children's time to schooling and employment. The general conclusions that we can draw deal with issues of education and economic development, as well as the logic of adaptive family strategies in historical populations.

An initial fact that should be stressed in connection with the judgement that has been elucidated on the use of children's time in the past is that it is highly restrictive as regards what is understood as time dedicated to instruction, and economic literature on the formation of human capital is not restricted to schooling. Even the instruction that is expected to produce greater economic³¹ returns, the specific formation of human capital, is carried out basically on the job.³² This is relevant for the clarification of the paradoxes observed in the case of Catalonia and the controversies in connection with the low level of literacy in the region. We have attempted to show how during the 19th century factors of both supply and demand encouraged child labour rather than schooling. However, this does not lead to the conclusion that there was little investment in human capital in Catalonia. The human capital required by industry during the age of nascent capitalism was not schooling, but rather informal manual training during childhood and formal manual training during adolescence. It is to be supposed that employers had their reasons for preferring manual training and subsequent specific training in human capital rather than formal education. In other words, it would appear that in answer to the

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question of whether industrialisation needed greater formation of human capital in the case of Catalonia during the 19th century, we could reply negatively.³³ Perhaps results in the area of schooling were mediocre, but the endogenous factors acquired on the job show how children adapted to the demands of industry.

Furthermore, we see that families actively adapt to changes in the child labour market and cover their economic needs through the rational use of their human resources.³⁴ During the initial phase of industrialisation, in the 19th century, the intensive use of child labour appears logical, owing both to the uncertainty of subsistence and to the limited availability of mothers for remunerated employment. In addition, we have stressed that the work of women and children was interchangeable for the family economy, depending on their respective availability. During the first third of the 20th century, the first changes in the concept of childhood itself were assimilated by the Catalan population. Firstly, couples drastically reduced their fertility. This would indicate that for the first time couples were having only the children that they wanted to, particularly among workers who adopted libertarian ideology.³⁵ Secondly, this gave mothers greater availability on the labour market, which freed a part of the family's economic resources to pay for prolonged education for their children. All of this came about in the context of the second technological revolution, which demanded schooling.

Simplifying the situation greatly, the aspects mentioned above appear to confirm that in order to analyse the logic behind the use of both manual and intellectual potential child labour, we must not limit our search for explanations only to schools and factories. Family economies and all the factors conditioning them shed light upon the rationality of their decisions concerning work. This is an important factor for the evaluation of the results of campaigns in favour of schooling

³² Beckquer, Gary S., *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education*, New York, 1964.

³³ Rosés, Joan Ramon, *The Early Phase of Catalan Industrialisation, 1830-1861*, doctoral thesis, European University Institute, Florence, 1998.

for children in developing countries at present. It would appear that one lesson to be learned from history is that in the absence of changes in the demographic and economic conditions of the families involved, they will continue to take the same decisions on the assignment of their human resources and particularly children, in spite of government regulations. In our case study no government would have had the chance to undertake effective measures to abolish children's labour since it represented an important source of incomes for the household. Technological change, demographic transition and the impact of modernised labour markets resulting in less segmentation of the labour market according to gender would appear to be the main causes of decreased use of child labour in our case, as we have attempted to show in this work.

³⁴ In this connection, the recent synthetic article by Hugh Cunningham demonstrates the universal nature of our postulates. See Hugh Cunningham (2000): "The decline of child labour. Labour markets and family economies in Europe and North America since 1830", *Economic History Review*, LIII, 3.

³⁵ Masjoan, *op. cit.*, 1987.

TABLE 1. FORMAL EDUCATION AND WAGE-EARNING OCCUPATIONS IN THE TEXTILES INDUSTRY FOR NON-IMMIGRANT WOMEN ACCORDING TO AGE AND AVERAGE INCOME. SABADELL 1925

WOMEN'S OCCUPATIONS	AVERAGE AGE	AVERAGE WAGE (Pts/day)
School	8	
Apprentice	13	1.00
Apprentice seamstress, piecework	13	
Apprentice darner	14	3.88
Apprentice weaver	14	1.50
Looper	14	3.50
Apprentice spinner	15	3.67
Typist	16	3.50

Knotter	16	7.50
Student	17	
Stitch looper	17	5.00
Stitcher	19	4.71
Warper	23	4.86
Slubber	23	5.00
Weft winder	24	5.50
Weaving preliminary tasks	25	4.50
Spinning preliminary tasks	26	4.19
Weaver	28	5.5
Darner	30	4.88
Spinner	31	6.00
Finishing weaving	32	4.17
Day labourer	33	5.63
Seamstress	44	6.00
Lauderer	45	2.40

TABLE 2. FORMAL EDUCATION AND WAGE-EARNING OCCUPATIONS IN THE TEXTILES INDUSTRY FOR NON-IMMIGRANT MEN ACCORDING TO AGE AND AVERAGE INCOME. SABADELL 1925

MEN'S OCCUPATIONS	AVERAGE AGE	AVERAGE WAGE (Ptas/day)
School	8	
Apprentice finisher	11	3.25
Apprentice weaver	14	2.00
Worsted spinner	16	6.00
Finishing weaving	17	4.00
Student	17	
Presser	17	5.00

Loader	18	6.00
Theorist	19	8.00
Dyes and colourings	24	7.50
Office boy	25	8.00
Dyer	25	8.00
Wool washer	26	7.00
Factory day labourer	27	7.50
Finisher	29	8.09
Spinning day labourer	29	9.00
Spinner	30	9.20
Weaver	35	8.79
Weaving day labourer	35	7.74
Wool grader	44	9.00
Spinning preparation day labourer	49	9.50